



Appraising Financial Development Indicators and Capital Market Performance: Empirical Evidence from Nigeria

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Research Article

Abstract

Purpose: This study appraised empirically Financial Development Indicators (FDIs) and Capital Market Performance in Nigeria. While Financial Depth, Financial Access, and Financial Efficiency served as proxies for FDIs and independent variables; Market Capitalization was used as a proxy for Capital Market Performance and the dependent variable.

Method: Primary data were sourced employing Survey design and analyzed using the Pearson Product-Moment Correlation Coefficient, (PPMCC) technique denoted by 'r'.

Result: The result shows that the Financial Depth and Financial Access are relevant to policies formulated to affect Market Capitalization in Nigeria. However, Financial Efficiency cannot be considered too relevant to policies formulated to affect Market Capitalization in Nigeria.

Implications: The financial sector authorities and stakeholders should ensure innovative facilities and policies to imbibe large trade volumes so as to facilitate the proper development of the sector. Also, serious attention should be given to recruitment and selection as well as training and development of the employees in order to sustain professionalism in their performance.

Keywords: Financial Development Indicators, Capital market, Market Capitalization, Financial Depth, Financial Access, Nigeria

1. Introduction

The concept of Financial Development (FD) is regarded as an exceedingly great strategy for achieving a viable economy in any nation. Financial Development includes in scope, the development of the financial systems, otherwise, the financial sector in both national and global levels. This means that the development of a nation's financial system is by implication, the

development of its financial sector. Financial Development in its entirety is targeted at creating access to finance, reducing transaction costs, enhancing efficiency and stability in the financial system, and empowering financial markets to imbibe large trade volume without having a strong effect on market prices. Usually, regional and global financial systems consist of financial institutions, markets, instruments, concordats, and ordinances that interact to provide a medium of exchange or transfer of funds between lenders, borrowers, and investors. Thus, the legal framework of the sector is designed to allow the flow of transactions, in particular the extension of credits and investment placement. Indeed, theoretical and empirical literature suggest that Financial Development plays an enormous role in economic development generally. FD plays a special role in Capital market operations with respect to empowering investors with funds for investments. For example, the World Bank Group, (2016), opined that countries with better-developed financial systems tend to grow faster over long periods of time. Theoretical evidence suggests that the financial sector development effect is causal because it promotes economic growth through capital accumulation by increasing savings rate, mobilizing and pooling savings, producing information about investments, facilitating and encouraging the inflows of foreign capital, as well as optimizing the allocation of capital'. We deduced from the World Bank group report that the production of information about investments facilitates the inflows of foreign capital, as well as optimize the allocation of capital in Capital market operations. Thus, there is an established link between financial development and Capital market performance.

The link between financial development and Capital market performance can be assessed with a good Capital market performance measurement variable such as 'Market Capitalization'. It enables us to comprehend the effect or impact of Financial development on Capital market performance and growth. However, theoretical and empirical literature attest to the fact that in practice, Financial Development itself is hard to measure. This is because as a developmental concept, it is extremely broad and consists of different dimensions and attributes. For this reason, researchers globally adopt standard indicators for Financial Development in carrying out research analysis. World Bank Group, (2016) affirmed that the World Bank's Global Financial Development Database developed a comprehensive yet relatively simple conceptual framework to measure Financial development around the world. This framework identifies four sets of proxy variables characterizing a well-functioning financial system. These include Financial Depth, Financial Access, Financial Efficiency, and Financial Stability'. In line with the World Bank's Global Financial Development Database standard, Castelli, (2018) carried out a study on the relationship between financial sector development and economic growth and she adopted three of these variables, namely: Financial Depth, Financial Access, and Financial Stability as her independent variables and proxy for Financial Development with Trade and GDP Constant serving as control variables'. We also built the foundation and structure of this study around the World Bank premise and adopted three distinct variables of Financial Development to serve as proxies for it. They include *Financial Depth*, *Financial Access*, and *Financial Efficiency*. These variables are the independent variables to explain Market Capitalization serving as the dependent variable and proxy for Capital Market performance.

The fourth variable, 'Financial stability' is used as our control variable primarily because it is more or less a function of other variables. Financial stability somewhat indicates how well other variables are performing. It is a state where key financial markets and institutional systems can resist economic shocks and perform basic functions to an acceptable standard. An efficient market with viable access to finances and good financial variable ratios to GDP may likely exhibit strong financial stability.

At this point, we wish to elaborate more on the three chosen indicators of Financial Development used in this study as independent variables and Market Capitalization serving as the dependent variable. Obviously, this is aimed to ease the understanding of the concepts. First is the variable, Financial Depth. Per the World Bank Group's (2016) report, Financial Depth captures the financial sector relative to the economy'. Specifically, it is the size of Financial Institutions and Markets in an economy compared to a measure of Gross Domestic Product (GDP). GDP is the variable that measures the economic output of a nation at a given time. Financial depth in an economy is more clearly understood when expressed in ratios. For example, from the viewpoint of a Financial Market concept, Financial Depth could be expressed as a ratio of Stock Market capitalization to GDP or Outstanding Domestic Private Debt Securities to GDP. The second variable is Financial Access. This simply refers to 'Access to finance'. It is the ability of individuals or enterprises to obtain financial services, including credit, deposit, payment, insurance, and other risk management services in the economy. Those who cannot obtain these services or are limited are referred to as unbanked or under-banked, respectively. Definitions.net, (2020) explained that Financial access provides credit for the most promising firms, promotes growth for enterprises through the provision of credit, and enables incumbent firms to grow by exploiting growth and investment opportunities. Financial Access could be measured as a percentage of People with a bank account, as per user survey or Percentage of firms with a line of credit or Percentage of Market capitalization outside of the top 10 largest companies (Wikipedia). The third indicator of Financial Development is Financial Efficiency. Financial Efficiency with respect to financial markets may assume several forms or concepts. Generally, it has to do with the meeting of indispensable needs or requirements or obligations in order to provide the highest quality financial services at the minimum cost possible. Financial Efficiency may be measured in terms of total asset turnover, net interest margin, turnover of public and private bonds on a securities exchange, turnover ratio for the stock market, et cetera. Lastly, we pointed out earlier that the dependent variable is Market Capitalization. Market Capitalization by definition is the market value of outstanding shares of a public company. It is calculated by multiplying the share market price by the number of outstanding shares. It is commonly referred to as 'Market cap' and it indicates the equity value of a firm. For the Nigerian Stock Exchange or any other Exchange where companies are listed, it represents the total equity or sum of all 'Market cap' of all companies listed in the Exchange. In this case it will be referred to as 'Total Market capitalization' in the Exchange. Thus, Market Capitalization could be used as an indicator of public opinion of a company's worth or an Exchange worth. Indeed, Market Capitalization is a key variable that measures the wellbeing of Capital market operations.

