



Human Capital Investment and Sustainable Growth of Deposit Money Banks in Nigeria

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Abstract

Deposit money banks in Nigeria are prominent establishments that actively seek out highly skilled individuals from the general talent pool. These banks allocate significant resources towards the recruitment, training, retention, and motivation of their employees. Typically, this investment in human capital contributes to their profitability. However, it is important to consider the broader impact of this investment on the sustainable growth of deposit money banks, beyond mere financial gains. There has been a limited amount of study conducted in Nigeria pertaining to the domain of sustainable development. Therefore, the objective of this study is to analyse the impact of investment in human capital on the sustainable expansion of deposit money banks in Nigeria. The study utilised an Ex-post Facto research design and employed the panel data technique to examine the impact of human capital investment on sustainable growth. Human capital efficiency and revenue per employee were used as proxies for human capital investment, while sustainable growth rate was used as a proxy for sustainable growth. The data for the study was obtained from the audited accounts of 12 listed deposit money banks for the period spanning from 2012 to 2021. The results of the study indicate that there is a negative relationship between human capital efficiency and the sustainable growth rate of listed deposit money banks in Nigeria. Additionally, the study found that revenue per employee contribution has a positive and statistically significant impact on the sustainable growth rate of these banks. The research findings indicate that the allocation of resources towards human capital development has a crucial role in fostering the long-term growth and sustainability of deposit money banks within the Nigerian context. The study suggests that it is advisable for deposit money banks to consistently allocate resources towards the development of human capital in order to enhance

the productivity of their personnel, thereby contributing to the long-term viability of their business operations.

Keywords: Sustainable Growth Rate, Deposit money banks, Growth, Human capital, Investment,

I. INTRODUCTION

The pace of technological progress has been notably swift in recent years, with the emergence of several cutting-edge technologies, including industrial robots, artificial intelligence, cloud computing, and machine learning. These advancements are progressively assuming a prominent role and transforming the methods by which individuals and organisations operate. This transformation is attributed to the perpetual human inclination to modify and enhance their environment. Throughout history, humans have consistently sought methods to improve and streamline various aspects of life. In light of this inclination, companies have recognised the potential of human ingenuity to generate a competitive edge, so bolstering their chances of long-term viability. Therefore, the current technological progress that is widely acknowledged is primarily propelled by human beings. Given that the primary goal of a business is to maintain its operations by consistently generating profits, it is crucial to acknowledge that the individuals responsible for driving the business play a pivotal role in achieving this objective. Consequently, it can be argued that among all the resources available to a business, the human element is the most critical asset within any organisation, as it encompasses the responsibility of managing the other resources of the organisation. Despite the fact that the true value of human capital as an asset is not yet acknowledged in organisational accounting, a substantial sum is presently allocated towards recruitment and ongoing enhancement of personnel capabilities. Human resources encompass the collective capabilities, educational background,



expertise, professional experience, and intrinsic drive of employees. These resources are enhanced and developed over time by various investments, including as expenditures on recruiting, training programmes, compensation packages, severance benefits, and provisions for health and life insurance. Typically, these investments are expected to result in economic expansion and the long-term viability of the enterprise.

The business sustainability of enterprises holds considerable importance and offers advantages to all stakeholders and the broader community. It encompasses the overall financial management of an organization's resources, aiming to secure its long-term viability and success in the business realm. Hence, it is crucial for firms to strategically include sustainable practises into their financial decision-making processes, including investments. According to Xu et al. (2021), investments contribute to the expansion of a company. However, when growth occurs at a rapid pace, it might strain the resources of the corporation, necessitating additional borrowing to avoid the risk of corporate insolvency. Insufficient management of growth and a lack of investment in human capital development to adapt to changing trends and business processes can pose a significant risk to the continuity of the company. It is imperative for an organisation to uphold equilibrium in its expansion by closely monitoring its sustainability growth rate (SGR). The growth rate is a multifaceted, long-term measure that pertains to the business and financial performance of the corporation. According to Xu et al. (2021), any form of growth that diverges from a sustainable growth rate can be classified as unsustainable growth.

Bordianu (2014) posited that human capital encompasses the driving force behind human intellect and innovation within an organisation. Furthermore, Pandey (2019) provided a definition of human capital as the collective knowledge, skills, competence, and attributes possessed by individuals that enable the generation of personal, social, and economic well-being. Human capital is classified as one of the intangible assets that generates significant value for businesses. However, its value is not able to be acknowledged in the financial statement of the organisation. The concept of being an asset entails the potential for its worth to both increase and decrease. By consistently allocating resources to enhance human capital, organisations can significantly increase their prospects of achieving higher levels of productivity, profitability, and ultimately, long-term sustainability. According to the findings of Kwarbai and Akinpelumi (2016), in

order for a tangible asset to contribute value to a company, it must be effectively utilised by the human resources inside that business. Therefore, in order to cultivate a competitive edge, it is imperative for organisations to effectively utilise their employees as a strategic asset to achieve the company's goals. According to the findings of Agbi et al. (2020), the significance of human capital efficiency cannot be overstated, as it plays a crucial role in determining the success or failure of a corporation. Regardless of the allocation of resources towards physical and financial assets, the absence of sufficient investment in human capital by a corporation may hinder its potential to achieve profitability.

Deposit money banks in Nigeria are at the forefront of contemporary practises, driven by knowledge-based resources. This is attributed to the organization's innovations and strategic thinking, which are derived from a strong human capital foundation. Financial institutions specialising in deposit services have consistently demonstrated their ability to attract and employ highly skilled individuals from a diverse talent pool. Furthermore, these firms continue to be at the forefront in terms of allocating significant resources towards the recruitment, training, retention, and motivation of their personnel. The deposit money bank assumes a significant fiduciary function within the economy, primarily tasked with the responsibility of effectively managing and safeguarding clients' deposits. The deposit money has strategically positioned itself to fulfil its legal obligations of duty of care, loyalty, good faith, and secrecy, with the aim of effectively attracting and retaining the most suitable candidates, as well as providing ongoing training and motivation for its employees. Given that an organization's primary source of competitive advantage lies in its human capital, the bank can proudly assert possession of a substantial asset in terms of the talents and abilities of its workforce. The allocation of resources towards the development of human capital is anticipated to yield a financial gain, hence contributing to the long-term viability of financial institutions.

Several academic studies have been conducted in Nigeria in recent years, exploring the relationship between human capital and profitability. For instance, Agbi et al. (2020) examined this relationship specifically in the context of the Oil and Gas sector. Kwarbai and Akinpelumi (2016) focused on industrial products companies, while Ocheni (2018) investigated the Oil and Gas sector as well. Additionally, Inyada (2018) conducted a study on this topic. Nevertheless, it



remains imperative to shift the focus from mere profitability to the enduring viability of deposit money banks. This entails examining the steady growth rate that a bank can attain without resorting to borrowing more funds, an aspect that has been largely overlooked in this context. This research endeavour aims to address the existing empirical void. The primary aim of this research is to investigate the impact of investment in human capital on the sustainable growth rate of deposit money banks that are listed in Nigeria. The study presents the hypotheses as follows:

H₀₁: Human Capital Efficiency does not have any significant effect on the business sustainable growth of deposit money banks in Nigeria.

