

# Financial Performance in Nigerian Banks: The Role of Intangibles

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## ABSTRACT

This study examined the impact of intangible assets (IA) on banks' financial performance (FP), specifically in Nigeria using the five biggest banks in the country. The banks include Zenith Bank, United Bank for Africa, Guarantee Trust Bank, Access Bank, and First Bank of Nigeria. The study sought to address the conflicting findings in light of the paucity of research in developing nations, to determine the relevance of the relationships. Secondary data analysis was used, emphasizing total intangible assets and FP indicators like ROA, EPS and DPS. Using firm size as a control variable for robustness, a panel data analysis method was used while Eviews software was employed to analyze the data culled from the banks' financial reports over ten years (2013–2022). The natural log of total assets indicates firm size, whereas the natural log of all intangible assets represents intangible assets. The findings showed intangible assets have positive significant relationships with all the FP metrics (ROA, DPS, and EPS) used. The study concluded that the IA of Nigerian banks impact their FP positively and significantly. Banks should prioritize investments in IA, to enhance the profitability metrics such as ROA, DPS, and EPS.

**Keywords:** Dividend per share, earning per share, financial performance, intangible assets, return on assets

## INTRODUCTION

Over the past 20 years, the world has seen an unprecedented state of the economy. Due to business managers' dishonest and fraudulent conduct, financial institutions especially banks in the United States of America (USA) caused a severe economic collapse in 2007. The entire global economy was invested by this catastrophe because of the compact nature of the whole world. This led to the death of many big companies like; Enron Corporation, Merrill Lynch, Marconi, World com, Arthur Anderson, HIH Insurance, Polly Peck, Goldman Sacks, and foremost investment banks in the advanced economy like USA, United Kingdom (UK), Italy etc.

The African continent was equally not spared, because there were serious threats to ongoing concern of firms emanating from serious mismanagement of stock-holders funds and poor corporate performance. As such, the existences of many firms were put on hold most especially the financial institutions. This led to an abysmally low flow of foreign direct investment into the continent and even a lack of willingness by the indigenous investors to invest. Coming to Nigeria, the story is not different.

A host of companies lost their corporate existence while many were on the verge of collapsing. The financial institutions most especially banks and finance houses take the lead in the calamity. The record shows the loss of banks like Allied Bank, Societe Generale Bank, National Bank, and loads of cottage companies because of poor financial management and performance. In particular, the financial crisis put NAMPAK, Cadbury Nigeria plc, in jeopardy. The confidence of investors was lost by Intercontinental Bank, Oceanic Bank, Afribank, Spring Bank Plc, Wema Bank Plc, and Fin Bank due to insider trading and financial data window dressing. This led to the ultimate death of some and, the absorption of others while many were reorganized. As if this was not enough, the world was also plunged into the serious pandemonium of "COVID-19" which inflicted serious injury on the financial well-being of organizations globally.

Ruminating on the crisis brought out two issues. Firstly, financial performance is critical to the going concern of an entity and must be sincerely managed for the existence of an organization to be assured. Secondly, banks

play a critical role in financial crises across the globe and were mostly affected by the downturn from Europe to America to Asia and back home in Africa and Nigeria specifically. Therefore, there is a need for a concerted effort by managers of banks to put up strategies that will keep banks in business especially because of the major role played by banks in every economy. A critical look at the activities and management of banks and corporate entities in general after the financial crisis shows a paradigm shift in the way corporate entities are being run maybe because of stringent corporate governance rules enacted across borders to prevent future occurrence.

One strategy deployed by banks across the globe to improve their financial performance is to key into investment in intangible assets (IA). This is important for banks because, in an era of rapid industrial innovation and shifting consumer expectations, financial institutions must grasp the importance of intangibles to adapt and prosper in a dynamic environment. According to Zhang (2017), the firm's competitive edge that is difficult to replicate is its intangible assets. The intangible asset is a factor of production that is crucial to the value-generation process and is necessary for a company to compete effectively. According to Husnah et al. (2013), a firm's operational core competitive capability is reflected in its intangible assets.

The digital era has catalyzed a profound transformation in the banking business. Companies leveraging digital technologies not only optimize operations but also generate and utilize vast amounts of data which is a valuable intangible asset in itself as it provides insights for strategic decision-making. Data, generated through customer interactions and operational processes, is a potent intangible asset. Companies are exploring ways to ethically monetize data, not only for revenue generation but also to enhance customer experiences through personalization and predictive analytics which are done with the use of the software.

