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Corporate Mergers, Acquisitions and Value Creation of Firms in Nigeria

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

This study seeks to scrutinize the effect of corporate mergers, acquisition and value creation of firms in Nigeria and to identify areas of synergy. The study employed secondary data collected from the bank's annual report. The data collected covered a period of fourteen years, which is divided into the pre and post-merger periods of seven years respectively. The study adopted panel least square estimation technique and other estimation for the analysis. The study finds out that shareholders' funds and earnings per share are significant in determining the return on asset. Also shareholders' funds and total asset values are statistically significant in the pre-merger periods in determining return on asset. That profit after tax is statistically significant in explaining financial efficiency in the pre-merger periods; the study concludes that there was increase in the shareholders' funds for the post-merger periods.

Keywords: Mergers; acquisitions; value creation; firms; Nigeria.

1. INTRODUCTION

Mergers and Acquisitions (M&A) play a very important part in corporate finance. It enables organizations accomplish diverse objectives and business strategies that enhances shareholders value, performance, create added value and ultimately ensure the survival of the firm. Sudarsanam [1] asserts that increase in shareholders' value is the most important

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rationale for carrying out M&A. Many corporation in search of mergers and acquisitions wish to develop into the chief player in the market and a force to contend with in the various strategic business unit. Mergers and acquisition enable corporate organization to achieve superior performance.

Kemal [2], opine that the reason why M&A occurs in all part of the world is because of the benefit both parties derive from it, which encourages competition by gaining superior market share and plummeting business risk. In order for Mergers and Acquisitions (M&A) to take place, various aspect of the organization or their individual unit are pooled together to form a single whole. Mergers and Acquisition also improves the performance of firms due to the increase of shareholder's value [3]. Economies of scale, tax reduction, revenue enhancement, and others are some of the reasons that encourages M&A. Berger [4] also affirms that mergers have become accepted due to superior competition and can either be helpful or harmful. It is positive when it allows a company to grow and negative when it brings about the reduction in the size of the enterprise. It can also alter the business completely or develop the competitive life of an organization.

According to Douma & Schreuder [5], the success of acquisition has confirmed to be very complicated; studies revealed that half of acquisitions failed while "Serial acquirers" tends to be flourishing with M&A than organization who carryout acquisition intermittently. The way an acquisition is communicated to the target company board of directors can determine whether it is "friendly" or "hostile". In some cases, M&A deal occurs in a "confidential manner, because all the processes of M&A are done confidentially. Friendly transaction occurs in M&A when the corporations oblige in the dialogue phase whereas in a hostile deal, management of the target firm is reluctant to be bought or may have no preceding awareness of the proposed offer. Although in the long-run hostile acquisition time and again tends to become "friendly", as the parent company lock approval of the deal from the board of the target company having resolved all matters causing delay. This feat is usually achieved if the parent company steps up in terms of the offer through cooperation.

Often times, acquisition occurs when a bigger company buys a smaller one but occasionally, reverse takeover occurs when smaller companies acquires the management control of a superior company and hold on to the name of the latter for the post-acquisition joint entity. Another form of reverse acquisition is a situation where a private company is publicly listed for a short period of time. Likewise, reverse merger occurs when a privately held company buys a publicly listed small company, with no business and limited assets. According to Douma & Schreuder [5], M&A generate economic value, apparently by reassigning assets to competent hands. This evidently suggests that the shareholders of acquired firms take in considerable positive "abnormal returns" while shareholders of the acquiring company are most likely to experience a negative wealth effect.

Studies have shown that mergers and acquisitions bring about better financial performance and return on asset. Contrary to this, Ghosh [6], confirm results at odds with the view that mergers and acquisitions improve their performance. This situation is particularly evidenced in Nigeria as some firms still experience major crisis just even after major business combination as seen in the Nigerian banking industry whose major mergers resulting from the 2005 bank re-capitalization did not see some of the resulting firms surviving for a longer period due to incompatibility and over promising performance on the part of the management team which they were not able to meet up with.

Acquisition impinges on significant reallocation of wealth both inside and across businesses, and this form the corporate landscape. A cautiously planned and executed mergers and/or acquisition can generate substantial value for the merging firms by improving operational efficiency and taking advantage of other synergistic gains from combining business activities. Nonetheless, bad acquisition choice can also wipe out viable business entities and cost executives their jobs. Therefore, this study aim to investigate if corporate mergers and acquisition can really create value in the new firms that has been formed.