H₀₂: Revenue per Employee Contribution does not have any significant effect on the business sustainable growth of deposit money banks in Nigeria.

II. LITERATURE REVIEW

2.1 Conceptual Framework

2.1.1 Human Capital Investment

Human capital investment refers to the allocation of resources by an organisation towards the development and enhancement of its workforce. These investments encompass financial resources allocated towards enhancing employees' knowledge, skills, education, and experience. They encompass various expenses such as recruitment and training costs, wage expenditures, as well as additional benefits including severance packages, bonuses, and health and life insurance. The aforementioned factors are essential for the preservation of employees' motivation and loyalty. According to Bordanu (2014), human capital refers to the driving force behind an organization's intellectual capacity and ability to innovate. According to Pandey (2019), the concept of human capital encompasses the intellectual, practical, and personal qualities possessed by individuals, which contribute to the development of their own welfare, as well as those of society and the economy. The measures of human capital encompass several factors such as education, experience, health, and migration. According to Backman et al. (2016), human capital encompasses several components such as education, experience, inherited abilities, and developed skills, which individuals utilise within their professional roles to generate commodities, services, and novel ideas and inventions. Indeed, the multitude of technology advancements in contemporary corporate operations is propelled by investments in human resources. According to Aybars and Oner (2022), the concept of human capital refers to the collective knowledge,

skills, competencies, experience, and individual values possessed by employees. Given the distinctiveness of these qualities among individuals, firms may face potential threats in the event of employee departures, perhaps leading to the loss of corporate memory. Human capital has been widely recognised as a significant driver of competitive advantage (Pandey, 2019). Consequently, large corporations invest considerable resources in acquiring top talent and thereafter strive to ensure their retention by providing strong incentives for employees to remain within the firm.

According to Oke (2010), it is crucial for successful and efficient firms to recognise the significance of their human resources, as the quality of their human capital significantly impacts their overall success. The quality of human capital, as discussed by Oke (2010), is contingent upon the knowledge and intellectual capacity possessed by employees and managers inside enterprises and organisations. According to Lambe et al. (2021), Backman et al. (2016) assert that the augmentation of worker productivity can be achieved through several channels by means of human capital, all of which are expected to have positive implications for the sustainability and expansion of organisations. For instance, the possession of significant human capital amplifies an employee's capacity to obtain and decipher information pertaining to expenses and inputs. The assertion made by Agbi et al. (2020) maintains that human capital is an essential asset for any corporate entity, as the proper functioning of all other assets owned by an organisation relies on human initiative. Human capital is comprised of the tacit and explicit knowledge possessed by individuals within an organisation. Additionally, the concept encompasses the aptitudes, proficiencies, and abilities possessed by employees, which are utilised in the execution of organisational tasks (Komnenic & Pokrajcic, 2012).

2.1.2 Human Capital Efficiency

The concept of Human Capital Efficiency (HCE) pertains to the assessment of the value contributed by the human resources inside an organisation, as discussed by Kwarbai and Akinpelu (2016). The Human Capital Efficiency (HCE) metric quantifies the extent to which each monetary unit invested in people, namely staff, generates value generated. The aggregate remuneration disbursed to personnel is commonly denoted as human capital. The statement refers to one of the three constituents of Value Added Intellectual Coefficients, as proposed by Pulic in 1998. The Value Added Intellectual Coefficient (VAIC) is a



quantitative approach employed to assess the efficiency of value creation within a firm. This method utilises accounting-based data to evaluate the company's performance (Pulic, 2000). According to Ståhle et al. (2011), the VAIC model incorporates intellectual capital, which encompasses both human capital and structural capital. In this framework, all expenditures related to personnel are assessed as human capital, and salary expenses are regarded as an investment rather than a cost, thereby excluding them as input factors (Pulic, 2004). The initial element under consideration is human capital efficiency, which is alternatively referred to as Value Added Human Capital (VAHU). Human Capital Efficiency (HCE) is a metric that quantifies the value generated per monetary unit invested in human resources, specifically the workforce. In this particular framework, the aggregate remuneration provided to personnel is denoted as human capital. The calculation involves determining the ratio between the value-added and the overall compensation and wages of employees. A significant critique of the model pertains to its limited consideration of human capital (HC), which primarily emphasises wage and other costs associated with employees, while neglecting to incorporate expenditures associated with employee training. The VAIC model is widely utilised in various contexts owing to its straightforwardness and capacity to facilitate comparisons across different firms and sections. Moreover, the requisite and essential data can be readily accessed from audited financial statements, which are publicly accessible.

The formula $HCE = VA/HC$ represents the relationship between HCE, VA, and HC, where VA denotes the value-added and HC represents the total salary and earnings of employees. The concept of value added can be defined as the difference between the output and input of a certain process or system. The output variable reflects the total revenues generated by a firm, whereas the input variable represents the costs incurred by the business, excluding employee wages.

2.1.3 Revenue per Employee Contribution

The revenue per employee contribution is a metric commonly employed in organisational analysis to assess the effectiveness of revenue generation on an individual basis inside a given organisation. The assessment of the revenue-per-employee ratio holds significance in evaluating the efficacy and output of the typical employee inside a business. Wadkj and Mos (2021) assert that the productivity of human capital significantly impacts

organisational financial performance, specifically in terms of profitability. Organisations that exhibit a higher revenue per employee ratio are more likely to achieve success due to the positive correlation between this ratio and productivity, which subsequently results in increased profitability. The sustained productivity and profitability of such organisations further contribute to their long-term viability. The metric referred to as revenue per employee, or the revenue to employee ratio, is determined by dividing the entire income of a company by its current employee count. The measurement of employee performance through the revenue to employee ratio is considered a prominent performance indicator that determines the overall performance of an organisation. This is due to the significant role played by the human capital within the organisation, which has a central influence on its growth and development prospects (Victoria, 2019). The calculation involves dividing the entire revenue by the current number of employees.

2.1.4 Sustainable Growth

In recent times, the term sustainable has acquired a revised connotation, primarily pertaining to the environment and natural resources. It is presently understood as the practise of residing within the constraints of accessible physical, natural, and social resources, thereby enabling the flourishing of the living systems in which humans are intricately interconnected. The method under consideration is characterised by its holistic nature, as it takes into account several dimensions such as ecological, social, and economic factors. It acknowledges the interdependence of these dimensions and emphasises the need to address them collectively in order to achieve sustainable and enduring prosperity. Prior to the current surge in popularity, sustainability was mostly associated with attainable growth that companies and national economies could sustain without encountering difficulties. This article centres on examining and discussing this particular focus and scope. The notion of the latter has been extensively examined in the context of sustaining and stabilising an organisation with the resources at hand. This topic mostly pertains to the concept of growth and has been extensively examined by researchers.