The role of intangible assets enables banks to leverage these elements strategically, fostering innovation and gaining a competitive edge by differentiating themselves in the market beyond traditional offerings. Therefore, every business enterprise desiring to compete comparatively considers intangible investments as of fundamental concern (Leandro et al., 2000). Intangibles, such as reputation and customer trust, play a pivotal role in risk management. Examining their significance allows banks to enhance resilience by proactively addressing reputational risks and ensuring robust risk mitigation strategies.

Digitalization has redefined the way banks operate, shifting the focus from physical infrastructure to digital platforms using computer software. Computer software emerges as a valuable asset in this digital paradigm and it forms the bulk of Nigerian banks' intangible assets. Banks that harness this asset effectively gain a competitive edge in understanding customer behaviors, managing risks, and creating personalized financial products and services. It is important to highlight that business operations have benefited from an upward shift in recent years toward a knowledge-based, rapidly evolving technology-intensive economy (Leandro et al., 2000). A company must spend on human capital development in the fields of information technology, research, and development if it hopes to be relevant and viable in such a competitive climate.

The banking sector is undergoing a transformation driven by the most recent technological developments while considering the evolving expectations of customers. Traditional business models are being challenged, necessitating a reevaluation of strategies to stay competitive. In this context, the role of intangibles, such as technological and digital assets becomes crucial. These intangibles influence operational efficiency and also shape customer understanding and market positioning.

Traditional business models often focus on physical assets like machinery and property. In the knowledge economy, the emphasis shifts toward leveraging information, innovation and expertise. Companies now prioritize intangible assets like patents, copyrights, and trade secrets. These intangibles not only protect innovations but also contribute significantly to a company's value. Thus, rather than the production of material things, the expansion and management of IA are the basis of economic value and prosperity (Leandro et al., 2000).

While intangibles present new avenues for growth, they also pose challenges in terms of measurement, valuation, and risk management. According to Biondi and Reberieux (2012), intangible resources are just as important to a company's expansion as tangible ones. The developing body of research on the value relevance

of intangibles in financial reporting literature coincides with a growing interest in the intangible asset components (Shukor et al., 2008).

According to Alcaniz et al. (2011), it is well-recognized that investments in intangibles, or knowledge-based resources, constitute the main component of successful business models. In the information age, where intangible assets are the most significant and are seen to have economic worth that propels a company's profitability and sustainability, the disclosure of such assets/resources is essential (Madininos et al., 2011).

Thus, the drive of this research is to examine how non-tangible assets influence banks' financial performance. This is required to ascertain whether investing in such assets is beneficial and capable of enhancing banks' sustainability and FP. The paucity of study in this field in developing nations, like Nigeria, is another contributing factor. Moreover, contradictory findings from earlier studies exist. The research is necessary because some academics argue that there is a substantial and positive correlation between IA and FP, while others argue that a weak and negative correlation exists.

### **Statement of the Problem**

In the wake of the worldwide financial crisis that was sparked by American banks in 2007 and the subsequent catastrophic global "COVID-19" pandemonium, the banking sector is faced with a decision regarding business continuation. Banks and other corporate institutions are equally faced with stringent corporate governance rules to protect the shareholders' money. For banks to continue to be in business, the problem of financial performance must be addressed. The financial performance is germane to the going concern of firms and banks most importantly for corporate existence (Kenn-Ndubuisi & Nweke, 2019). The problem of financial performance is that of inability to meet short-term financial needs, reduction in cash flow, weakness of asset base, weakness of internal control, inability to settle employees' bills and creditors, and eventual reduction in profit. These problems can lead to negative integrity for the organization and an inability to invest in high-yielding investments (KPMG, 2020).

To address the problem, managers of banks must engage in strategies that do not limit them to traditional focus on tangible assets but, banking that is complemented by a distinct understanding of intangible assets. As the industry shifts towards digitization, the significance of intangibles such as data, brands, human capital, intellectual property, technological innovation, goodwill, patent rights, and trademarks cannot be overstated. The success of an entity has been increasingly shaped by these intangibles. According to Mavridis and Kyrmizoglou (2005), intangibles play a significant role in a company's success by creating value.