2. Literatures Review and Hypotheses Formulation

The Capital market is a financial market that plays a vital role in the economy of nations. Long-term capital or equity-backed securities are sourced from the Capital market for various economic activities. So, a fundamental role of the Capital market is that it channels funds of savers to investors who make use of them for long-term productive purposes. In Nigeria, the Capital Market is regulated by the Securities and Exchange Commission (SEC). A developed Capital market facilitates liquidity provision, economic efficiency and growth, and in particular portfolio investment diversification. Alenoghena, Enakali-Osoba, and Mesagan (2014) contends that in search of ways to improve the activities of Capital markets around the world, Financial Development has been identified as one of those strategies whose enhancement can quicken the pace, enlargement, and contributions of Capital market'. The level of financial development determines the capability of the Capital market to make tangible contributions to the economy and that explains why it is imperative to appraise the relationship between financial development and Capital market performance in an emerging economy like that of Nigeria. The performance of the Capital market can be measured in terms of an increase in Market capitalization. Alenoghena, et al, (2014) argued that part of the reasons for the inability of the Nigerian Stock Market capitalization to compare favorably with the GDP is attributable to the poor liquidity position occasioned by the poor banking habits of a large segment of the Nigerian population. So, the performance issue of the Nigerian Capital market is brought to fore and it also brought about the motivation to proffer a solution by investigating Financial development indicators. One of the early thoughts about financial development as a financial strategy was credited to Schumpeter. Though the thoughts and works of Schumpeter (1912) have transcended decades, they still remained relevant to new concepts and write-ups arising from Financial Development issues. According to Schumpeter (1912), the development of financial intermediaries has a direct effect on the rate of technical change and productivity growth, both of which lead to overall output growth.

We are basing the thoughts in this study on this foundation, though our point of departure is in the fact that this study is empirical and is focused on Financial Development indicators and Capital market performance with data sourced from Nigeria. In a buoyant economy, Financial Development impacts or benefits cut across all sections of the economy. It promotes financial institutions and market operations. Developmental finance issues emphasize effective and efficient mobilization of financial resources to boost the economy. The core reason is that optimal mobilization of financial resources transforms saving via the intermediation process in the financial sector into productive investments and particularly investments in the capital market. In clearer terms, it means that a good proportion of the capital being invested in the Capital market is derived from capital accumulation through savings during the intermediation process. So, one way financial development can take place is by enhancing the Financial Intermediation process. Financial intermediation is the process by which financial institutions mobilize funds from Surplus Economic Units (Savers) and employ the mobilized funds to grant credits to Deficit Economic Units (Investors). The level of financial intermediation determines

capital accumulation, the rate of growth of the economy, and general productivity because the intermediation process flourishes in an economy with a well-developed financial sector. This also affects positively the level of Capital market operations whose main role is primarily the allocation of capital. So, the financial intermediation process in a well-functioning and developed financial sector not only aid the efficient mobilization of financial resources but also plays vital roles in enhancing investments in capital market operations and the economy in general. Qamruzzaman and Jianguo (2018) averred that the contribution of financial development towards economic development comes with either bank-based financial development, market-based financial development, or both. Different countries experience financial development in both or either way. In a nutshell, financial development plays a key role in stock market operations in facilitating the raising of funds for investments. Every emerging economy seeks to develop its Capital market to ensure quick growth as the company's source of raising funds for expansion and development hinges on it.

Financial Depth has been identified as a core indicator of financial development globally and it is the ability of financial markets to imbibe large trade volume without having a strong effect on market prices. Again, according to the World Bank Group (2016) report, it captures the financial sector relative to the economy. For ease of understanding, it is mostly expressed in ratios with financial institutions and market variables. With regards to Financial Institution's variables, Financial Depth is expressed as a ratio of Private Sector Credit to GDP or Financial Institutions' Asset to GDP or M2 to GDP or Deposits to GDP. In relationship with Financial Markets variables, financial depth may be expressed as a ratio of Private Debt Securities to GDP or International Debt Securities to GDP or Stock Market Capitalization to GDP. Hoi, Hoang, and Thuy (2019), affirmed that the depth of financial markets is represented by stock Market capitalization and pointed out that from 2004 to 2014, Singapore continuously possessed the highest share value. Singapore Market capitalization rose by 100%-point. Meanwhile, the value of other markets varied between 0% and 100%, especially, the lowest Market capitalization that belonged to Vietnam. The fact is that developed and efficient financial institutions and markets can provide different financial products having different risk patterns, different pricing structures, and different maturity dates. According to Demirgüç-Kunt and Levine (2001), this provision helps the financial sector to offer products to meet the needs of borrowers, lenders, and investors. The function enables the Capital markets to effectively channel resources and allocate funds to different sectors of the economy to facilitate production processes of goods and services.