2. LITERATURE REVIEW

Mergers and Acquisitions (M&A) involves all type of amalgamation of business or assets which include mergers purchase of assets, acquisitions, management acquisitions, consolidations, tender offers etc. It is a contract that binds at least two companies. The most common among the aforementioned globally are mergers and acquisitions [7].

The essence of merger or acquisition is to produce value that is higher than the sum of the individual firms. Most companies opt for merger when faced with the problem of survival. Companies merge so as reduce costs, compete well and boost the market share of their product. As a result, companies give in to the pressure when they cannot stand alone or meet up with their needs [8].

Amalgamation occurs when more than one corporations is wholly absorbed by another firm. The corporation to be acquired drops it identity and becomes part of the new firm, which retains its identity. During merger the company to be absorbed losses all it rights and privileges, and the current company inherit both assets and liabilities of the former company. Note that there is a difference between mergers and consolidation, in consolidation, all the parties involved drops their individual identities and carry on a completely new one. Every country has regulations that legalize the amalgamation process. These laws are in tandem with mergers because it ultimately eradicates competition among merging firms. It becomes more serious and a thing of concern where the parties involves is direct rivals, as it is presumed that such measures tends to limit output and to increase prices.

One of the benefits of Mergers and acquisitions is that it leads to expansion of firms due to assets that are combined together. Also these actions translate to automatically eliminating potential competition in cases where merging parties are close rivals. According to Sheidu & Yusuf [9] mergers fuse two or more companies into a unified whole. In the broad sense, M&A creates synergy amongst companies, in which one drop its identity, and the other retains it own. While Anyanwu & Agwor [10] sees mergers as a form of "strategic alliance", Ahmed & Ahmed [11] describes it as an amalgamation that brings previously independent entities into a sole entity which promote better management or technical skill to bear on idle assets, produce economies of scale and scope that reduce costs, improve quality, and increase output. The prospects of a profitable sale stimulate entrepreneurs to form new firms. From a legal point of view a company can be purchase up to three specific ways: mergers or consolidation, stock acquisition or assets acquisition Ross, Randolph and Westerfield (2019).

2.1 Mergers and Acquisitions and Financial Performance

Financial performance appraises organizational effectiveness. It scrutinizes how an organization should appear to its shareholders to succeed financially [12]. Anderibum & Obute [13] carried out a research on the consequences of M&A on the profitability of banks in Nigeria; using UBA as a case study from 2000-2010, the paired sample t-test was employed and the study concludes that there is a direct and significant relationship in the performance of commercial banks in Nigeria. Similarly, Omoye & Aniefor [14] used a longitudinal survey from 2007 to 2012 to appraise the effect of M&A on profitability. "McNemar" statistics was use to analyze the data and they conclude that M&A has an influence on profitability ratios. Another study that examined the impact of M&A on the stock price performance was Sabri, Ezman & Zainal [15], their study confirmed evidences that imply a positive and significant impact of M&A on stock performance. As such, they conclude that the announcement of M&A may perhaps encourage efficiency.

Conversely, there are contrary opinions such as Ahmed and Ahmed [11]; Ashfaq, Usman, Hanif & Yousa [16] who argued that M&A have no positive influence on the performance of an organization. Ashfaq et al. [16] carried out a study on the effects of M&A on corporate performance; they used descriptive statistics and paired sampled t-test. From their findings, there was a declined in performance even after mergers and acquisitions has taken place. They also found that organizations often times deviate from their goal after business combination. Another study that conforms to this contrary opinion is that of Ahmed & Ahmed [11]; they found a negative relationship between mergers, acquisitions and firms' performance.

2.2 Effects of Mergers and Acquisitions on Profitability

The financial profitability of a firm can be expressed in terms of revenue generated from its operations, after deducting expenses, Lucey [17]. Bank profitability is the net after-tax income or net earnings of a bank (usually divided by a measure of bank size). Financial ratios are the most frequently used technique in evaluating bank profitability [18]. Financial ratios help users of accounting information to know the financial state of an organization which will in turn help

decide whether to continue to invest in such company or to seek help elsewhere.