According to Ocaak and Findik (2019), the concept of sustainable growth originated in the 1970s within the realm of business, where it was employed to discuss the ideal expansion of companies from a financial standpoint. Accordingly, this concept refers to the upper limit at which a firm can expand utilising only its own resources, without



resorting to external financial instruments. Parker et al. (2010) argue that in order to achieve sustainable company growth over a prolonged period, it is crucial for a firm to promptly adjust its organisational structure and tactics. Failure to do so may result in fast-growing enterprises becoming transient successes and then losing their relevance. Numerous enterprises encounter difficulties when they are unable to effectively manage and maintain their growth trajectory.

Serbian et al. (2015) assert that the pursuit of growth is a shared objective among enterprises and economies. However, it is important to note that heightened volatility can accidentally result in failure. In contrast, business sustainability entails the objective of attaining enduring and substantial growth while minimising potential negative outcomes. Within the realm of organisations, it has been posited that sustainability can be effectively implemented through the use of three distinct metrics. These metrics include growth persistence, which refers to the degree of correlation between growth rates over a given period of time; volatility, which pertains to the level of uncertainty and related risk linked to growth; and survival, which encompasses the consideration of firm closure as a relevant factor.

2.1.5 Sustainable Growth Rate

The sustainable growth rate pertains to the uppermost and continuous rate of growth that a corporation can attain without necessitating extra capital infusion through borrowing. The decline in a company's competitive edge can be attributed to diminished business efficiency when growth falls below a sustainable growth rate. According to Rastic et al. (2021), exceeding a sustainable growth rate necessitates the corporation to engage in further borrowing, perhaps exacerbating its financial well-being. Arora et al. (2018) elucidate the concept of the sustainability growth rate using various approaches, with the first and most renowned being the Higgins model of sustainability growth rate.

According to Higgins (1977), the sustainability growth rate can be mathematically represented as the product of the return on equity (ROE) and the retention rate (b). The Return on Equity (ROE) indicator is a well-established metric in financial analysis. It is derived by dividing the net profit by the shareholders' equity, expressed as the formula $ROE = \text{Net profit} / \text{Shareholders' equity}$. Conversely, retention rate b denotes the quantity of funds that the company retains for the purpose of reinvesting in its business operations subsequent to the disbursement of dividends. The formula for

calculating the retention ratio is derived by subtracting the amount of paid dividends from the net profit, and then dividing this result by the net profit.

2.1.6 Revenue Growth

The concept of revenue growth holds significant importance within the realm of business.

The measurement of a company's success is a crucial indicator that frequently establishes the basis for future investment, expansion, and other growth prospects. Revenue growth is a quantitative metric employed to assess the extent to which the overall revenue of an organisation has increased within a designated timeframe. One of the ways for enhancing revenue growth is the allocation of resources towards the development and cultivation of human capital. Implementing strategies such as allocating resources towards professional development initiatives, as well as recruiting and providing training to new personnel in response to increased demand, might yield favourable outcomes for long-term revenue growth.

Revenue growth refers to the measure of the percentage increase in total revenues, calculated by dividing the difference between total revenues from the current period and the corresponding period in the previous year by the total revenues from the previous year. The aforementioned expression represents the ratio of the difference between the total revenue in year 2 and year 1 to the total revenue in year 1.

2.2 Empirical Review

In their recent study, Tadic and Barac (2022) conducted an investigation into the impact of human capital investments on the business excellence of companies in Croatia. This study examines the impact of human capital investments on corporate performance in the context of Croatia. The application of Ordinary Least Squares (OLS) regression analysis was utilised to examine the hypothesis regarding the influence of investments in human resources. The dependent variable in this study is the Business Excellence (BEX) index, whereas the independent variable is the Human capital efficiency. The findings indicate a favourable correlation between training, additional incentives or pay, and firm excellence. Furthermore, there is a statistically significant difference in the average salary per employee between high and moderate-intensive intellectual capital companies. The confirmation of disparities in corporate performance arises from the capitalization of human capital expenditures on a company's balance sheet, as



opposed to their recognition as expenses on the company's profit and loss account. It is imperative for companies to prioritise the management of human resources and acknowledge their significance in achieving business excellence. Additionally, companies should recognise and accurately assess the value of human capital in their financial accounts. This paper proposes that Croatian enterprises should prioritise the management of human resources and recognise their significance and influence on competitive advantage and overall business excellence. Similar expectations are placed upon the pertinent regulatory bodies, which are anticipated to foster and promote investments in human capital. Nevertheless, it is crucial to note that the data utilised for this research was obtained by manual collection from publicly accessible financial statements of listed companies on the stock exchange website. Additionally, the paper lacks any post-estimation investigation to assess the robustness of the employed model.

Olohunlana et al. (2022) conducted an empirical study to examine the level of intellectual capital efficiency across commercial banks listed in Nigeria, as well as the factors that influence its effective use. This study utilised longitudinal data to investigate the factors influencing the intellectual capital efficiency of publicly traded commercial banks in Nigeria. The input, output, and other determining variables were derived from the annual reports of commercial banks listed on the Nigerian Stock Exchange (NSE). The dataset encompasses the time period from 2013 to 2019. This study is centred on the commercial banks that are listed in Nigeria. As of the conclusion of the 2019 fiscal year, the total count of registered banks in Nigeria amounted to 23. The study specifically chose a sample of 12 commercial banks that were publicly listed. The study utilised the data envelopment analysis (DEA) technique to assess the efficiency of intellectual capital, and employed the VAIC model developed by Pulic to evaluate the listed banks in Nigeria. The data for the analysis was collected from the annual financial reports of these banks spanning the period from 2013 to 2019. The research revealed that a mere 8.33% of the selected Nigerian commercial banks demonstrate optimal utilisation of their intellectual capital, while the remaining 91.67% exhibit inefficiency in this regard. The study also reveals that the size of banks and the shareholdings of directors have a favourable influence on intellectual capital efficiency. However, market concentration and ownership concentration hinder the achievement of optimal

intellectual capital efficiency. The study suggests that there is a need for policy enhancements to improve the performance of banks in Nigeria. This study makes a valuable contribution to the limited body of literature on the effectiveness of intellectual capital in listed banks in Nigeria. This study employed an empirical approach utilising Data Envelopment Analysis (DEA), wherein the identification of variables was focused on inputs and outputs rather than dependent and independent variables. Furthermore, commercial banks that were included in the study were those that reported a positive return on assets, as the estimation technique used for the efficiency analysis does not account for negative values. Consequently, the population size of the study was reduced.