The second core indicator of Financial development is Financial Access, which if simply put, is the access to finance and it refers to the availability of financial services. From empirical and theoretical literature, Financial Access is positively correlated to economic growth in the sense that it provides funds for investments and Capital market operations. According to Park (2018), financial access or inclusion aids inclusive growth, economic development, and investments in Capital market products. Financial access expands investors' access to financial services and increases their opportunities to diversify their portfolio of investments. It is usually difficult to measure the effect of financial access on Capital market operations as there are no parameters

for it but that-notwithstanding, it is an economic fact that access to funds facilitates investments that lead to economic prosperity and growth generally. Again, Park (2018) averred that the degree of impact of Financial Access on Capital market operations, and hence economic growth seems to vary widely across countries. While high-income countries tend to show greater financial inclusion, there are many exceptions'. Hamad and Zunaidah (2018) opined that financial access plays a vital role in raising a well-organized and vibrant financial system structure that facilitates the growth rate of investments and portfolio diversification in an economy. Seen from that perspective, financial depth breeds an organized financial sector that has the ability to influence investment patterns that can facilitate positive growth in the economy. The more there are investments in an economy, the more likely the growth of Market Capitalization in the Capital market industry. In the words of Kama and Adigun (2013), Financial Depth is an explicit strategy for accelerated economic growth and is considered to be critical for achieving inclusive growth in a country. This feat has made possible the adoption of policies aimed at promoting financial depth as a means of enhancing economic activities in the world.

The last independent variable of Financial Development is Financial Efficiency which refers to the ability of the financial sector to render excellent and high-quality financial services and articulate viable financial products at the minimum cost. The ability of the financial system to render support to the real sector (non-financial and non-government sectors), otherwise the productive sector activities depend on the efficiency with which intermediation takes place. The measure of Financial Efficiency takes several forms which include total costs of financial intermediation as a percentage of total assets and interest rate margin (the difference between the lending rate minus deposit rate). The net interest margin (NIM) measure of Financial Efficiency has been emphasized by some studies. For example, Hoi et al (2019) averred that financial institutions Efficiency is represented by Net Interest Margin (NIM). Japan possessed the lowest and relatively stable NIM at 1%. Meanwhile, other countries witnessed sudden changes in this indicator. However, developing and less developed systems did not witness large changes during the crisis and post-crisis periods. Between 2006 and 2013, NIM in Thailand, Vietnam, and the Philippines was around 3.5% and had a tendency to fall, whereas this indicator in Indonesia was quite high at about 6%. Deduction from the discussions above implies that financial development strategy can enhance the functioning of the financial sector to attain efficiency that would enable Capital market operations to flourish and consequently, Market Capitalization is improved.

It is from the foregoing discussions that we deduced the objective of the study. The main objective of this study, therefore, is to determine empirically Financial Development Indicators and Capital Market Performance in Nigeria. However, the aforementioned Financial Development Indicators, namely: Financial Depth, Financial Access, and Financial Efficiency were employed as independent variables to explain Market Capitalization, the proxy for Capital Market Performance to find out the causal relationship between them. We used these variables in our hypotheses formulation. The following three null hypotheses are formulated to be tested in this study.

- H01: *There is no significant relationship between Financial Depth and Market Capitalization in the Capital Market industry in Nigeria.*
- H02: *There is no significant relationship between Financial Access and Market Capitalization in the Capital Market industry in Nigeria.*
- H03: *There is no significant relationship between Financial Efficiency and Market Capitalization in the Capital Market industry in Nigeria.*

3. Materials and Methods

3.1. Research Design, Population and Sample population

This study utilized primary data and so employed 'Survey design' for the collection of data for analysis. Survey design is strategic and guided by practical experience and observation, so, it gives fundamental knowledge of the population. The population, therefore, is the totality of all observable elements in a specific field of study or particular research. Its scope or size may be limited in magnitude or may be unlimited. The population of this study consists of all employees of Financial Institutions and Markets in Nigeria in the middle and top management categories.

From the Population, we derive the Sample population, specifically the sampling areas from where the data were sourced. According to Creswell (2005), the Sample population is the actual list of sampling units from which the sample or research data are selected. In this study, it consists of all financial Institutions and Markets employees in Delta and Edo States, Nigeria who are in the middle and top management categories. The sample size of the study is five hundred employees in the said categories.

3.2. Sampling Technique and Instrument of Data Collection

The study utilized the 'Random sampling technique' in the collection of data. This technique is fair and unbiased, thus, it is an appropriate and acceptable standard in the collection of data. The sampling instrument is a structured questionnaire. The questionnaire is sub-divided into two discrete parts namely: the Demographic and Questions with Answers options parts. The demographic part contains personal information of the respondents the second part, contains the Questions with Answers options. The Questions with Answers options followed the pattern of 'Item-Specific-Response-Options (ISRO)'. Wronski (2018) opined that 'Item specific' means that response options are specific to a particular survey question, however, different questions may have a different set of 'response options'. ISRO strategic ratings are believed to be biases free to a greater extent and give better judgment than the Likert scale ratings. However, it has five-point answer options like the Likert rating scales. ISRO answer options ranges from Very Affirmative; Somewhat Affirmative; Neither Affirmative nor Negative; Somewhat Negative to Very Negative and are weighted 5, 4, 3, 2, and 1 respectively.