As a result, assessing how intangible assets affect banks' performance is crucial. In particular, the ROA, DPS, and EPS of banks are to be regressed against the total intangibles of banks. With an emphasis on a digital bank like Zenith Bank, this will be accomplished by integrating the firm size (FSZ) as a control variable along with a robust estimation procedure to help bridge the gaps and provide a more trustworthy perspective on how intangible assets influence financial outcomes in the Nigerian banking sector.

### **Research Objective**

The central aim of this study is to thoroughly explore how IA contribute to the FP of banks, offering insights that complement the traditional focus on tangible assets.

The specific objectives are to:

- i) examine whether the banks' intangible assets impact significantly on their ROA.
- ii) determine whether the banks' intangible assets impact significantly on their DPS.
- iii) ascertain whether the banks' intangible assets impact significantly on their EPS.

### **Null Hypotheses**

The hypotheses are expressed in null forms as follows:

H<sub>01</sub>: The IA of the banks do not significantly impact their ROA.

H<sub>02</sub>: The IA of the banks do not significantly impact their DPS.

H<sub>03</sub>: The IA of the banks do not significantly impact their EPS.

## LITERATURE REVIEW

### Conceptual Review

#### The Concept of Intangible Assets

The industrial revolution of 1990 has shifted the world from a traditional factors-based economy to a knowledge-driven economy (Okoye et al., 2019; Oryina & Suleiman, 2020). The initiative has made it clear that knowledge and accessibility to information are the driving forces behind the contemporary global economy. This has changed the narrative of the business environment, therefore, for the organization to survive in the present competitive domain; investment in information and knowledge-based assets is the key. This implies that not the tangible assets like in the traditional model are only essential, but such must be driven by intangible assets to create value for the organization (Kehelwalatenna & Premaratne, 2012; Okoye et al., 2019).

Awa, et al. (2020) posited that the service industry most especially banks must key into a transformation that involves a huge investment in technological content that will roll out qualitative and more acceptable end products. According to Gerpoth et al. (2008), IA are items or assets that lack physical substance yet have economic worth. IA are defined as intellectual capital or assets that have a claim to future benefit but lack material or financial essence (Gu & Lev, 2001). Information technology (IT), advertising, research and development, and human resources are considered intangible assets by Gu and Lev (2001). According to Stewart (1997), as cited by Okoye et al. (2019), intangibles like knowledge, skills, goodwill, and other assets have the potential to bring in money for a company.

On the other hand, IAS 38 described an intangible asset as an identifiable, non-financial item that lacks physical substance. It has three basic attributes of recognition, being controlled by an identity and its capacity to create future value. This definition of intangibles by IAS 38 therefore aligned with the views of many scholars that intangibles share three attributes abstract, non-monetary, and capable of producing significant future values. The degree of importance attached to intangible assets is thought to represent a significant shift in a company's asset base. Perhaps, the revolution in the asset base is the result of adopting intangibles as calculated assets for survival in a business environment where businesses are keenly competing for outstanding scarce resources (Kehelwalatenna & Premaratne, 2012)

Examining the yearly reports and financial statements of Nigerian banks reveals that they recognize intangibles by the requirements of the accounting standard. However, it is observed that the components of intangibles in most of the banks include mostly goodwill and computer software assets. However, the cumulative intangible reported in the sampling sample bank was used in this study as the independent variable.

#### Concept of Financial Performance

The firm sustainability and key investment decisions are precipitated by its performance (Babatunde et al., 2022). It is the most significant concern of an entity (Okoye et al, 2019). This is because the performance of a firm is the only binocular through which well-being and survival are viewed. Memon and Tahir (2012) described performance as organizational success in attaining valuable outcomes which include but are not limited to high returns. From another perspective, it is the determination of whether the corporate actual output aligns with the anticipated output set by the firm (AlQudah et al., 2014). It is the accomplishment of the duties or goals of an entity (Abubakar et al., 2018). It is the net outcome of the collective labour of all and sundry in the organization. An entity's performance can come in different forms which are mainly categorized into financial and qualitative or non-financial performances (Al Shahrani & Tu, 2016).

The liquidity and profitability status, both of which are forms of financial performance, are used to measure firm performance (Okafor, 2017). As such corporate financial managers institute sound financial policies to permit an optimum and sustainable capital structure for better and sustainable performance (Muhammad, et al., 2016). As a result of this emphasis on profitability, financial performance outpaced qualitative performance. Thus, financial performance can be described as the degree to which a firm's primary goal is achieving its financial target (Zeituna & Tian, 2007).

