TESTING FOR DIFFERENCE IN FIRM STOCK RETURNS IN NIGERIA:
A PRE AND POST-MERGER AND ACQUISITION INVESTIGATION

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Abstract
Following the divergence views on the resultant outcome of merger and acquisition in Nigeria, this study tested for significant difference in firm market performance in Nigeria under Pre and Post-Merger and Acquisition. Data on stock returns and returns variations were collated from Machame RATIOS from 2006 to 2015 and the Wilcoxon signed test was used to test for difference in pre and post M&A stock market performance. The study formulated two research hypotheses. Following our hypotheses, the findings revealed that there is no significant difference in firm's abnormal stock returns before and after merger and acquisition. We also found out there is also no significant difference in firm stock returns variations (Risk) before and after mergers and acquisition. This study therefore recommended that investors and portfolio managers should not try to invest on the basis Merger and Acquisition as this does not translate into improvement of shareholders' returns.

Key words: Stock Returns, firm market performance, Merger and Acquisition

Introduction

Corporate organizations are established to achieve certain corporate objectives including corporate growth, efficiency and profitability. Growth is a major yardstick by which the success of corporate organizations is measured. Given that corporate organizations operate in a dynamic macroeconomic environment such growth is threatened in periods of volatile economic instabilities (Weston &Copeland, 1989). The resultant effect of the world economic meltdown in 2008 and the current economic recession on corporate organizations is a financial crisis which hinders corporate growth. Lynch and Lind (2002) describe mergers and acquisitions as being one of the central techniques for organizational growth, meanwhile, Hurtt, Kreuze and Langsam (2000) observed that growth is one of the primary reasons for mergers and acquisitions.

On one hand, Merger is absorption of one or more companies by a single existing company. It can also be referred to as an act or process of purchasing equity shares of one or more companies by a single existing company. As a result of this arrangement, a new company is thereby formed. Also mergers may be seen as a form of acquisition which refers to the process of blending together of two or more companies to form an entity under one name. On the other hand, "acquisition is the purchase of one business or company by another company or other business entity.

As corporate growth strategy, M&A continue to remain a major driver and also a mechanism for influencing share prices of listed companies in Nigerian. M&A present vital consequences for shareholder's values

which can lead to positive or negative effect on firms share returns and investment risk. Mandi (2003) contributing in this regard said that:

> ***"In the last three years, growth through acquisition has been a critical part of the success of many companies operating in the new economy. In fact, I would say that merger and acquisition has been the single most important factor in building up their market capitalization".***

However, contrary to expectations the study by Waddock and Graves (2006) observed that majority of M&A are motivated by the personal and selfish motives of inside shareholders and management, such as empire building and wealth maximization at the expense of minority shareholders. They affirmed that M&A do not create value as envisioned. The failures of M&A have been attributed to unrealistic synergies, incongruities in size between companies, fear of uncertainty that affect employees, change in corporate image and neglect of customers, strict policies which in the end negatively affected shareholders value. (Waddock& Graves, 2006).

Following the above expositions and empirical perspective, there seem to be a divergent result in M&A market performance outcomes (Ahmed & Ahmed, 2014; Healy, Palepu&Ruback, 1992; Kouser& Saba, 2011) and in Nigeria, Oloye&Osuma, (2015), Ilaboya&Uwubamwen (2008), Anderibum&Obute (2015), Omoye&Aniefor (2016) and Olagunju&Obademi (2012). This divergent opinions according to this study is to be attributed to the choice of methodology and scope as most past studies especially in Nigeria were only in banks and manufacturing sectors M&A were studied. A major research gap this study seeks to fill is to use M&A from four sectors of companies listed on the Nigerian stock exchange which are Banking sector, Industrial sector, Petroleum sector, and foods and consumables sector. The study covered the period of 2006 to 2015 and used Wilcoxon Sign test to investigate the existence of a significant difference in the pre and post abnormal returns and risk of M&A firms in Nigeria.