In their study, Aybars and Oner (2022) conducted an assessment of the influence exerted by intellectual capital (IC) and its constituent elements on the financial performance and value of publicly traded enterprises within the Turkish manufacturing sector. The study utilised panel data technique to analyse a dataset consisting of 75 businesses listed in Borsa Istanbul (BIST). The data was collected from the Thomson Reuters Database and Public Disclosure Platform, resulting in a total of 825 firm-year observations spanning the years 2009 to 2019. The utilisation of the Modified Value-Added Intellectual Coefficient (MVAIC) is employed to measure the efficiency of Intellectual Capital (IC) and its constituent elements, which include Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), Relational Capital Efficiency (RCE), and Capital Employed Efficiency (CEE). The results do not demonstrate a statistically significant impact of MVAIC on the performance indicators that were chosen for analysis. However, in terms of further examination using the components, it has been shown that only CEE is a contributor to both company financial performance and value. On the other hand, HCE, SCE, and RCE have been determined to have no meaningful impact. The results of this study contradict the majority of previous empirical research that has examined data from various geographical regions, which has consistently demonstrated that intellectual capital has a significant role in the financial and market success of organisations. This study is characterised by its comprehensiveness, as it encompasses a substantial dataset spanning a significant period of time. However, it should be noted that the incorporation of relational capital to establish the Modified Value Added Intellectual Coefficient, which is utilised to assess Intellectual



capital efficiency, is not commonly employed by other scholars in the field.

In their recent study, Rahman and Akhter (2021) examined the influence of investment in human capital on the performance of banks in Bangladesh. The aim of this research is to analyse the factors related to investment in human capital training, employees' educational attainment, employees' knowledge level, and employees' skills that impact the performance of a bank. Additionally, this study aims to offer suggestions for enhancing the banking sector. The present study incorporated a conceptual framework, accompanied by a set of hypotheses. The study examines the empirical data on the impacts of human capital through the utilisation of Structural Equation Modelling (SEM). The statistical analysis was conducted using the R software, as it is well-suited for implementing a comprehensive study model. Structural equation modelling (SEM) assesses the adequacy of the model in terms of the reliability and validity of each evaluated construct, as well as the overall model. The data were acquired by the implementation of a convenient sampling technique, utilising a questionnaire that employed a seven-point Likert scale. The proposed theoretical framework has been empirically tested by collecting data from a sample of 261 individuals. The collected data was then analysed using the methodology of structural equation modelling. The findings indicated a significant beneficial relationship between investment in employee training, knowledge level, skills, and bank performance, with statistical significance observed at both the less than 1% and 5% levels. However, the educational attainment of the employee does not have a significant impact on the output of the bank, as determined in this investigation. Therefore, it is imperative for banks to consistently provide training and retraining opportunities for their employees in order to cultivate advanced cognitive abilities and state-of-the-art knowledge. This is essential for delivering efficient services, achieving elevated production levels, and ultimately attaining favourable banking outcomes and a competitive edge. The research employs primary data collection methods, therefore the sample size is limited. The aforementioned constraints have the potential to impact the statistical significance of the study.

The study conducted by Tran and Vo (2020) examined the relationship between human capital efficiency and business performance in several industries within an emerging market. This study investigated the impact of human capital efficiency on business performance in the

Vietnamese economy for the period from 2011 to 2018, encompassing 12 different sectors. The present study used the generalised method of moments (GMM) approach. The research employs the utilisation of Return on Assets (ROA) and Return on Equity (ROE) as metrics for assessing financial performance, which serve as the dependent variables. Meanwhile, Human Capital Efficiency is considered as the independent variable in this study. The findings presented in this research provide robust empirical evidence supporting the notion that human capital efficiency plays a significant role in enhancing business performance across various industries in Vietnam. Furthermore, the research findings presented in the paper suggest that the banking industry does not exhibit the highest degree of human capital accumulation, contrary to prior assumptions. In the framework of the Vietnamese economy, there exists variation in the level of human capital efficiency between sectors, with the oil and gas as well as energy industries demonstrating superior performance in this regard. The paper presents empirical evidence indicating that there exists a relationship between human capital efficiency and company performance. Therefore, it is imperative for listed companies in Vietnam to prioritise the accumulation process of human capital. For instance, it is advisable for organisations to contemplate the provision of competitive remuneration packages and comprehensive benefits that align with the level of commitment demonstrated by their employees. Additionally, they should strive to establish avenues for advancement and professional growth. Simultaneously, it is imperative for enterprises to establish comprehensive training initiatives, enhance the credentials of their staff, and allocate resources towards improving facilities and working circumstances. These measures are crucial in enabling employees to enhance their productivity and make valuable contributions to the overall performance of the firm through the accumulation of human capital. The report exclusively focuses on human capital, neglecting other facets of intellectual capital, such as structured capital efficiency, employed capital efficiency, and relational capital efficiency, which could serve as promising avenues for further investigation. The research did not conduct any subsequent investigation to assess the resilience of the employed model.

In a study conducted by Agbi et al. (2020), the focus was on examining the relationship between Human Capital Efficiency and Profitability of publicly traded Oil and Gas companies in Nigeria. This study investigated the impact of Human Capital



Efficiency on the financial performance of publicly traded oil and gas companies in Nigeria. The research spanned from 2006 to 2018 and employed an ex-post facto research design. A selective sampling technique was employed to choose 9 enterprises from a population of 12, with the selection criteria being data availability and period of listing. The secondary data utilised in this study was obtained from the annual audited financial reports of a selected group of enterprises, as well as from the Nigerian Stock Exchange (NSE) facts sheets. The variable under investigation is profitability, which was measured using the Return on Assets (ROA) metric. On the other hand, the variables under consideration include Human Capital Efficiency (HCE), Value Added Intellectual Coefficient (VAIC), and Firm Size (FIZ). The dataset underwent three different estimate techniques: pooled ordinary least squares (OLS), fixed effect estimation, and random effect estimation. The random effect estimation method was chosen for analysis in the study. The regression analysis demonstrated that both Human Capital Efficiency (HCE) and Value Added Intellectual Coefficient (VAIC) exhibited a statistically significant and favourable impact on Return on Assets (ROA). Based on the aforementioned findings, the study has reached the conclusion that human capital plays a crucial role in determining the profitability of publicly traded oil and gas companies in Nigeria. The primary suggestion derived from the research is that oil and gas companies should prioritise strategic investments in human capital by consistently developing their workforce and offering appropriate incentives. This approach aims to enhance productivity and ultimately drive profitability. The study used a panel regression analysis, spanning a duration of 13 years, which is deemed sufficient for establishing a statistically significant viewpoint. The research also conducted a thorough investigation of the dataset before and after estimation.