Financial performance is typically used to analyze an entity's general financial well-being over a period. It is also used as a performance comparison among related firms within the same sector or across sectors (Muhammad et al., 2021). Firms' stakeholders like investors, suppliers, customers, employees, and even the government all hold financial performance dearly at heart. Corporate financial performance appraises the realization of the economic goal of firms which involves evaluating firms' capability to make profits and achieve other financial concerns as and when due from their primary object(s) of business (Joshua, et al., 2019).

Around the world, there are various methods used to measure financial performance. According to Mamun (2021), financial performance can be evaluated from the perspectives of management and shareholders' returns in general. The investors' return deals with shareholders' interest for example earnings per share and dividend yield while accounting returns measures are the reflection of managerial inputs and policies of which liquidity is an example. There are other several classifications of financial performance measures, but whatever manner the classification is being done, they must be representatives of items or figures from the financial statement which are often modeled into financial ratios.

As indicators of financial performance, notable ratios that academics have frequently used are ROA, ROE, EPS, DPS, return on sales (ROS), sales growth (SG), and others. Three financial performance metrics; ROA, DPS, and EPS are selected for this study. Each of them is described briefly and explained.

### **Return on Assets (ROA)**

The division of profit after taxes and interest by the entire asset value is known as ROA. In the literature, one unique and popular proxy for financial performance is ROA. It explains the company's prowess in using its assets (Ahannaya, 2022). Return on assets signifies the quantum of the entity's profit that is attributed to its assets or simply the proficiency of the entity's capability to make earnings from its assets (Sameer, 2021). It is a profitability ratio that explains to the firm's stakeholders the returns or profit associated with all assets under the control of the company. It clearly shows the desirability or otherwise of investing in all assets controlled by the business (Hilmi, 2016).

It is a financial gauge that describes the competency of management in the organization of assets to possibly reduce costs or enhance revenue. It is precisely linked with corporate governance; that is, the proficiency of the management in the administration of a business (Purwanti, 2018). According to Mamun (2021) and Nnamani et al. (2017), the higher the ROA, the more adept the management is at managing assets to produce profit. Hull and Rothenberg (2008) defined ROA as an organization's profit relative to the total assets and resources employed to make profits over a given time.

### **Dividend per Share (DPS)**

The return from stock holding is referred to as the dividend (Aurelia, 2020). Dividends are amounts paid to the stockholders of a firm as a reward for their holdings in the company from the distributable profit of a company. It was also described by Uwuigbe et al. (2012) as a payment made to stockholders as a gain from their risk investments in a firm. Depending on the company's decision, dividends may be paid either as stock or cash (Abdur, 2018; Uwuigbe et al, 2012). Dividends can also come in different other forms like stock-split and stock repurchase (Chiedu & Okonkwo, 2020). The dividend is quite essential; because it describes an organization that has a good financial strength, in terms of liquidity and stability as it involves the outflow of cash. This instills confidence in the public that the firm has prospects (Ubesie, et al., 2020; Abdur, 2018).

The division of the full amount of dividend announced by an entity by the total units of shares in the entity's books at a given time is consequently known as dividend per share (Narinder & Aakarsh, 2019; Ilyas, et al (2015)). The total amount distributed as dividends to investors is displayed by DPS. According to Aurelia (2020), it is the gross amount stated per share from a company's net profit after taxes. A shareholder can use it to calculate the entire dividend that he is entitled to, most simply and straightforwardly possible, by multiplying the amount by the total number of shares he owns in the company at any given time (Aurelia, 2020; Ahmed & Javid, 2009).

### **Earnings per Share (EPS)**

The percentage of profit generated by each share is called EPS. The proportion indicates the net profit after taxes owed to each unit of shares registered in the corporation at the end of the trading period. It is the primary and well-known factor influencing management's endeavor to produce profits for a company's stockholders (Bratamanggala, 2018). It is the number one profitability metric that is used in ascertaining the FP of an entity and the foundation of management strategic decision-making in every organization (JHvH, 2013).

According to Vaidya, (2014), EPS defines the accounting arithmetic that allocates an entity's profits to each unit of its outstanding ordinary shares at a given financial period in time. It is also vital in determining a company's risk, success, and performance. The ratio determines the vastness of profit and the dividend to be paid to shareholders (Sameer, 2021; Bratamanggala, 2018). It is an important ratio for investors' decision-making because it ordinarily reflects in share price and the overall corporate value, therefore, making it significant in forecasting future dividend growth and share price. This fact hinges on the view that the welfare of the shareholders can only be guaranteed when companies make profits. Therefore, the success of an organization can only be determined from the volume of profit made judging from the scope of investors (Yuliza, 2018).