Accordingly, the main objective of this paper is testing for difference in firm stock returns in Nigeria: A pre and post-merger and acquisition investigation.

The two primary objective of this study are:

1. To test for significant difference in stock returns for pre and post mergers and acquisitions;
2. To test for significant difference in stock returns variations for pre and post mergers and acquisitions;

The following null hypotheses were stated for the study:

Ho_1 There is no significant difference in stock returns for pre and post mergers and acquisitions period.

Ho_2 There is no significant difference in stock returns variations for pre and post mergers and acquisitions period.

The rest of the paper is structured as follows: following the introduction in section I, section II reviews the literature on merger and acquisition. Section III focused on research methodology while section IV focused on results and discussion. Section V concluding remark and recommendations.

Concept of Merger and acquisition

The terminologies, 'Merger and Acquisition often cause confusion in the minds of people. The difference between a merger and anacquisition is fairly technical having to do with how the financial and legal transaction is structured (Bovee&Thill, 2001). Basically, in a merger, one company buys another company, or parts of another company and assumes control of its property and liabilities while acquisition is a form of business combination in which one company buys another company's voting stock (Healy, Palepu&Ruback, 1997).

Merger

Merger can be defined as "any amalgamation of the undertaking or any part of the undertakings or interest of two or more companies or the undertakings or part of the undertakings of one or more companies and one or more corporate bodies" (Company and Allied Matters Act (CAMA) 1990: S.590). According to Coyle (2000), merger is the coming together of two companies of roughly equal size pooling their recourses into a single business.

According to Weston and Copeland (1989), Merger means any transaction that forms one economic unit from two or more previous ones. It occurs when a corporation and or more incorporated or unincorporated businesses are brought together into one accounting entity. The single entity now carries on the activities of the previously separated independent enterprises. One or more companies may also merge with an existing company or they may merge to form a new company. On their part, (Hitt, Harrison & Ireland, 2000) defined Merger as the combination of two or more separate firms into a single firm. The firm that results from the process could take any of the following identities: Acquirer identity or a complete new identity.

Acquisition

Acquisition means all the processes, terms, conditions and fulfillment adopted to purchase a small firm by a big and well established unit. It can also take place through the purchase of stocks and assets of an existing firm. Acquisitions of companies can be either full or partial. In a full acquisition, the acquirer buys all the stock capital of the purchase company. In partial acquisition, the acquirer obtains a controlling interest, normally above 50% but below 100%.

Acquisition can also be seen as arrangements through which the ownership and management of independently operated properties and businesses are under the control of a single management (Ayeni-Agbaje, 2002; Osazee, 2004; Okwuosa, 2005).

Review of Literature

Empirical

Appah and John (2011) conducted a study on the efficiency effects of mergers and acquisitions in the Nigerian banking industry. Data was collected from the financial statements of all the sampled banks within the study period. The population of the study comprised all the (24) banks operating in the Nigerian banking industry as at 31st December 2010. Simple random sampling technique was used to select the (10) banks used for the analysis. About 3 year (2003-2005) pre-merger and acquisition mean return on equity was compared with the 3 years (2006-2008) post-merger and acquisition mean. Using descriptive analysis and paired sample t-test statistics, the findings revealed no significant difference between the return on equity of banks pre and post-merger and acquisition. On the basis of the findings, it was recommend among others that mergers and acquisition in the banking industry in Nigeria must be driven by market forces to give room for efficiency and effectiveness and that researchers should develop new framework and models for banks performance, stability and growth as opposed to merger and acquisition.

Badreldin and Kalhoefer (2009) examined the performance of Egyptian banks that have undergone mergers or acquisitions during the period 2002-2007. The study was carried out by calculating the return on equity of the banks using the Basic ROE Scheme in order to determine the degree of success of banking reforms in strengthening and consolidating the Egyptian banking sector. The results of the analysis indicate that not all banks that have undergone deals of mergers or acquisitions have shown significant improvements in performance and return on equity when compared to their performance before the deals. In other words, no significant difference was observed between the pre

mergers and acquisitions return on equity and post mergers and acquisitions return on equity of the banks. It was concluded that mergers and acquisitions have not had a clear effect on the profitability of banks in the Egyptian banking sector.