Pandey [19] laid emphasis on economies of scales which can only be achieved through consolidation. M&A also bring about uniting management functions such as marketing and research which in the long run reduce cost of production. A company through diversification may expand its markets internally or externally. A company who cannot grow internally as a result of limited resources may achieve that externally through mergers and acquisitions.

For a company to grow internally it must require all of its operating, manufacturing, research and marketing strategy to be fully developed. Mergers and acquisitions, however, is capital intensive and may or may not require the consent of the target company. Sometimes, the cost of expansion is higher because of the exorbitant price paid during merger. When the cost of acquisition is very low, this will benefit the acquirer and bring about growth which adds value to shareholders wealth creation. It is observed that, often times acquiring companies pays excessive price for acquisition just to gratify their urge for high growth and large size of their companies [20]. For success to be attained, shareholders interest and value must be given utmost priority [21]. Therefore, the success of any merger must be measured by core competences in order to create or enhance value, which can be measured also by using parameters such as market attractiveness and competitive positioning.

2.3 The Concept of Value Creation

The concept of value creation can be measured in various terms, like monetary, cognitive, social, political, or emotional, etc. however, this study applied the concept of value creation in monetary terms. Value creation has to do with expansion in shareholders' wealth through the various activities carried out by organizations. It is also seen as the excess of market value over book value per share [22]. The value increasing school, is of the opinion that value creation in mergers take place, largely, because mergers breed synergies amongst the acquirer and the target, and synergies, in turn, increases the value of the firm [23].

According to the theory of efficiency, mergers can only take place when they are projected to produce realizable synergies that will benefit all parties involved in the arrangement. When there are comparative expectations of gains by both parties, the results is friendly and favorable. For mergers agreement, to take place, the contract must be favorable to all the parties involved and must translate to a win-win situation for all. Often times, both the acquirer and the target company may decide to opt out from the contract if it is not favorable to them. For this reason, for a merger arrangement to be successful it must generate a positive result for all parties as recommended by the efficiency theory on value creation with positive returns to both the acquirer and the target [24].

A firm is seen to create value for its owners when the company's return on assets is greater than its cost of capital [25]. Fernandez (2002) emphasize that value creation is often seen when there is increase in the firm's market value of shares.

Koller [26] opine that, although many of these performance management systems are successful in their arrangement, however many other has not. He argues further that they fail because their mission was not clearly stated and as a result it conflicted with the ultimate goal of creating value. For value to be created the management team must know how to identify, decide on, and segment the market in such a way that they are able to compete, define the kind of value to be proposed on the market and create supply for such value.

2.3.1 Financial performance as a measure of value creation

This measures companies' financial activities and how they set out to achieve their financial goals. It also evaluates a company's financial earnings through various appraisal methods and financial indicators [27]. A study on evidence on mergers and acquisitions was carried out and it was concluded that when the pre-merger and post-merger performance are evaluated and compare the firm will be able to decide whether value has been created or not. The study uses financial performance criterion as a measure of value creation. Specifically, the study uses Return On Assets (ROA) as a measure of value creation [28].

2.3.2 Return on asset as a measure of value creation

Return on Asset explains how profitable a corporation is comparative to its total assets. It

analyses a company's revenue that is accrued over time for every naira spent on its assets. ROA demonstrate how well management is utilizing the company's total asset to make profit thereby creating value. A higher return on asset means, the management is efficient in utilizing its asset. A company can arrive at a high ROA by boosting it profit margin or by using its asset to increase sales. Also ROA denominator (total assets), includes liabilities like debt which means that when debts are lowered, the ROA will be increases. It calculated by comparing the net income to average total assets and express as a percentage.

2.3.3 Return on equity as a measure of value creation

Return on Equity indicates firms' ability to successfully use the shareholders' funds to create more profits. Increases in return on equity demonstrate that the managements are capable of managing the shareholders' funds to create revenues. A study by Khalayleh [29] in the relationship amid accounting performance indicators for Jordanian firms bare a direct association between the market power per share and the return on equity ratio. Advantages attributed to M&A include; economies of scale and increase in market share. According to Brealey [30], economies of scale are accomplished when there is a decrease in the average unit cost of production which is usually caused by operational efficiencies and synergies. An increase in market share decreases the forces of demand and supply. Companies are able to overcome price wars as well as utilizing technological advancements [19]. Managers may decide to increase the shareholder's value thus opting for mergers and acquisitions in order to enhance their benefits at the expense of those of the shareholders [31].