### **Theoretical Review: Resource-Based Theory**

The relationship between FP and IA has been explained by a number of hypotheses. Scholars have employed theories such as Edgar Schein's management theory, resource-based theory, value theory, resource-dependent theory, cost theory, signaling theory, intellectual capital theory, and organizational learning theory. However, because of its significance in strategic management, resource-based theory seems to be the most well-known.

The resource-based theory was first brought to focus by Penrose (1959) where she advanced the reasons for firms' growth and diversification. The theory was later improved by literature in the 1970s and 1980s. Wernerfelt (1984) brought major development to the theory which was later polished by Barney (1991). The central thrust of the theory is that an organization in a highly competitive situation can only stay on top of the competition by harnessing the firm resources not imitable by competitors in an effective manner. Penrose believed that idle and untapped managerial potentials are valuable movers or can be a limitation to any growth and development yearnings of a firm. The implication of this according to Peteraf (1993) is that a firm will have a competitive edge only through its resources and capabilities.

The combination of resources and aptitude is expected to create an environment for firms to occupy a strategic position in the marketplace if the resources are perfectly collected. Williams (1992) also corroborated this assertion by saying that, if a firm has any resources that are strongly shielded from competitors, there is just a need to figure out how to protect, strengthen, and enhance the current competitive resources.

The company's unique and exceptional resources and abilities ensure financial success, expand business opportunities, and ultimately result in performance (Barney, 1991). This aligns with the thought of Porter (2011) that the identifiable resources and capabilities of an organization guard it against imitation by competitors which permits product and service differentiation and resources with a resultant high-profit aggregation. Organizational resources like knowledge and expertise, human resources like technical and administrative staff, and physical resources like equipment and machinery can all serve as examples of this kind of business power and wealth. Higher-order, complex, and intangible resources including competencies, knowledge, and patent abilities are also included in this category.

The argument made by Barney (1991) that a firm's unique and superior resources and abilities ensure profits, expand company prospects, and ultimately lead to performance makes this theory appropriate as the foundation for this study. Intangible assets being normally unique to an entity fall under distinctive corporate resources that, if well utilized are capable of creating a competitive advantage for banks. The competitive edge so created by intangible assets can then lead to banks' robust performance, especially in the present knowledge-driven business environment. Although the resource-based theory focuses mostly on intangible resources, Reed et al., 2006 thought that corporate strategic assets encompass both tangible and intangible resources. Youndt et al. (2004) provided evidence in favor of the claim that intangible assets add value by essentially producing a long-lasting strategic advantage.

## Empirical Review

The FP of Chinese manufacturing firms was examined by Xu and Liu (2020) through the prism of profitability and corporate returns. The study's findings discovered that intellectual capital and NPM, GPM, ROI, ROA, and ROE are positively correlated. Additionally, industrial firms with higher intangible assets performed better financially. The work shows that significant investments in intellectual capital can generate wealth creation in emerging economies.

Using a pooled and multiple regression analytical method, Kehelwalatenna and Premaratne (2012) conducted a thorough examination of ten years of data taken from the New York Security Exchange (NYSE) from 2000 to 2010 financial years to ascertain the correlation of knowledge capital, shareholder reactions, profitability, with productivity in US banks. The time frame encompassed the historic financial crisis, which was sparked by banks and resulted in the largest corporate governance restructuring in history. Intellectual capital efficiency served as a proxy for the explanatory variable, or intellectual capital. Profitability, the explained variable, was proxy with ROE and ROA. The market-to-book value ratio gauges investor reaction, while the asset turnover ratio measures productivity. Regression analysis results supported that a positively significant correlation exists between knowledge capital and production, profitability, and investor reaction in US banks.

Olaoye et al. (2020) using secondary data studied the effect of IA on the FP of DMBs in Nigeria. Intangibles were measured using the total IA that the chosen banks provided in their financial statements, and the FP was measured using ROA. The findings showed a weak but favorable correlation between the profitability of Nigerian DMBs and their intangible assets.