3.3. Theoretical framework and model specification

Pearson Product-Moment Correlation Coefficient (PPMCC), denominated by the letter 'r' is the statistical parameter utilized for data analysis. PPMCC) or 'r' is computed using the weights allotted to the answer options above and the frequencies of occurrences of the answer options obtained from the field survey. PPMCC or 'r' is a veritable tool and is referred to as the 'Sample coefficient'. It is a perfectly suitable parameter for measuring the linear relationship between two variables. The Sample coefficient attests to the strength and direction of a linear relationship, thus it specifies whether it is a strong or weak relationship and whether it is a positive or negative relationship. According to Sauro (2011), a five-point rating scale can be weighted 5 to 1 from very affirmative option to very negative option respectively and that while presenting data obtained, the score column may contain the numerical equivalent scores to the respondent's answers (i.e. the weight) and the nominal column relates to the frequency of respondent's answers. Boone and Boone (2012) affirmed that to properly analyze a five-point rating scale (such as ISRO scale), it is appropriate to employ the Pearson's Product moment correlation coefficient 'r'. Also, according to Obadan, (2012), in order to have a precise quantitative measurement of the degree of correlation between the variables Y and X, a measure called Pearson's Product-Moment correlation coefficient (r^{xy}) is used. The relationship is defined using PPMCC or r^{xy} formula as:

$$\text{PPMCC or } r^{xy} = \frac{\sum (X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum (X - \bar{X})^2 \sum (Y - \bar{Y})^2}} \dots \dots \dots (1)$$

Where: r^{xy} = Pearson's Product-Moment Correlation Coefficient (PPMCC) between X and Y variables

X = Weighted answer response options with respect to the variables

Y = Frequency of answer response options

∑ = Summation sign

\bar{X} = Mean of weighted response options

\bar{Y} = Mean of frequency of response options

Since formula 1 is difficult to manipulate mathematically, it is replaced with formula 2 that utilizes the variables' deviations from their mean. Obadan, (2012), opined that a simpler formula expressed in deviations form, that is, the deviations of the variables from their means is derived. Thus, the value of Pearson's Product-Moment Correlation Coefficient (PPMCC) between X and Y variables or r^{xy} is represented by:

$$r^{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} \dots \dots \dots (2)$$

Where $x = X - \bar{X}$ and
 $y = Y - \bar{Y}$

3.4. Decision rule:

Obadan (2012) averred that the computed value of Pearson's Product-Moment Correlation Coefficient (PPMCC) or 'r' usually fall between -1 and +1; such that:

- When 'r' is zero, it implies no relationship between variables under review.
- When 'r' is +1, it is a perfect positive correlation or relationship.
- When 'r' is -1, it is a perfect negative correlation or relationship.
- When 'r' is squared, it is called 'Coefficient of Determination (r^2)' and it shows the goodness of fit of the overall model.

4. Results

4.1. Descriptive Statistics

Five hundred (500) copies of the analytical questionnaire were distributed randomly during field survey exercise, however, four hundred and sixty (465) were retrieved from respondents and which constitutes 93% of all questionnaires that were distributed. These were the data obtained from questionnaire administration for each of the three hypotheses formulated earlier. These data were utilized to compute the Pearson Product-Moment Correlation Coefficient (PPMCC), denominated by the letter 'r'. The data for each hypothesis are displayed and discussed below.

Data Related to Hypothesis one (H01): This hypothesis is used to evaluate the relationship between the variables: Financial Depth and Market Capitalization in Nigeria. The question that captured the relationship between Financial Depth and Market Capitalization in the questionnaire administered and that was utilized for hypothesis one (H01) estimation states thus:

How contented or discontented would you say that the broadening of 'Financial Depth' as a strategy has improved the growth of 'Market Capitalization' in the Capital Market industry in Nigeria?

The data of the Response frequencies with respect to the above question for all the 465 questionnaires retrieved are presented in table 1. Table 1 reveals that the response frequencies of answer options 'Very contented' and 'Somewhat contented' stood at 26.45% and 35.05% respectively and together they constitute 61.50% of total responses indicating literally that broadening of Financial Depth has a causal effect on Market Capitalization and ultimately on Capital Market performance in Nigeria.

Table 1: Response frequencies for the variables: 'Financial Depth and Market Capitalization'

Response Options	Response Frequencies in figures	Response Frequencies in Percentages %
Very Contented	123	26.45%
Somewhat Contented	163	35.05%
Neither Contented nor Discontented	84	18.07%
Somewhat Discontented	51	10.97%
Very Discontented	44	9.46%
Total	465	100%

To distinguish the typical features of the response frequencies, the data are represented in figure 1 in a Column chart.