Chaos theory: Like in chaos theory, butterfly effect is the sensitive confidence on preliminary situation in which a small change in one state of deterministic nonlinear system can translate into huge differences in a later state. This theory explains how both internal and external resources are combined with other organizational resources to make the merger and acquisition process successful which helps the newly formed organization build capacity as a result of the synergy. The new assets acquired will facilitate organizational growth both in the short-run and long run [32].

Financial synergy theory: This theory was propounded by Fluck and Lynch [33] and it clarify the inspiration behind M&A. the theory emphasized that, firms individually on their own are not capable to take on profitable projects due to the challenges that crop up from agency problems. The theory emphasizes that organization will only engage in mergers and acquisitions if the permutation is projected to spawn synergies that will be favorable to both the bidder and the target. It presumed that the merger will create value and yield positive returns to the firms involved in the combination process owing to the benefits that will arise from economies of scale. The financial synergy theory is consistent with the empirical studies that concluded that mergers and acquisitions lead to value creation as a result of synergies [23].

3. MATERIALS AND METHODS

3.1 Data

The study uses secondary data sourced from the audited annual financial reports of accounts for the respective firms over period of (14) years from 2000 to 2013. These periods were chosen in order to cover the pre-merger (2000 – 2006) and post-merger periods (2007 – 2013). The relevant data are sourced from the published financial statements and annual report for the merged firms for the period under review.

The population of the study consist of all banks quoted on the Nigerian stock exchange that have experienced one form of merger and acquisition or the other as a result of bank recapitalization in 2005 which brought down the number of banks in Nigeria from 89 to 25. However, the sample size chosen for this study is seven banks, this represent 28% of Banks in Nigeria which were chosen randomly because all the banks has equal chances of been selected. The banks include: Access Bank, Zenith Bank, Sterling Bank, UBA, GTB, Diamond Bank, FCMB. They were chosen using a simple random sampling method.

The sample for the study was selected based their capitalization base. As at the December end of 2021, Zenith bank, GTB, FBN holdings led the list of most valuable banks listed in the Nigeria Exchange Limited with a market value of N789.6 billion, N765.2 billion and N409.2 billion respectively. Others on the list include Access Bank with 330.6 billion, UBA (N275.3 billion),

Union bank (171.8 billion) and Fidelity Bank (73.9 billion) [34].

3.2 Research Design

The research design used was causal research design, which is helpful in explaining the cause-and-effect relationship in terms of performance of firms in the different periods that the merger occurs. (i.e. pre and post-acquisition periods), and to make comparison between these periods in ascertaining whether indeed the new firms formed have increased value creation, and have competitive advantages over their pre-merger state and also in determining the impact of merger on the return on assets. The research analyses the operational performance for the merged firms within the period of study [35-37].

3.3 Method of Data Analysis

The study utilizes descriptive statistics, correlation matrix and panel and pooled least square estimation technique. The signs and significance of the regression coefficients were relied upon in examining the nature and influence of the independent and dependent variables as to determine both magnitude and direction of impact of one variable on another. For the statistical significance of the independent variables, t – test and their probability values were used.

This study measures the financial performance in both pre and post-merger period of banks using the model in equation (1) and the efficiency of banks in the pre and post-merger period using equation (2).

$$ROA = f(TNR, SHF, TASS, LV, DV) \quad (1)$$

$$FE = f(DR, TNR, SHF, TASS, PAT, LV, DV) \quad (2)$$

where ROA is the return on assets, TNR is the annual turnover, SHF is the shareholders' fund, $TASS$ is the total assets, LV is the loan volume, FE is the firm efficiency proxy by the ratio of operating expenses to operating income, DR is the debt ratio, PAT is the profit after tax, and DV is the deposit volume.