Okoye et al. (2019) used secondary data from 2008 to 2017 to examine the impact of intangible assets on the performance of Nigerian public corporations. Annual reports of five firms selected from various sectors provided the data. ROCE was considered the dependent variable, whereas employee benefit costs, R&D expenses, and goodwill were considered the independent variables. The study employed descriptive statistics, OLS regression, and correlation analyses to analyze the data. It was found that the return on capital used by listed businesses in Nigeria is insignificantly impacted by employee benefit costs. The research findings indicated the ROCE of listed entities is significantly impacted by the R&D expenses. The study concluded that the return on capital used by listed entities in Nigeria is significantly impacted by goodwill. According to the study, IA have a significant positive impact on the Nigerian listed companies' FP.

The impact of IA (goodwill, computer software costs, and intellectual properties) on the market value of Nigerian manufacturing firms that are listed was examined by Ephraim and Suleiman (2020). Data obtained from the financial reports of particular manufacturing firms were subjected to correlation analysis. Only businesses that disclosed some aspects of their intangible assets for the study's consideration period (2013-2019) were included. The measures of market values were EPS, DPS, book value per share, and market value per share. The independent variables were goodwill per share, technological innovations cost per share, and knowledge property cost per share. The study indicated that a positively strong correlation exists between intellectual property and the market value of Nigerian manufacturing firms that are listed, while the market value exhibits an inversely significant relationship with goodwill.

The review of the literature above supports the need to venture into this study as most of the results of the research showed that IA are strategic assets of an organization, most especially banks, owing to their importance in an economy and because of scanty research in this area of study with respect to Nigerian banks.

## **METHODOLOGY**

### **Research Design**

To achieve the objectives of the research, a panel data analysis was conducted using secondary data to investigate the impact of intangible assets on the FP of the five biggest Nigerian banks. Time series data were chosen for their numerous advantages, including ease of access, cost-efficiency, and time effectiveness. This research design aligns with the *ex post facto* approach employed by Awa et al. (2020) that focused on three key financial performance indicators such as ROA, DPS, and EPS as explained variables while the total intangible assets (IA) was the explanatory variable.

The study adopted firm size proxy with total assets as a mediating variable to allow for a clear understanding of the specific impact the intangible assets have on FP, isolating their impact from the potential influence of bank size. This will enhance the robustness of the results to ensure that observed relationships are not confounded by variations in firm size.

### **Study Population**

The study population is the 36 deposit money banks that make up Nigeria's banking industry (CBN, 2024).

### **Sample Size**

This study utilizes a panel data sample consisting of 50 observations, derived from five major Nigerian banks (Zenith Bank, United Bank for Africa, Guarantee Trust Bank, Access Bank, and First Bank of Nigeria) over 10 years. Each bank contributes 10 observations, with data collected annually for each of the 10 years. This approach ensures a balanced panel, providing a robust dataset for analyzing the impact of IA on the FP of these banks. The longitudinal nature of the data allows for a comprehensive examination of trends and relationships across different periods and institutions.

### **Data Collection Instrument**

Time series data on ROA, DPS, EPS, total assets, and intangible assets spanning from 2013 to 2022 culled from certified and published financial reports were utilized to achieve the research objectives.

### **Method of Data Analysis**

To address the financial performance challenges faced by Nigerian banks, this study focused on evaluating the impact of intangible assets. A panel data analysis method was employed to explore how intangible assets influence financial performance over time. The study utilized secondary data from five banks over 10 years, analyzing how these intangibles affected key performance indicators. The analysis was conducted using Eviews software, which facilitated the application of panel data regression models. This approach allowed for a comprehensive examination of the relationships between IA and FP metrics such as ROA, DPS, and EPS. These techniques ensure they account for both cross-sectional and time-series variations, offering a comprehensive evaluation of how IA influence the FP of Nigerian banks.

### **Measurement of Variables**

#### **Measurement of Intangible Assets in Banks (IAB)**

To accomplish the study's objectives, the total intangible assets (IAB) from the five banks' published financial reports were used as a proxy for intangible assets in the banks.



## Measurement of Financial Performance

Similarly, the study used ROA, DPS, and EPS as proxy for the financial performance of banks.