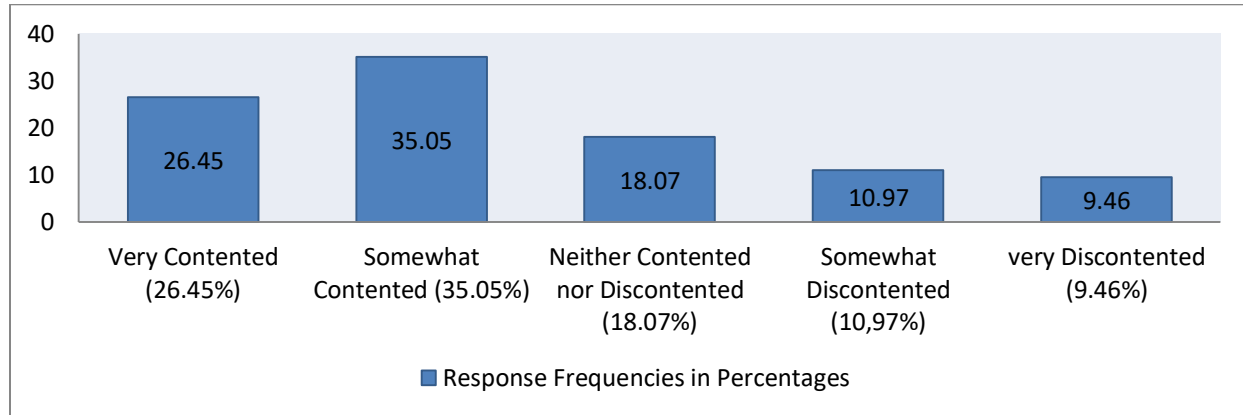


Fig. 1: Responses frequencies for variables: Financial Depth and Market Capitalization.

Data Related to Hypothesis two (H02): We used this hypothesis to appraise the relationship between the variables: Financial Access and Market Capitalization in Nigeria. The question that provided the link between Financial Access and Market Capitalization in the questionnaire and that was exploited to estimate hypothesis two (H02) states as follows:

How satisfied or dissatisfied would you say that the development of 'Financial Depth' as a strategy has boosted the growth of 'Market Capitalization' in the Capital Market industry in Nigeria?

Table 2: Response frequencies for variables: 'Financial Access and Market Capitalization'

Response Options	Response Frequencies in figures	Response Frequencies in Percentages (%)
Very Satisfied	131	28.17%
Somewhat Satisfied	171	36.77%
Neither Satisfied nor Dissatisfied	88	18.93%
Somewhat Dissatisfied	42	9.03%
Very Dissatisfied	33	7.10%
Total	465	100%

The data for the Response frequencies obtained for the question are presented in table 2. The Pearson Product-Moment Correlation Coefficient (PPMCC) or 'r' between the variables: Financial Access and Market Capitalization were computed using these data.

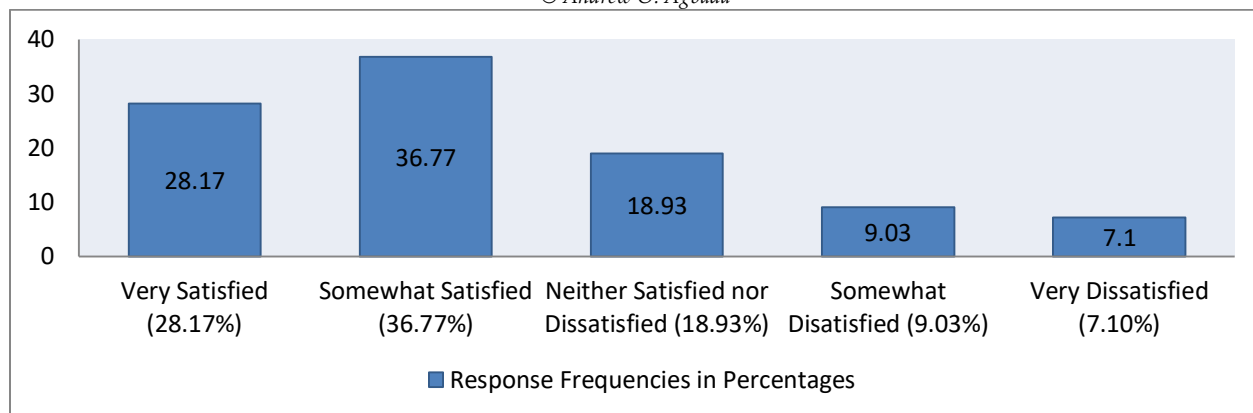


Fig.2: Responses frequencies for variables: Financial Access and Market Capitalization.

Table 2 depicts the data of response frequencies of answer options to the question utilized to appraise hypothesis two and it reveals that the option 'Very satisfied' and 'Somewhat satisfied' scored 28.17% and 36.77% respectively. Both put together stood at 64.94% of total responses and it implies that improving public access to funds or finance has a positive impact on Market Capitalization. In other words, Financial Access has a relatively strong and positive impact on Capital Market performance in Nigeria. For clarity of purpose, the data are represented in a Column chart. The Column chart in figure 2 shows the distinctive features of how the data for the response frequencies of the answer options stand.

Data Related to Hypothesis three (H03): Hypothesis three (H03) was employed to gauge the relationship between the variables: Financial Efficiency and Market Capitalization in the Nigerian Capital Market. The question that connected the variables in the questionnaire administered and that was applied in estimating hypothesis three (H03) states thus:

How 'Delighted' or 'Unhappy' would you say that the improvement of 'Financial Efficiency' as a strategy has enhanced 'Market Capitalization' in the Nigerian Capital Market industry?

The data of the response frequencies to the question that captured the link between the variables: Financial Efficiency and Market Capitalization in the questionnaire are displayed in Table 3. The table revealed that the answer option 'Somewhat Delighted' had the highest score standing at 30.11%. Together with the scores of the answer option 'Very Delighted' standing at 20.64%, the total affirmative score stood at 50.75%.