The two models in equation (1) and (2) for the bank performance and the bank efficiency pre and post-merger periods respectively are specified econometrically as follows:

$$ROA_{tpr} = \beta_0 + \beta_1 TNR_{tpr} + \beta_2 SHF_{tpr} + \beta_3 TASS_{tpr} + \beta_4 LV_{tpr} + \beta_5 DV_{tpr} + \varepsilon_{tpr} \quad (3)$$

$$ROA_{tpo} = \beta_0 + \beta_1 TNR_{tpo} + \beta_2 SHF_{tpo} + \beta_3 TASS_{tpo} + \beta_4 LV_{tpo} + \beta_5 DV_{tpo} + \varepsilon_{tpo} \quad (4)$$

$$FE_{tpr} = \beta_0 + +\beta_1 DR_{tpr} + \beta_2 TNR_{tpr} + \beta_3 SHF_{tpr} + \beta_4 TASS_{tpr} + \beta_5 PAT_{tpr} + \beta_6 LV_{tpr} + \beta_7 DV_{tpr} + \varepsilon_{tpr} \quad (5)$$

$$FE_{tpo} = \beta_0 + +\beta_1 DR_{tpo} + \beta_2 TNR_{tpo} + \beta_3 SHF_{tpo} + \beta_4 TASS_{tpo} + \beta_5 PAT_{tpo} + \beta_6 LV_{tpo} + \beta_7 DV_{tpo} + \varepsilon_{tpo} \quad (6)$$

where pr is the pre-merger periods, po is the post-merger periods, t is the current time, and ε is the error term.

4. RESULTS

4.1 Descriptive Statistics

The results of the descriptive statistics in Table 1 show that the average value for each firm's return on asset is 106.7179% while the firm's efficiency average is -130.4285%. This implied that on the average, before the M & A, the firms yielded more than a 100% result for both the financial performance and efficiency of the firms. Before the merger period, the efficiency of the firms is signed by negative sign as indicated by the negative mean value for efficiency. The mean value for PAT, TASS, DV, DR, AG, LV are considerably high compared to ROA, FE, EPS and TNR. For some of the variables, the mean values are not very far apart from the mean value. This indicates minimum disparity from the mean point. The relatively low values of the standard deviation show that there are minimum outliers in the data which presupposes that we can rely on the regression results from this data as it will not lead to spurious results and incorrect inferences. The standard deviation of the ROA is higher than that of the FE which implied that ROA will exhibit some disparity from the mean point

than FE that is close to the mean point. FE and AG are negatively skewed while the other variables are positively skewed with ROA and DR having platikurtic shape by virtue of their high Kurtosis value. The other values are of the mesokurtic shape which followed the normal distribution shape of the distribution of data. The probability values of the Jarque-Bera statistics are significant at 5% level of statistical significance except for AG which is not statistically significant at 5% level of significance. Hence we can conclude that the data are normally distributed.

Table 1. Presentation of descriptive statistics for the pre-mergers and acquisitions period of the bank on the value creations

	ROA	FE	PAT	SHF	TASS	TNR	DV
Mean	1.067179	-1.304285	2.15E+09	1.24E+10	8.65E+10	1.05E+10	5.71E+10
Median	0.018751	-1.000000	5.97E+08	2.98E+09	2.42E+10	5.51E+09	1.66E+10
Maximum	31.75026	1.000000	1.30E+10	1.00E+11	6.11E+11	5.82E+10	3.93E+11
Minimum	-0.248031	-6.568110	-4.82E+09	19148000	34560000	19148000	205110.0
Std. Dev.	5.460039	1.594370	3.67E+09	2.06E+10	1.43E+11	1.40E+10	9.31E+10
Skewness	5.455263	-1.535787	1.354084	2.684391	2.345080	1.938739	2.212310
Kurtosis	31.13931	5.337243	4.675663	11.07422	7.921365	6.202214	7.249624
Jarque-Bera	1290.386	21.10447	14.36787	133.1905	65.47470	35.82611	53.31848
Probability	0.000000	0.000026	0.000759	0.000000	0.000000	0.000000	0.000000
Sum	36.28409	-44.34567	7.32E+10	4.21E+11	2.94E+12	3.56E+11	1.94E+12
Sum Sq. Dev.	983.7970	83.88654	4.43E+20	1.39E+22	6.74E+23	6.50E+21	2.86E+23
Observations	34	34	34	34	34	34	34