## Model Specification

Firm size was added as a control/mediating variable for robustness, however functional relationships between the variables were developed in a different model to achieve the aim of the research. Implicitly, the model is stated below:

$$ROA = f(\text{Intangible Asset, Firm Size}) \dots\dots\dots 1$$

$$DPS = f(\text{Intangible Asset, Firm Size}) \dots\dots\dots 2$$

$$EPS = f(\text{Intangible Asset, Firm Size}) \dots\dots\dots 3$$

Econometrically,

$$ROA_t = \beta_0 + \beta_1 \ln IAB_{it} + \beta_2 \ln FSZ_{it} + \epsilon_{it} \dots\dots\dots 4$$

$$DPS_t = \beta_0 + \beta_1 \ln IAB_{it} + \beta_2 \ln FSZ_{it} + \epsilon_{it} \dots\dots\dots 5$$

$$EPS_t = \beta_0 + \beta_1 \ln IAB_{it} + \beta_2 \ln FSZ_{it} + \epsilon_{it} \dots\dots\dots 6$$

where:

$ROA_{it}$  = Return on Assets for bank i at time t

$IAB_{it}$  = Intangible assets for bank i at time t

EPS = Earnings Per Share for bank i at time t

DPS = Dividend Per Share for bank i at time t

FSZ is the total asset of the firm in millions for bank i at time t

$\beta_0$  = Intercept term

$\beta_1$  = Coefficient for intangible assets

$\beta_2$  = Coefficient for firm size

$\epsilon_{it}$  = Error term

ln = natural log

## DATA ANALYSIS AND INTERPRETATION OF RESULTS

**Table 1: Result of Panel Least Square for eq. 4**

Dependent Variable: ROA				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.615757	7.569934	0.081342	0.9355

InIAB	1.017978	0.573875	1.773867	0.0826
InFSZ	-0.522134	0.711763	-0.733578	0.4668
R-squared	0.103416	Mean dependent var		3.820427
Adjusted R-squared	0.065264	S.D. dependent var		8.113414
F-statistic	2.710595	Durbin-Watson stat		1.076221
Prob(F-statistic)	0.076893			

Source: Authors' Computation 2024

Table 1 above depicts the results of the panel least squares regression analysis between ROA, InIAB, and InFSZ. From the table, the coefficient for InIAB is 1.017978 and a probability value of 0.0826, indicating that a 1% rise in intangible assets will lead to an approximately 1.02% rise in ROA significantly at 10%. This positive relationship implies that as firms increase their intangible assets, they may experience an insignificant higher return on assets at the 5% level but significant at the 10% level.

However, the coefficient for InFSZ is -0.522134 with a p-value of 0.4668 indicating that a 1% increase in the log of firm size (total assets) will result in 0.52% decrease in ROA insignificantly. This negative relationship implies that as firms grow larger, their return on assets tends to decrease insignificantly which does not have a strong impact on ROA in this model.

The R<sup>2</sup> of 0.103416 implies InFSZ and InIAB have explained 10.34% of the variation in ROA. The F-statistic is 2.710595 with a corresponding p-value of 0.076893 indicating that the overall model is fit at a 10% significant level. The D.W statistic of 1.076221, implies there is a presence of positive serial correlation in the model.

**Table 2: Result of Panel Least Square for eq. 5**

Dependent Variable: DPS				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	33.65363	11.48912	2.929174	0.0052
InIAB	3.935007	0.870988	4.517865	0.0000
InFSZ	-4.445565	1.080265	-4.115254	0.0002
R-squared	0.305243	Durbin-Watson stat		2.514761
F-statistic	10.32479	Prob(F-statistic)		0.000192

Source: Authors' Computation 2024

Table 2 presents the results of the panel LS analysis between intangible assets (InIAB) and firm size (InFSZ) on Dividend Per Share (DPS) over the period from 2013 to 2022. The results reveal the coefficient of the intangible assets is 3.935007 and the probability value of 0.0000, this indicates that a rise in intangible assets will lead to a 3.94% significant rise in DPS. This indicates that firms with greater intangible assets tend to offer higher dividends per share.

On the other hand, InFSZ of -4.445565 with a p-value of 0.0002, indicates that a 1% rise in the firm size will lead to a significant decrease in DPS by approximately 4.45%.

The  $R^2$  value of 0.305243 implies that 30.52% of the variation in DPS has been explained by InFSZ and InIAB. The independent variables have significantly jointly explained DPS from the result of the F-statistic and its p-value of 0.0000192 at 5% level. The Durbin-Watson statistic of 2.514761 suggests the presence of a negative serial correlation in the model.