Table 3: Response frequencies for variables: 'Financial Efficiency and Market Capitalization'

Response Options	Response Frequencies in figures	Response Frequencies in Percentages (%)
Very Delighted	96	20.64%
Somewhat Delighted	140	30.11%
Neither Delighted nor Unhappy	126	27.10%
Somewhat Unhappy	43	9.25%
Very Unhappy	60	12.90%
Total	465	100%

Of the three variables, Financial Efficiency had a less affirmative score, implying that its impact on Market Capitalization is weakest in Nigeria. This shows that though there may be a positive

relationship between Financial Efficiency and Market Capitalization in Nigeria, the strength of relationship with 50.75% affirmative score appears to suggest a rather weak relationship. One reason responsible for the rather weak relationship is the magnitude of respondents who are neither delighted nor unhappy that improvement of 'Financial Efficiency' as a strategy has enhanced 'Market Capitalization' in Nigeria. This set of respondents' scores stood high at 27.10%. This must have had a negative bearing on the results. Why this large proportion of respondents appear naïve of the impact of 'Financial Efficiency' on 'Market Capitalization' is somewhat difficult to explain. However, the distinguishing characteristics of the scores of the answer options are as depicted in the Column chart in figure 3.

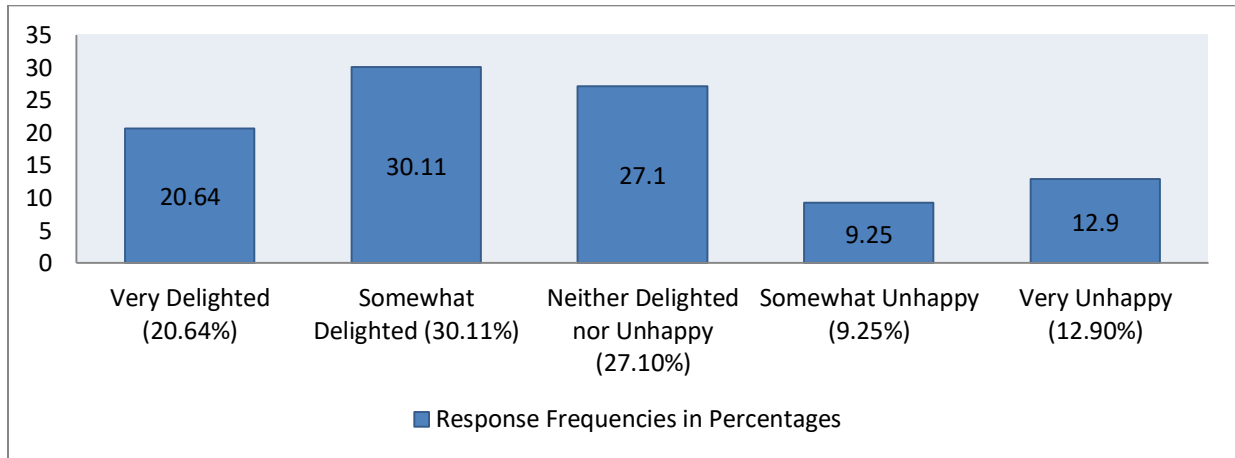


Fig. 3 Responses frequencies for variables: Financial Access and Market Capitalization

4.2. Data Estimation: Hypotheses Testing.

In this section, all the hypotheses were empirically estimated using the formula given for Pearson's Product-Moment Correlation Coefficient (PPMCC) or 'r'. We also employed the data obtained from the field survey and the weights of the answer options in the computation.

Hypothesis 1 (H01): Table 4 shows the totals (Σ) of the variables used in the estimation of Pearson's Product-Moment Correlation Coefficient (PPMCC) or 'r' value for hypothesis one. The allocated weights to the answer options were assigned to variable X and the frequencies of occurrences of answer options were assigned to variable Y for the calculations.

Table 4: Derivation of totals (Σ) of variables: Financial Depth and Market Capitalization.

	X	Y	$x = X - \bar{X}$	$y = Y - \bar{Y}$	xy	x^2	y^2
Very Contented	5	123	2	30	60	4	900
Somewhat Contented	4	163	1	70	70	1	4900
Neither Contented nor Discontented	3	84	00	-9	00	00	81
Somewhat Discontented	2	51	-1	-42	42	1	1764
Very Discontented	1	44	-2	-49	98	4	2401
Total (Σ)	15	465	00	00	270	10	10046

Empirical Estimations

Mean of Weighted Answer Options; $\bar{X} = \frac{\sum X}{n} = \frac{15}{5} = 3$

Mean of Frequency Response Options $\bar{Y} = \frac{\sum Y}{n} = \frac{465}{5} = 93.00$

From equation 2; PPMCC; $r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{270}{\sqrt{10 \times 10046}} = \frac{270}{316.95} = 0.8519$

Therefore:

The Pearson’s Product-Moment Correlation Co-efficient (PPMCC) ‘r’ = 0.8519

The Coefficient of Determination (r²) = (0.8519)² = 0.7257 or 72.57%.

Testing Hypothesis 2 (H02). We derived the sum of the variables used for the estimation of hypothesis two (H02) from Table 5. Again the allocated weights and frequencies of occurrences were assigned to variable X and variable Y respectively for computing the value of the Pearson’s Product-Moment Correlation Co-efficient PPMCC or ‘r’.

Table 5: Derivation of totals (Σ) of variables: Financial Depth and Market Capitalization

	X	Y	x = X - \bar{X}	y = Y - \bar{Y}	xy	x ²	y ²
Very Satisfied	5	131	2	38	76	4	1444
Somewhat Satisfied	4	171	1	78	78	1	6084
Neither Satisfied nor Dissatisfied	3	88	00	-5	00	00	25
Somewhat Dissatisfied	2	42	-1	-51	51	1	2601
Very Dissatisfied	1	33	-2	-60	120	4	3600
Total (Σ)	15	465	00	00	325	10	13754

Empirical Estimations

Mean of Weighted Answer Options; $\bar{X} = \frac{\sum X}{n} = \frac{15}{5} = 3$

Mean of Frequency Response Options $\bar{Y} = \frac{\sum Y}{n} = \frac{465}{5} = 93.00$

From equation 2; PPMCC; $r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{325}{\sqrt{10 \times 13754}} = \frac{325}{370.86} = 0.8763$

Therefore:

The Pearson’s Product-Moment Correlation Co-efficient (PPMCC) ‘r’ = 0.8763 and

The Coefficient of Determination (r²) = (0.8763)² = 0.7679 or 76.79%.