The study conducted by Xu and Wang (2018) aimed to examine the empirical relationship between Intellectual capital and financial performance as well as sustainable growth within the Korean manufacturing industry. The study utilises multiple regression models to analyse data obtained from a sample of 390 manufacturing companies listed on the Korean Stock Exchange during the period from 2012 to 2016. A total of 1950 manufacturing enterprises were included in the list. The financial data utilised in this study are obtained from the DataGuide database. The regression analyses were conducted using SPSS Version 20.

The study used the VAIC framework, which consists of three components: Capital utilised efficiency, Human capital efficiency, and Structural capital efficiency. These components are treated as independent variables, while the Sustainable growth rate is considered the dependent variable. The findings of the investigation indicate that Intellectual capital exerts a favourable influence on financial performance and the sustainable expansion of companies. Furthermore, the performance and sustainable expansion of organisations exhibit a favourable correlation with physical capital, human capital (HC), and relational capital (RC). The factor that has been determined to have the greatest influence is RC. In conclusion, the study conducted by innovative capital sheds light on the impact of structural capital (SC) on the performance of Korean manufacturing enterprises, revealing a negative correlation between the two variables. The primary findings of this study indicate that Korean manufacturing firms that exhibit superior Intellectual capital efficiency tend to experience enhanced profitability and sustainable growth. Specifically, Physical capital, encompassing Human capital and Relational capital, demonstrates a positive association with financial performance, whereas innovative capital exhibits a negative impact on financial performance. The study revealed that relational capital emerged as the most influential factor in relation to the performance of manufacturing companies in Korea. Furthermore, it was observed that human capital, structural capital, and relational capital all have positive effects on the sustainable growth of these companies. However, the impact of innovative capital was found to be insignificant. Furthermore, it may be argued that the influence of Relational capital surpasses that of the other factors employed in the study. The study primarily examined listed manufacturing companies in an emerging economy over a span of five years. However, it is worth noting that this relatively short time frame may have limitations in statistically establishing the influence of Intellectual capital on financial performance and sustainable growth.

Yudawisastra et al. (2018) conducted a study to examine the correlation between value-added capital employed, value-added human capital, structural capital value-added, and financial performance. The study population comprised 34 enterprises listed from 2014 to 2016. The study employed panel data analysis to examine the hypothesis regarding the impact of independent variables, namely Value Added Capital Employed (VACA), Value Added Human Capital (VAHU), and Structural Capital Value Added (SCVA), on the



dependent variable, Return on Asset (ROA). The data analysis in this study encompassed several methodologies, including descriptive analysis, verification analysis, classical assumption test, panel data regression analysis, and hypothesis testing. The analysis involved doing panel data regression testing, which encompassed the application of various statistical tests, including the fixed-effect test, classical assumption test, heteroscedasticity test, multicollinearity test, and autocorrelation test. The findings indicate that there is no significant relationship between value-added capital employed and return on assets. This suggests that the company has not effectively managed and utilised its capital resources, resulting in a lack of improvement in performance through the utilisation of capital employed. The impact of value-added human capital on return on assets (ROA) is evident, as it demonstrates the influence of VAHU on ROA. This relationship signifies that the extent to which human capital contributes can enhance a company's performance, as well as the efficiency and effectiveness of its asset management. The research also possesses a significant constraint. The study utilised a sample population comprising companies listed between the years 2014 and 2016, encompassing a span of three years. The duration of three years may potentially be insufficient for establishing a statistically significant correlation between value-added capital employed, value-added human capital, structural capital value added, and financial performance. The dataset was exposed to pre and post-estimation analysis in a satisfactory manner in the study. However, the analysis was conducted using data from only a three-year period, which may have implications for the statistical significance of the findings.

2.3 Theoretical Framework

2.3.1 Resource-Based Theory

In 1959, Penrose presented the idea known as the Resource-Based View (RBV) to the field of strategic management. This theory posits that strategic resources, including knowledge, assets, and processes, play a crucial role in determining a company's competitive position. The development of the Resource-based view of a corporation for the purpose of attaining competitive advantage was subsequently advanced in 1980 following the influential contributions of Wernerfelt (1984) and Barney (1991). According to their perspective, firms should focus on internal factors to identify the origins of competitive advantage rather than relying on external factors such as the competitive environment and other external sources. The

resource-based notion posits that when resources are bundled or merged, they have the potential to mutually reinforce each other, hence enhancing the firm's capabilities and fostering differentiation. The resource-based view aims to elucidate the differential performance of organisations by examining their distinct resources. The Resource-based view (RBV) posits that the functioning of an organisation is contingent upon a collection of internal resources and capabilities. The primary emphasis is placed on the internal resources and competencies that have the potential to strengthen and enhance competitive advantage. These resources are utilised to facilitate enterprises in enhancing the quality of their products and services in order to meet the demands of clients. These materials possess four distinct characteristics. According to Njuguna (2014), these entities possess characteristics that make them uncommon, highly prized, possess limited alternatives, and are not easily replicable. The resource-based theory (RB) is widely recognised as a seminal framework that emphasises the significance of intangible assets for organisations (Barney, 1991). The present idea posits that any organisation can be conceptualised as a collection of both tangible and intangible resources that are interdependent. This implies that the efficacy of physical assets is contingent upon the efficacy of non-physical assets, and vice versa. For a considerable period of time, both tangible and intangible assets have been seen as valuable resources with strategic significance for organisations. Over time, there has been a shift in the emphasis of this paradigm towards intangible resources (Reed et al., 2006). The authors believed that physical assets, including plant, machinery, and financial assets, possess generic qualities and may be readily replaced or interchanged at any given point in time.

2.3.2 Knowledge-Based Theory

This approach is derived from the strategic management literature and further develops the resource-based view of the company (RBV) which was first introduced by Penrose in 1959 and subsequently expanded upon by Wernerfelt in 1984 and Barney in 1991. The underlying assumption of the theory posits that the competitive advantage of a corporation is contingent upon its capabilities and competencies, which are in turn influenced by knowledge. According to Njuguna (2014), the knowledge-based theory of the company posits that knowledge is the foremost resource of strategic importance for a firm. Knowledge is intricately intertwined and transmitted through various entities,



encompassing organisational culture and identity, policies, procedures, documents, systems, and personnel. Moreover, it is worth noting that knowledge derives its strategic significance primarily from its appreciating value, in contrast to other conventional means of production that tend to devalue with time.

The foundational premises of the knowledge-based theory of the firm originated from the resource-based view of the firm. The knowledge-based perspective posits that the resource-based perspective of the firm fails to sufficiently acknowledge the importance of knowledge, instead treating it as one of many generic resources possessed by the organisation. The development of the Knowledge-based theory of the company was undertaken to address the perceived gap by recognising the strategic significance and importance of knowledge-based resources. The utilisation of knowledge-based principles inside a corporation can lead to a competitive advantage by fostering more employee engagement in the development and implementation of operational goals and long-term transformative aims. The ongoing acquisition and dissemination of knowledge inside corporate organisations are imperative due to various variables, including dynamic competitive situations in global markets, regular deregulations, and technological breakthroughs.