**Table 3: Result of Panel Least Square for eq. 6**

Dependent Variable: EPS				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-15.99557	82.52781	-0.193820	0.8472
InIAB	23.68036	6.256418	3.784970	0.0004
InFSZ	-12.39955	7.759681	-1.597946	0.1168
\R-squared	0.340633	Durbin-Watson stat		0.218538
F-statistic	12.14025	Prob(F-statistic)		0.000056

Source: Authors' Computation 2024

Table 3 presents the output of the panel LS regression analysis between intangible assets (InIAB), firm size (InFSZ), and earnings per share (EPS) from 2013 to 2022. The output depicts InIAB with a coefficient of 23.68036 and a p-value of 0.0004. This implies that a 1% rise in the log of intangible assets (InIAB) will result in a significant rise in EPS by 23.68%, with a p-value of 0.0004 which is significant at a 5% level. This indicates that firms with larger intangibles are prone to a significant rise in their earnings per share.

Conversely, the coefficient for firm size (InFSZ) is -12.39955, indicating an inverse relationship between firm size and EPS. This implies that a 1% increase in InFSZ will result in a decrease in EPS by approximately 12.40%, which is not statistically significant at a 5% probability value of 0.1168 which is greater than 0.005. This indicates that firm size does not have a significant impact on EPS within this model.

The  $R^2$  of 0.340633 indicates that 34.06% variations in EPS have been explained by firm size and intangible assets. The F-statistic of 12.14025 with a probability value of 0.000056, implies that the independent variables collectively explained the impact on EPS. However, the D.W. statistic of 0.218538 is very low, indicating the presence of a strong positive serial correlation in the residuals of the model.

## DISCUSSION OF FINDINGS

The research examined the relationship between FP and intangible assets. ROA, DPS, and EPS were adopted as a proxy for FP. From the findings, IA have a significant impact on ROA at 10%, with a coefficient of 1.017978 and a probability value of 0.0826. This indicates that a 1% rise in IA will lead to about a 1.02% rise in ROA, significantly at the 10% level. This finding highlights the potential of IA to enhance bank FP, although the effect is not strong enough to be significant at the 5% level. These findings conform with the results of Xu and Liu, (2020), Kehelwalatenna and Premaratne (2012), and Olaoye et al., (2020).

On the other hand, firm size proxy with total assets indicates a negative but insignificant, impact on ROA, with a coefficient of -0.522134 and a probability value of 0.4668. This shows that as banks grow larger, their ROA tends to decrease insignificantly. The model explains only 10.34% of the variations in ROA.

Similarly, the research discovered that IA have a positive impact on DPS, with a coefficient of 3.935007 and a highly significant probability value of 0.0000. This indicates that a 1% rise in IA will lead to a 3.94% rise in DPS, underscoring the importance of intangible assets in enhancing shareholder returns through dividends. Conversely, firm size negatively impacts DPS, with a coefficient of -4.445565 and a significant probability

value of 0.0002 implying a 1% rise in firm size will result in a significant reduction in DPS by about 4.45%. 30.52% of the variations in DPS are explained by the independent variables, with the overall model being fit at the 5% level.

Likewise, the findings discovered that intangible asset has a strong impact positive on EPS, with a coefficient of 23.68036 and a highly significant probability value of 0.0004. This indicates that a 1% rise in intangible assets will lead to a 23.68% significant rise in EPS, reinforcing the value of intangible assets in driving bank FP. Firm size, however, shows an inverse but statistically insignificant effect on EPS, with a coefficient of -12.39955 and a probability value of 0.1168. The findings showed that 34.06% of the variations in EPS have been collectively explained by InIAB and InFSZ. Likewise, Durbin-Watson of 0.218538 implies a positive serial correlation in the model.

## CONCLUSION AND RECOMMENDATIONS

### Conclusion

The study examined how the IA of Nigerian banks impact their FP. The study concluded that the IA of the banks positively and significantly impact ROA, DPS, and EPS. Therefore, intangible assets significantly contribute to bank profitability, particularly by enhancing shareholders' returns through dividends, and earnings.

### Recommendations

Banks should prioritize investments in IA, such as technology, brand equity, and intellectual property, as these significantly enhance profitability metrics like ROA, DPS, and EPS.

Banks should carefully manage their growth strategies, as larger firm size may lead to diminishing returns on profitability. An optimal balance between growth and efficiency should be maintained to avoid negative impacts on financial performance.

Given the strong positive relationship between intangible assets and DPS, banks should consider leveraging intangible assets to boost shareholder returns through dividends. A robust dividend policy tied to intangible asset growth could attract more investors.

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