Table 1. Continuation

	DR	AG	LV	EPS
Mean	6.879553	10.16385	2.67E+10	0.301706
Median	5.625541	10.38325	9.52E+09	0.178000
Maximum	60.14326	11.78588	2.00E+11	1.640000
Minimum	0.000000	7.538574	0.000000	-0.020000
Std. Dev.	9.920462	1.159232	4.42E+10	0.346646
Skewness	4.699923	-0.790619	2.384863	2.365227
Kurtosis	25.98757	2.512317	8.610646	8.538970
Jarque-Bera	873.7793	3.879039	76.82532	75.16463
Probability	0.000000	0.143773	0.000000	0.000000
Sum	233.9048	345.5708	9.09E+11	10.25800
Sum Sq. Dev.	3247.714	44.34600	6.46E+22	3.965389
Observations	34	34	34	34

Table 2. Presentation of descriptive statistics for the post-mergers and acquisitions period of the bank on the value creations

	ROA	FE	PAT	SHF	TASS	TNR	DV
Mean	0.020167	-1.294915	2.59E+10	1.79E+11	1.03E+12	1.09E+11	8.20E+11
Median	0.018512	-0.920981	1.75E+10	1.80E+11	9.22E+11	9.16E+10	5.71E+11
Maximum	0.052622	1.668622	9.58E+10	4.88E+11	2.88E+12	3.11E+11	4.10E+12
Minimum	-0.032389	-4.787612	-6.66E+09	1.65E+08	1.10E+09	12889000	8.98E+08
Std. Dev.	0.015350	1.345292	2.86E+10	1.43E+11	7.61E+11	8.32E+10	8.18E+11
Skewness	-0.920880	-0.735200	1.158665	0.453504	0.532614	0.726794	2.196117
Kurtosis	6.058959	3.916414	3.342854	2.281343	2.533700	2.774444	9.341676
Jarque-Bera	16.46786	3.877442	7.088104	1.729710	1.746524	2.794902	76.86525
Probability	0.000265	0.143888	0.028896	0.421113	0.417587	0.247226	0.000000
Sum	0.625178	-40.14236	8.03E+11	5.55E+12	3.18E+13	3.38E+12	2.54E+13
Sum Sq. Dev.	0.007069	54.29434	2.46E+22	6.11E+23	1.74E+25	2.08E+23	2.01E+25
Observations	31	31	31	31	31	31	31

Table 2. Continuation

	DR	AG	LV	EPS
Mean	4.733281	11.67412	8.25E+11	0.259806
Median	4.134022	11.96464	3.67E+11	0.189000
Maximum	11.27669	12.45920	7.48E+12	0.870000
Minimum	1.143992	9.042319	3.20E+08	-0.120000
Std. Dev.	2.937824	0.909189	1.79E+12	0.195922
Skewness	0.823837	-2.137658	3.390280	1.386443
Kurtosis	2.828376	6.507937	12.88117	5.205336
Jarque-Bera	3.544704	39.50426	185.5008	16.21352
Probability	0.169933	0.000000	0.000000	0.000301
Sum	146.7317	361.8978	2.56E+13	8.054000
Sum Sq. Dev.	258.9244	24.79871	9.65E+25	1.151559
Observations	31	31	31	31

The results of the descriptive statistics in Table 2 show that the average value for each firm's return on asset is 2.0167% while the firm's efficiency average is -129.4915%. This implied that on the average, after the merger periods, the banks become more efficient but this efficiency did not result to increase in their financial performance as indicated by a small mean value for ROA. After the merger period, the efficiency of the firms is negatively sign as indicated by the negative mean value for efficiency. The mean value for SHF, TNR, PAT, and LV are considerably high compared to AG, EPS, DR, ROA and FE. For some of the variables, the median values are not very far apart from the mean value except for TNR and TASS. This indicates minimum disparity from the mean point. The low values of the standard deviation negate the presence of outliers in the distribution of the data which presupposes that the data will not produce spurious results. Using the JarqueBera statistics, some of the series failed the normality test. Such variables are FE, TASS, SHE, and TNR. The other seven variables Jarque-Bera probability values are statistically significant at 5% level of significance. ROA, FE, and AG are negatively skewed toward the origin while the other variables have positive skewness. The kurtosis values do not have much disparity as they all fall within the same range 2.28 to 6.50 except for LV whose value is 12.88.

4.2 Regression Results for the Pre-merger and Acquisition Periods for Firm Financial Performance and Firm Efficiency

From the results in Table 3, the R-squared of the regression results of the fixed effect estimation performed better than that of the random effect. using the fixed effect result for decision making in this section. The fixed effect test equation has R-squared value of 79.5097% implying the extent to which the independent variables could account for the systematic variation in the dependent variable.