2.3.3 Human Capital Theory

The concept of human capital was first presented by Schultz (1961) in a publication titled *Investment in Human Capital in the American Economic Review*. The concept of human capital has gained significant prominence following Gary Becker's groundbreaking work in 1962, which introduced the human capital theory. According to this theory, varying levels of education and training have a direct impact on individuals' wages and salaries. It posits that individuals with higher levels of knowledge, skills, and abilities are more likely to secure higher-paying employment opportunities (Naphat, 2017). According to the human capital hypothesis, the enhancement of workers' productivity and efficiency can be achieved through a focus on education and training. Education is considered a constituent element within the framework of human capital theory. The development of proficient communication abilities. The management of individuals within an organisational context. Workplace Training. The capacity to effectively address and resolve challenges. The topic of personal health and well-

being is of great significance. Based on the tenets of human capital theory, the expansion of an economy may be linked to the presence of a workforce that has been adequately invested in. One illustration of the human capital theory posits that a higher level of education among individuals is positively associated with increased earning potential and subsequent expenditure, hence contributing to economic growth. Another illustration lies in the fact that human beings possess a remarkable capacity for adaptability and are capable of undergoing reprogramming. Despite the presence of high salaries, individuals are capable of executing manufacturing jobs that are above the capabilities of machines.

This study is theoretically grounded in the Human Capital Theory, which posits that individuals can enhance their productivity and efficiency through education and training. The acquisition of information, skills, and abilities by an individual is positively correlated with their performance and productivity. This correlation, holding all other factors constant, can lead to short-term profitability and long-term sustainability for the organisation.

III. METHODOLOGY

This research study employs the positivist paradigm and a deductive approach. It utilises the Ex-post Facto research design and employs the panel data technique to examine the impact of human capital investment on the strategic growth of listed deposit money banks in Nigeria. The study relies on secondary data obtained from the audited annual accounts spanning the period from 2012 to 2021. The study's population comprises fourteen (14) deposit money institutions that are listed and operating on the Nigerian Exchange Group (NGX) as of December 31, 2021. The sample size for this study is twelve (12). The study employed a judgmental sample technique, taking into account the banks' years of operation in relation to the study period. The inferential analyses employed in this study utilised the Panel Regression Analysis statistical technique, which was selected based on the characteristics of the data. This study employs the regression model utilised by Bayelign and Ayalew (2022) and Arianpoor (2021).

Model:

$$SGR = \beta_0 + \beta_1 HCE + \beta_2 REC + \beta_3 REVG + \epsilon_{it}$$

Where:

SGR = Sustainable growth rate

HCE = Human Capital Efficiency

REC = Revenue to Employee Contribution

REVG = Revenue Growth



$\beta_0 - \beta_3$ coefficients

ϵ_{it} = Stochastic Error term

Table 1: Variable Measurement

Variable	Description	Measurement	Sources
SGR	Sustainable Growth Rate	ROE (Return on Equity) x b (Retention Rate)	Arora, Kumar and Verma, (2018)
HCE	Human Capital Efficiency	Total Value Added divided by the total salary and wages spent by the firm on its employees.	Agbi E, Popoola A and Edem (2020)
REC	Revenue to Employee Contribution	Total revenue divided by its current number of employees	Corporate Finance Institute (2023)
REVG	Revenue Growth	Total revenue of the year minus the previous year divided by total revenue of the previous year.	Okerekeoti (2021)

Source: Author's Compilation (2023)

Table 2; Apriori Expectation

The apriori expectation for the study is that the independent variables; human capital efficiency and Revenue per Employee Contribution are expected to have a positive and significant effect on the dependent variable, Sustainable growth rate.

Independent Variables	Expected Sign	Expected Probability Result (p)
Human Capital Efficiency	Positive (+)	≤ 0.05
Revenue per Employee Contribution	Positive (+)	≤ 0.05

Source: Author's Compilation (2023)

IV. RESULTS AND DISCUSSION

Descriptive Statistics

A descriptive statistics test was carried out to examine the characteristics of the dependent and independent variables. The descriptive result is presented in the table below

Table 3: Descriptive Statistics Result

	SGR	HCE	REC	REVG
Mean	5.289833	3.302167	41.20958	12.26658
Median	8.940000	2.900000	40.37000	10.96500
Maximum	28.08000	37.81000	89.14000	67.18000
Minimum	-394.3200	1.200000	13.01000	-65.94000
Std. Dev.	38.05457	3.435917	15.38310	19.35622
Skewness	-9.857311	8.575032	0.520072	0.180493
Kurtosis	103.2578	86.28634	3.059934	5.549988
Jarque-Bera	52201.43	36153.69	5.427451	33.16375
Probability	0.000000	0.000000	0.066289	0.000000
Sum	634.7800	396.2600	4945.150	1471.990
Sum Sq. Dev.	172329.9	1404.857	28160.11	44584.93
Observations	120	120	120	120

Source: E-view 10 Output, 2023

The provided table displays the descriptive statistics for human capital efficiency, revenue per employee contribution, sustainable growth rate, and revenue growth as a control variable. These statistics

pertain to listed deposit money banks in Nigeria throughout the period spanning from 2012 to 2021. The table presents the statistical characteristics of the sustainable growth rate (SGR). The mean SGR



is calculated to be 5.28983, with a standard deviation of 38.0545. Additionally, the minimum and maximum values of the SGR are recorded as -394.320 and 28.0800, respectively. The relatively narrow range between the minimum and highest values suggests a stable and sustainable growth rate. This conclusion is supported by the low standard deviation, indicating that there is minimal dispersion of the data points from the mean value. The alternative metric for assessing human capital efficiency and revenue per employee contribution yields a mean value of 3.30216 and 41.2095, accompanied by standard deviations of 8.57503 and 0.520072. The corresponding lowest and highest

values are 1.20000, 13.0100, 37.81000, and 89.14000, respectively. The findings suggest that there was a slight improvement in human capital efficiency and revenue per employee contribution during the course of the study. This conclusion is drawn from the observation that the standard deviation is significantly larger than the mean, and there is a wide range between the minimum and highest values. In a similar vein, while using revenue growth as a control variable, it is observed that the mean value is 12.26658, while the minimum and highest values are -65.9400 and 67.18000, respectively.

Table 4: Correlation Matrix

The study used a correlation test to ascertain the strength and magnitude of the influence of the independent variables on the dependents. The correlation test result is presented in table 2 below.