Testing Hypothesis three (H03). The sums of the products of the variables used in estimating the relationship between Financial Efficiency and Market Capitalization were computed using Table 6. As with the other two hypotheses, weights allocated to variable X and the frequencies of occurrences assigned to variable Y were employed in the computation of PPMCC or ‘r’.

Table 6: Derivation of totals (Σ) of variables: Financial Efficiency and Market Capitalization

	X	Y	x = X - \bar{X}	y = Y - \bar{Y}	xy	x ²	y ²
Very Delighted	5	96	2	3	6	4	9
Somewhat Delighted	4	140	1	47	47	1	2209
Neither Delighted nor Unhappy	3	126	00	33	00	00	1089
Somewhat Unhappy	2	43	-1	-50	50	1	2500
Very Unhappy	1	60	-2	-33	66	4	1089
Total (Σ)	15	465	00	00	169	10	6896

Empirical Estimations

Mean of Weighted Answer Options; $\bar{X} = \frac{\sum X}{n} = \frac{15}{5} = 3$

Mean of Frequency Response Options $\bar{Y} = \frac{\sum Y}{n} = \frac{465}{5} = 93.00$

From equation 2, PPMCC; $r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{169}{\sqrt{10 \times 6896}} = \frac{169}{262.60} = 0.6436$

Therefore:

The Pearson’s Product-Moment Correlation Co-efficient (PPMCC) ‘r’ = 0.6436 and
 The Coefficient of Determination (r²) = (0.6436)² = 0.4142 or 41.42%.

5. Discussion of findings

This research empirically appraised Financial Development Indicators and Capital Market Performance in Nigeria. In doing so, Financial Depth, Financial Access, and Financial Efficiency were used as proxies for Financial Development Indicators, and as our independent variables to explain Market Capitalization, the proxy for Capital Market Performance. The data derived from the question that linked each independent variable with the dependent variable were employed to compute the Pearson Product-Moment Correlation Coefficient (PPMCC) denoted by 'r' for the hypotheses formulated. From the computed product of 'r', the adjusted 'r' square referred to as the Coefficient of determination (r²) was derived. We noted above that PPMCC or 'r' is a veritable tool and a suitable parameter for measuring the linear relationship between two variables and that it attests to the strength and direction of the linear relationship between the variables, showing whether the relationship is strong or weak and whether it is positive or negative. We also noted that the Coefficient of determination (r²) measures the proportion of variation in the dependent variable explained by the independent variable. It is on these presumptions and the decision rule above that we base our discussion of findings. For ease of discussion, the computed products of PPMCC or 'r' and the Coefficient of determination (r²) for the three hypotheses are displayed in table 7.

Table 7: Summary of Results of the three null hypotheses tested

Hypotheses	PPMCC (r)	Coefficient of Determination (r ²)
H01: Financial Depth and Market Capitalization	0.8519	0.7257 or 72.57%
H02: Financial Access and Market Capitalization	0.8763	0.7679 or 76.79%
H03: Financial Efficiency and Market Capitalization	0.6436	0.4142 or 41.42%

Generally, all the results displayed on table 7 show some degree of robustness, and in particular, all the computed coefficients for 'r' and (r²) exhibit positive signs. It implies that the independent variables, namely Financial Depth, Financial Access, and Financial Efficiency are positively correlated to Market Capitalization in Nigeria. On a general note, Financial Development has a positive linear relationship with Capital Market Performance in Nigeria. Specifically, the findings for each of the hypotheses are presented below.

The first hypothesis tests the linear relationship between Financial Depth and Market Capitalization. The computed Pearson product-moment Correlation Coefficient (PPMCC) or 'r' stood at 0.8519. This indicates a near-perfect linear relationship between the variables. It implies a positive and strong relationship, meaning that changes in Financial Depth can cause changes in Market Capitalization. Besides, the adjusted 'r' square or Coefficient of determination (r²) stood high at 0.7257 or 72.57%. By implication, Financial Depth accounted for 72.57% variation in the dependent variable – Market Capitalization. From the foregoing, Financial Depth can be considered relevant to policies formulated to affect Market Capitalization in Nigeria. It is against this backdrop that we rejected the null hypothesis and accept the alternate hypothesis that there is a positive and strong linear relationship between Financial Depth and Market capitalization in Nigeria.

For the second hypothesis (H02), the linear relationship between Financial Access and Market Capitalization was estimated. Table 7 reveals that the computed Pearson product-moment Correlation Coefficient (PPMCC) or 'r' showed a higher, thus a more perfect coefficient than the first. It stood at 0.8763, attesting to a positive and very high linear relationship between the variables. It implies that access to funds has a very strong and positive causal effect on Market Capitalization in Nigeria. The Coefficient of determination (r²) that measures the proportion of variation in Market Capitalization that is explained by Financial Access is high and robust at .7679. It implies that Financial Access explained 76.79% variation in Market Capitalization in Nigeria. The robustness of these results compelled us to reject the null hypothesis and accept the alternate hypothesis that there is a strong and positive relationship between the variables. Therefore Financial Access can be considered relevant to policies formulated to affect Market Capitalization in Nigeria.