The t-statistic revealed that Shareholder Fund (SHF), Asset Growth (AG), and Deposit Volume (DV) are statistically significant at 1% in explaining the variation in Return On Asset (ROA) during the pre-merger periods. Annual Turnover (TNR) was not statistically significant in determining variation in ROA. The F statistic shows the mode l is statistically significant at 5% level of statistical significance in explaining the relationship between the dependent variable

Table 3. Random and fixed effects regression for pre-merger and acquisition on firm financial performance

Variable	Random effect			Fixed effect		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
TNR	6.75E-12	0.209649	0.8352	-9.89E-12	-0.284459	0.7782
SHF	2.71E-10	3.613149	0.0010	3.50E-10	4.117835	0.0003
AG	-2.227781	-4.566651	0.0001	-3.385428	-4.171512	0.0003
DV	-3.90E-11	-2.330499	0.0258	-7.99E-11	-3.661142	0.0010
C	22.50590	4.671620	0.0000	35.99859	4.488778	0.0001
R-squared	0.322036			R-squared		0.795097
Adjusted R-squared	0.242276			Adjusted R-squared		0.721917
F-statistic	4.037546			F-statistic		10.86501
Prob. (F-statistic)	0.008744			Prob. (F-statistic)		0.000000
Durbin-Watson stat	1.065101			Durbin-Watson stat		2.008336

Table 4. Random and fixed effect results for financial efficiency of pre-merger and acquisition periods with addition of more variables

Variable	Random effect			Fixed effect		
	Coefficient	**t-Statistic**	**Prob.**	**Coefficient**	**t-Statistic**	**Prob.**
DR	0.008010	1.456555	0.1568	-0.012094	-1.431869	0.1727
TNR	4.55E-11	0.471127	0.6413	-1.63E-10	-1.536841	0.1452
TASS	2.71E-11	3.569904	0.0014	-1.08E-12	-0.052570	0.9588
PAT	-1.90E-10	-2.619842	0.0143	1.27E-10	0.860852	0.4029
LV	1.11E-10	3.347042	0.0024	3.04E-11	0.492560	0.6295
DV	-9.87E-11	-3.573536	0.0014	-3.76E-12	-0.065747	0.9484
C	-1.105782	-3.487182	0.0017	-0.293536	-0.496011	0.6271
R-squared	0.418835			R-squared		0.834159
Adjusted R-squared	0.289687			Adjusted R-squared		0.635151
F-statistic	3.243070			F-statistic		4.191573
Prob. (F-statistic)	0.015669			Prob. (F-statistic)		0.003679
Durbin-Watson stat	1.258933			Durbin-Watson stat		1.616216

and the independent variables. The DW statistic of 2.008336 shows that there is no presence of serial correlation in the model, hence we can rely on the results of the fixed effect test equation.

In Table 4, the t-values of the random effect results revealed that TASS, PAT, LV and DV are statistically significant at 1% level of significance. DR and TNR are not significant in determining variation in FE in the pre-merger periods. While DR, TNR, TASS and LV are positively related with FE, PAT and DV have negative relationship with FE. This implied that the more efficient banks in the pre-merger periods had lower profits for those periods. This is partly accounted for by the cost incurred by those bank in becoming efficient not been set off by their returns. It cost more to become efficient in operation and other business area of the bank. The R-squared value of 83.42% shows that the independent variables accounted for the systematic variation in the dependent variables to that amount. The F value of 3.24 with a probability value of 0.016 which is significant at 1% level of significance shows that the model is significant on the overall in explaining the relationship between the dependent variable with the independent variables.

4.3 Presentation and Analysis of Regression Results for the Post-merger Periods of the Bank on the Value Creation of Merger and Acquisition

In Table 5, using the cross-section random effect test equation results for analysis, the R-squared value of 16.7505% show that the systematic variation in ROA is determined by the independent variables by that amount. The t-values show that SHF with t-value of 2.483935 and a probability value of 0.0172 is statistically significant at 5% level of significance in determining variation in ROA for the post-merger periods. The other two variables are not significant at 5% level of significance. The Durbin-Watson value of 1.63 indicates the absence of serial correlation as against the initial report of the correlation matrix on the relationships amongst the independent variables.