Covariance Analysis: Ordinary
Date: 02/03/23 Time: 20:00
Sample: 2012 2021
Included observations: 120

Correlation Probability	SGR	HCE	REC	REVG
SGR	1.000000 -----			
HCE	0.075095 0.4150	1.000000 -----		
REC	0.175667 0.0550	0.259307 0.0042	1.000000 -----	
REVG	-0.168698 0.0655	-0.049663 0.5901	-0.079113 0.3904	1.000000 -----

Source: E-view 10 Output, 2023

Correlation analysis is a statistical method employed to measure the degree of relationship between two continuous variables, such as an independent variable and a dependent variable, or between two independent variables. In the context of correlation analysis, the estimation of a sample correlation coefficient is conducted, specifically focusing on the Pearson Product Moment correlation coefficient. The correlation coefficient's sign denotes the direction of the link. The size of the correlation coefficient serves as an indicator of the degree of strength in the link. This section focuses on the examination of the degree of linear correlation between the variables representing human capital investments features, using the E-views 10 Statistical software. The aforementioned

findings provide evidence supporting a significant positive relationship between human capital efficiency (0.4150), revenue per employee contribution (0.0550), revenue growth (0.0655), and the sustainable growth rate.

Fixed Effect Likelihood Ratio Test

The Fixed Effect Likelihood Ratio test is a statistical test used in panel data analysis to assess model specification. It is utilised to differentiate between the pooled effect model and the fixed effects model. Subsequently, a fixed effect likelihood ratio specification test was performed in order to choose the optimal model among the pooled effect and fixed effect regression models.



The decision rule for the fixed effect likelihood ratio specification can be stated as follows: at a significance level of 5%, if the probability value is

less than 5%, the null hypothesis is rejected; otherwise, the null hypothesis is accepted.

Table 3: Fixed Effect Likelihood Ratio

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.339202	(11,105)	0.2135
Cross-section Chi-square	15.754692	11	0.1505

Source: E-view 10 Output, 2023

The fixed effect likelihood ratio test yielded a chi-square statistic value of 1.33920, with a corresponding probability value of 0.2135. This suggests that there is insufficient evidence to refute the null hypothesis, which posits that utilising a pooled effect is the most suitable approach for doing Panel Regression research. Therefore, it may be concluded that the error component model (pooled effect) estimator is suitable due to the likely correlation between the pooled effects and one or more regressors. Therefore, based on the available choices of pooled effect analysis and fixed effect analysis, the most reliable and effective estimation for the study is the fixed effect model of regression analysis. Therefore, based on the available options, the findings indicate that the pooled effect regression model is the most suitable for the collected data. This conclusion is drawn from the

fact that the probability value associated with the likelihood ratio test statistics exceeds 5%.

Multicollinearity Test (VIF)

The purpose of doing the Multicollinearity test was to assess the presence of a significant correlation among the independent variables, which has the potential to generate misleading outcomes. The very small magnitudes of the correlations observed across the independent variables suggest that multicollinearity is unlikely to be a concern for the dataset under examination. In order to provide additional evidence supporting the lack of multicollinearity among the independent variables, collinearity diagnostics tests were performed utilising the variance inflation factor (VIF). The collinearity diagnostics test results are displayed in the table provided below.

Table 6: Multicollinearity Test (VIF)

Variance Inflation Factors
Date: 02/04/23 Time: 17:37
Sample: 2012 2021
Included observations: 120

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	105.8542	9.054217	NA
HCE	1.071604	2.072554	1.073071
REC	0.053664	8.872342	1.077166
REVG	0.031694	1.415133	1.007222

Source: E-view 10 Output, 2023

Decision rule:

A centred Variance Inflation Factor (VIF) value below 10 suggests the lack of multicollinearity,

whereas a centred VIF value beyond 10 suggests the existence of multicollinearity.

As previously stated, the decision criterion for the multicollinearity test utilising the variance inflation



factor (VIF) is that a centred VIF value below 10 indicates the lack of multicollinearity, whilst a centred VIF value above 10 suggests the presence of multicollinearity. The presented data provides unambiguous evidence of the absence of multicollinearity among the independent variables. This is indicated by the fact that all independent variables (HCE, REC, and REVG) have a centre VIF value below 10.

Heteroskedasticity Test

To assess the reliability of the estimations, a Heteroskedasticity test was performed as a

diagnostic measure. Heteroskedasticity refers to the phenomenon where the standard errors of a variable, observed over a given time period, exhibit non-constant characteristics. Heteroskedasticity represents a deviation from the underlying assumptions of linear regression modelling, hence potentially compromising the integrity of any study outcomes. Although heteroskedasticity does not introduce bias in the coefficient estimates, it does result in reduced accuracy. This reduced precision raises the probability that the coefficient estimates deviate further from the true population value.

Table 7: Heteroskedasticity Test

Panel Cross-section Heteroskedasticity LR Test
Null hypothesis: Residuals are homoscedastic
Equation: UNTITLED
Specification: SGR C HCE REC REVG

	Value	df	Probability
Likelihood ratio	416.1653	12	0.0000
LR test summary:			
	Value	df	
Restricted LogL	-603.0179	116	
Unrestricted LogL	-394.9353	116	

Source: E-view 10 Output, 2023

Table 7 shows the results of the panel cross-section Heteroskedasticity regression test. The decision rule for the panel cross-section Heteroskedasticity test is stated thus:

***Decision Rule:**

Ho: p-value associated with a heteroscedasticity test falls above a 5% significant level.

H1: p-value associated with a heteroscedasticity test falls below a 5% significant level

The null hypothesis posits the absence of Heteroskedasticity, whereas the alternative hypothesis posits the presence of Heteroskedasticity. The acceptance of the null hypothesis occurs when the calculated P value exceeds the predetermined level of significance, often set at 5%. Based on the findings presented in the table, it can be concluded that the ratio value of 408.6957 and the corresponding probability value of 0.0000, which is below the 5% threshold,

provide sufficient evidence to reject the null hypothesis. Consequently, the alternative hypothesis, which suggests the presence of a conditional Heteroskedasticity problem, is supported. Therefore, given the diagnostic probability of 0.0000, the null hypothesis is rejected, suggesting the presence of conditional heteroskedasticity. This implies that the residuals are not homoskedastic, showing that the samples do not accurately represent the population. To address the issue of heteroscedasticity, it is necessary to log-transform the dependent variable and treat it as the independent variable.

Langranger Multiplier Test

The langranger multiplier test is a test for model specification in panel data analysis and this test is employed to choose between pooled effect model and the random effects model.