The third hypothesis is the empirical estimation of the variables: Financial Efficiency and Market Capitalization. The results lack some special distinction. It appears somewhat different

from hypotheses one and two results. The coefficient, (PPMCC) or 'r' stood at 0.6436. Though it indicates a positive linear relationship, the strength of the relationship at 64.36% cannot be said to be a very strong relationship, but rather, it is more or less on the average or moderately strong. Besides, its Coefficient of determination (r^2) showed 0.4142 or 41.42%; implying that Financial Efficiency accounted for only 41.42% variation in Market Capitalization. Sincerely, this result is somewhat difficult to explain because going by the concept of Financial Efficiency which has to do with the meeting of indispensable needs or obligations in order to provide highest quality financial services at the minimum cost possible, its causal effect on Market Capitalization was expected to be greater than it exhibited. However, relying on the value of PPMCC or 'r', the variable may be considered relevant to policies formulated to affect Market Capitalization. That-notwithstanding, the results cannot be said to be plausible and this calls for special attention.

6. Conclusion

The conclusions of this study are drawn from the discussion of findings and the features displayed by the Column charts. However, to present issues on a logical sequence, we wish to reiterate that the study appraised empirically Financial Development Indicators and Capital Market Performance in Nigeria. Financial Development Indicators proxies, namely, Financial Depth, Financial Access, and Financial Efficiency served as the independent variables to explain Market Capitalization, the dependent variable, and proxy for Capital Market Performance. Deductions from the study showed that hypotheses one (H01) and two (H02) passed the test of significance by exhibiting high Pearson product-moment Correlation Coefficient (PPMCC) or 'r' with accompanying high Coefficient of determination (r^2). Hypothesis one (H01) parameters, 'r', and r^2 values stood at 0.8519 and 72.57% respectively while those of hypotheses two (H02), 'r', and r^2 values were 0.8763 and 76.79% respectively. These results led us to conclude that the two variables, namely Financial Depth and Financial Access are relevant to policies formulated to affect Market Capitalization in Nigeria and that improving these variables will consequently improve Capital Market performance in Nigeria.

Be that as it may, the resulting outcome of hypotheses three (H03) counters apriori expectation because its Coefficient of determination r^2 , in particular, failed the test of significance. The estimated values of the parameters of Hypothesis three (H03), namely: PPMCC or 'r' and r^2 stood at 0.6436 and 41.42% respectively. The value of 'r' suggests that though a positive relationship exists between Financial Efficiency and Market Capitalization, the strength of the relationship is moderate. Judging from the magnitude of the Coefficient of determination r^2 , the variable; Financial Efficiency appears to fail the test of significance not being able to explain up to 50%, but just only 41.42% variation in Market Capitalization. However, the value of r^2 provides some weak support to the PPMCC or 'r'. On these grounds, we concluded that the variable; Financial Efficiency contribution to Capital Market performance is moderate in Nigeria. In other words, the variable can be considered as moderately relevant to policies formulated to affect Market Capitalization in Nigeria. This is however difficult to comprehend because expectations are that the improvement of Financial Efficiency should be strategic as a

policy to enhance 'Market Capitalization' in the Nigerian Capital Market industry. Since this is contrary to expectation, we concluded that the results of H03 counter apriori expectation.

7. Recommendations

Considering the magnitudes of the estimated result for hypotheses one (H01) and two (H02), the variables Financial Depth and Financial Access can be said to have a near-perfect relationship with Market Capitalization in Nigeria. In other words the improvement of these variables can be employed to maximize the growth of the Capital market in Nigeria via Market capitalization. Whereas Financial Depth is the ability of financial markets to imbibe large trade volume without having a strong effect on market prices and Financial Access is the access to finance and refers to the availability and cost of financial services. The development of these variables will effectively facilitate and cause a positive impact on the financial system and the economy of the nation. Therefore, we recommend that financial sector and economic stakeholders and authorities should ensure that innovative facilities and policies that enable access to finance, give the ability to financial markets to imbibe large trade volume and the efficient working of the financial system be put in place to facilitate proper and sustained development of the sector.

Indeed, to provide a satisfactory explanation for the results of hypothesis three (H03) that tested the relationship between Financial Efficiency and Market Capitalization is herculean. However, one fact appears clear that the faulty or unwritten recruitment policy that permits the engagement of employees from every academic discipline into the financial institutions. As a result, it could be said that a large proportion of respondents may not have comprehended the concept of Financial Efficiency owing to the hybrid nature of employees in the finance industry who were recruited from all unrelated financial disciplines for a couple of decades now. Today, we have engineers who are bankers or Arabic studies graduates handling Capital market issues, such that lack of tacit knowledge hinders decision making and proper flow of operations. We, therefore, recommend that serious attention should be paid to on-the-job-training, training, retraining, seminars and financial courses for employees to enhance their performance in their duties. We also recommend that Management of financial institutions and markets should strictly enforce ethical standards in their recruitment policies to reflect professionalism on the job.

8. Limitations and Direction for Further Study

This study is focused on Nigeria as the study appraises Financial Development Indicators and Capital Market Performance in Nigeria. The data were sourced from the Nigerian financial sector. However, inferences and deductions are of general application in global financial systems. The financial system is a complex web comprising of specialized financial Institutions. Markets, Instrument, et cetera. In this study, we investigated only a negligible aspect of the system, that is, financial development indicators, and its impact on Capital market performance. This leaves ample opportunities for further researches in this field of study. It is a perceptual study based on qualitative judgments of the respondents and hence the result is susceptible to

the biases related to such data collection like subject knowledge and attitude of the respondents. Future research can be conducted based on quantitative data related to market capitalization and other relevant variables.

Conflicts of Interest: The author declares no conflict of interest.

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