Table 5. Random and fixed effects regression for post - merger and acquisition on firm financial performance

Variable	Random effect			Fixed effect		
	Coefficient	**t-Statistic**	**Prob.**	**Coefficient**	**t-Statistic**	**Prob.**
TNR	-1.17E-13	-1.480102	0.1465	-5.94E-14	-0.693448	0.4926
SHF	1.20E-13	2.483935	0.0172	8.80E-14	1.490125	0.1451
TASS	-3.38E-16	-0.231134	0.8184	-1.02E-16	-0.066820	0.9471
C	0.011679	2.533946	0.0152	0.010314	1.868258	0.0701
R-squared	0.167505			R-squared		0.479950
Adjusted R-squared	0.106591			Adjusted R-squared		0.346223
F-statistic	2.749853			F-statistic		3.589025
Prob. (F-statistic)	0.054901			Prob. (F-statistic)		0.002978
Durbin-Watson stat	1.680943			Durbin-Watson stat		2.023520

Table 6. Random and fixed effects results from pooled least square for post -merger and acquisition on firm efficiency

Variable	Pooled random effect			Pooled fixed effect		
	Coefficient	**t-Statistic**	**Prob.**	**Coefficient**	**t-Statistic**	**Prob.**
DR	-0.053812	-1.690145	0.0923	-0.053812	-1.690145	0.0923
TNR	1.27E-11	3.229312	0.0014	1.27E-11	3.229312	0.0014
SHF	-3.90E-12	-1.465037	0.1442	-3.90E-12	-1.465037	0.1443
TASS	-8.39E-14	-0.147445	0.8829	-8.39E-14	-0.147445	0.8829
PAT	-1.63E-11	-2.709456	0.0072	-1.63E-11	-2.709456	0.0072
C	-1.186388	-5.083874	0.0000	-1.186388	-5.083874	0.0000
R-squared	0.113756			R-squared		0.113756
Adjusted R-squared	0.095215			Adjusted R-squared		0.071916
F-statistic	6.135484			F-statistic		2.718843
Prob. (F-statistic)	0.000023			Prob. (F-statistic)		0.002550
Durbin-Watson stat	2.502700			Durbin-Watson stat		2.502700
			Effect specification			
Random Effects (Cross)				**Fixed Effects (Cross)**		
FE—C	0.000000			FE—C		1.98E-15
DR—C	0.000000			DR—C		1.98E-15
TNR--C	0.000000			TNR—C		1.98E-15
SHF--C	0.000000			SHF—C		1.98E-15
TASS--C	0.000000			TASS—C		1.98E-15
PAT--C	0.000000			PAT—C		1.98E-15
C—C	0.000000			C—C		1.98E-15

From the results in Table 6, the R-squared value of 11.3756% of the regression results shows that the independent variables could account for the systematic variation in the dependent variable to that extent of the R – squared value. The t-statistic revealed that TNR and PAT are statistically significant at 5% level of statistical significance implying that TNR and PAT significantly affect the efficiency of the firm in the post mergers and acquisition periods. DR is only significant at 10% level of statistical significance. SHF is not statistically significant in determining the variation in FE in the post mergers and acquisition periods. The F – value of 6.135484 and the probability F-value of 0.000023 revealed that the model is statistically significant in explaining the relationship between the dependent and the independent variables.

5. CONCLUSION

Based on the findings of the study, we conclude that there was major increase in the shareholder's funds for the post-merger periods which are attributable to the combination of resources by the results of mergers and acquisition but this increase does not automatically translate to more efficiency for the banks. This implied that other than seeking for increase in the capital base for the banks, the merger entities should ensure proper integration of operational systems, products and services, and other vital business strategies that will enable them become more efficient after the merger periods.

The study recommends as follows:

- i That banks should ensure that other than due diligence for the merger process, proper integration of operation system that will enhance operational efficiency and increase financial performance should be pursued.
- ii That while merger and acquisition is a very good business combination alternative in seeking increase in value creation for firm stakeholders, banks should only seek combination with other banks that their operational system and business coverage will ensure greater value creation for the banks.
- iii THAT those banks that do not have enough customers to secure more customer deposits and advances more loans, should consider merger as an alternative to increase their customer base.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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