Table 4: Breusch-Pagan Langranger Multiplier Test

Residual Cross-Section Dependence Test
Null hypothesis: No cross-section dependence (correlation) in residuals
Equation: Untitled
Periods included: 10
Cross-sections included: 12
Total panel observations: 120
Note: non-zero cross-section means detected in data
Cross-section means were removed during computation of correlations

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	271.5526	66	0.0000
Pesaran scaled LM	17.89106		0.0000
Pesaran CD	8.802229		0.0000

Source: E-view 10 Output, 2023

Decision Rule: At a 5% level of Significance
Ho: Pooled OLS is rejected if the p-value is less than 5% level of significance.
H1: Random effect is accepted if the p-value is less than 5% level of significance
Based on the probability value of the Breusch-Pagan Langranger Multiplier Test at 0.0000, the null hypothesis is rejected, thus the random effect is most appropriate when compared to the pooled effect.

Hausman Test

The Hausman test is a statistical test used in panel data analysis to assess model specification. It is commonly utilised to determine whether a fixed effects model or a random effects model is more

appropriate for the investigation. In this study, fixed effect and random effect regressions were conducted due to the panel structure of the data set employed. The researchers proceeded to conduct the Hausman specification test in order to choose the most suitable model amongst the fixed effect and random effect regression models. The test primarily assessed the presence of correlation between the error terms and the regressors. The decision criteria for the Hausman specification test is as follows: if the calculated test statistic exceeds the critical value at a significance level of 5%, we reject the null hypothesis. The chosen level of significance is a critical parameter in statistical hypothesis testing.

Table 5: Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.808484	3	0.6131

Source: E-view 10 Output, 2023

The Hausman test yielded a chi-square statistics value of 0.80848, with a corresponding probability value of 0.6131. This suggests that there is insufficient evidence to reject the null hypothesis, which posits that the random effect is the most suitable approach for doing Panel Regression analysis. Therefore, it can be concluded that the error component model (fixed effect) estimator is

not the most suitable choice due to the high correlation between the random effects and the regressors. Therefore, the random effect cross-sectional model emerges as the most reliable and effective approach for estimating the study. Therefore, based on the obtained results, it can be inferred that the random effect regression model is the most suitable for the data sample. This



conclusion is supported by the Hausman test statistics, where the associated probability value exceeds 5%.

Table 8: Panel Regression Result (Random Effect)

Dependent Variable: SGR
Method: Panel EGLS (Cross-section random effects)
Date: 02/03/23 Time: 20:29
Sample: 2012 2021
Periods included: 10
Cross-sections included: 12
Total panel (unbalanced) observations: 120
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.780930	0.914556	-4.134169	0.0001
HCE	0.006459	0.053497	0.120742	0.9041
REC	-0.014425	0.014394	-1.002211	0.0285
REVG	0.003997	0.010093	0.396064	0.6928
LOGSGR	6.663325	0.312746	21.30587	0.0000

Effects Specification		S.D.	Rho
Cross-section random		1.125794	0.2820
Idiosyncratic random		1.796304	0.7180

Weighted Statistics			
R-squared	0.805440	Mean dependent var	4.512649
Adjusted R-squared	0.798235	S.D. dependent var	4.058264
S.E. of regression	1.828888	Sum squared resid	361.2419
F-statistic	111.7750	Durbin-Watson stat	1.612600
Prob(F-statistic)	0.000000		

Source: E-view 10 Output, 2023

The present study investigates the impact of human capital investment on the sustainable growth rate of deposit money banks in Nigeria. According to the data presented in Table 8, the coefficient of multiple determination (R²) is 0.8054. Considering the panel nature of the data utilised in this investigation, the regression model indicates that the corrected R² and R² values vary between 79% and 80% respectively. These findings suggest that approximately 80% of the observed fluctuations in the sustainable growth rate (SGR) can be accounted for by the fluctuations in the independent variables (HCE, REC, and REVG). The remaining 20% of the variability in the model is attributed to the error term, indicating a strong fit of the regression line. The table above presents the panel

regression result for the sampled deposit money bank. The findings indicate a negative association between human capital efficiency and sustainable growth rate. The corresponding probability value is 0.9041, which above the 5% threshold commonly used for statistical significance. A statistically significant positive correlation exists between revenue per employee contribution, as indicated by a probability value of 0.0285, which falls below the conventional threshold of 5%. Nevertheless, when considering the combined effects of the regressors (HCE and REC) on the regressed variable (SGR), the F-statistic yields a value of 111.7750, with a corresponding probability of 0.00000. The aforementioned outcome suggests that the regression as a whole exhibits a positive relationship



and is statistically significant at a 5% level of significance.

4.2 DISCUSSION OF FINDINGS

The objective of this study was to investigate the impact of investment in human capital on the sustainable expansion of deposit money banks in Nigeria. The primary objective of this study was to investigate the impact of human capital efficiency and revenue per employee contribution on the sustainable growth rate of deposit money banks that are listed in Nigeria. Consequently, the results of this study are derived from the formulation of hypotheses, development of models, and execution of analyses. The findings of this study indicate that there is a substantial relationship between human capital investment, as assessed by human capital efficiency and revenue per employee contribution, and the sustainable growth rate of listed deposit money banks in Nigeria.

Firstly, a study was conducted to evaluate the impact of human capital efficiency, measured by human capital investment, on sustainable growth, represented by the Sustainable Growth Rate, of listed deposit money banks in Nigeria. The findings revealed a negative relationship between human capital efficiency, as defined by Pulic, and the sustainable growth rate of listed deposit money banks in Nigeria. The present study's results are in contrast to the findings reported by Tran and Vo (2020) as well as Agbi et al (2020), which provided empirical support for a positive correlation between human capital efficiency and performance. Additionally, a study was conducted to examine the impact of revenue per employee contribution on the sustainable growth of deposit money banks listed in Nigeria. The findings of the study indicate a positive and statistically significant relationship between revenue per employee contribution and the sustainable growth rate of listed deposit money banks in Nigeria. The obtained outcome was consistent with the research conducted by Tadic and Barac (2020) as well as Xu and Wang (2018), which revealed a positive correlation between employee contribution and the sustainable development rate of companies. The results are consistent with the predetermined hypothesis of the study.

V. CONCLUSION AND RECOMMENDATIONS

This study was conducted to investigate the impact of investment in human capital on the sustainable expansion of deposit money banks in

Nigeria throughout the period from 2012 to 2021. The study's findings indicate that the investment in human capital has a substantial impact on the sustainable expansion of deposit money banks in Nigeria. This finding substantiates the theoretical framework rooted in knowledge-based principles upon which this article is grounded. The correlation between an employee's level of knowledge, skill, and ability and their performance and productivity is such that an increase in these attributes is likely to result in greater profitability in the near term and long-term sustainability.

Based on the data and conclusions derived from this study, the following recommendations are proposed for the effective management of deposit money institutions in Nigeria:

- i. Management of deposit money banks should continue to strategically invest more in human capital because of its significant effect on business sustainable growth rate.
- ii. Management of deposit money banks should continuously develop their manpower to boost the productivity of employees which would translate to business sustainable growth rate.

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