Liargovas and Repousis (2011) conducted an event study on the impact of mergers and acquisitions on the performance of the Greek banking sector during 1996-2009 periods. In their analysis, the market model was used and residuals were tested whether merger events provide positive or negative abnormal returns to the participants. The results from event study methodology, using a 30-day event window indicated that stock prices showed significant positive cumulative average abnormal returns.

Beitel and Schiereck (2001) examined the value implications of 98 large mergers and acquisitions of publicly traded European banks that occurred between 1985 and 2000. They found that for the entire sample the shareholders of targets earned significant positive cumulated abnormal returns in all intervals studied.

According to Ghosh and Dutta (2016) M&A is said to be successful when it creates value for the shareholders of the firm. Another study by Rani, Yadav and Jain (2015) addressed the effect of M&A on stock returns using event study methodology and consequently their findings suggested significant positive abnormal returns. Meglio and Risberg (2011) further explained that value creative merger will be followed by an upswing in stock prices while a value destroying merger will be accompanied by a drop in stock price.

Cummins and Weiss (2004) investigate whether mergers and acquisitions in the European insurance market create value for shareholders by studying the stock price impact of mergers and acquisitions transactions on target and acquiring firms. The analysis shows that European mergers and acquisitions created small negative cumulative average abnormal returns CAARs) for acquirers (generally less than 1%) and substantial positive CAARs for targets (in the range of 12% to 15%).

Vanitha and Selvam (2007) analyzed the pre and post-merger performance of Indian manufacturing sector during 2000-2002 by using a sample of 17 companies out of 58 (thirty percent of the total population). For financial performance analysis, they used ratio analysis, mean, standard deviation and 't'-test. They found that the overall financial performance of merged companies in respect of 13 variables were not significantly different from the expectations.

Ilaboya and Uwubamwen (2008) compared the differences between the pre and post financial performance outcome of mergers and acquisitions in selected manufacturing companies in Nigeria. The study employed the sign test and non-parametric t-test to estimate data. Based on the study estimations, it was observed that mergers and acquisitions do not have a positive impact on business profitability. A major limitation of this study was it focused on only manufacturing companies in Nigeria. Using a similar approach, Ashfaq, Usman, Hanif, and Yousaf (2014) investigated the effect of M&A on corporate performance using paired sampled t-test. The study revealed that performance declined following mergers and acquisitions. They further observed that organizations tend to loss strategic focus after the M&A. The Paired t- test was also used in the work of Kouser and Saba (2011). The study covered the period from 1999 to 2010 and revealed that banks performance deteriorated following mergers and acquisitions.

In the study of Ahmed and Ahmed (2014) which used paired sample t-test statistics and sampledrawn from selected manufacturing industries of Pakistan covering 2000-2009, found no significant difference between the pre and post M&A firm performance. In contrast, Anderibum and Obute (2015) evaluated the outcomes of M&A on the bank profitability in Nigeria using the paired sample t-test. The

study focused on the United Bank for Africa (UBA) Plc, spanning a period of 2000 - 2010. The study found a positive and significant difference in the performance of the bank. A major problem with the study is it focused on only UBA.

A similar non-parametric t-test was also used by Olagunju and Obademi (2012), they investigated mergers and acquisitions on bank performance in Nigeria. They sampled ten banks, and data was sourced using primary data and ratios. The study revealed an improvement in performance after the merger. This upshot is attributable to the synergistic expectationsfrom expanded operations following the M&A. Bruner (2004) posited that true synergies create value for shareholders by harvesting benefits from mergers that they would be unable to gain on their own.

To sum up the review of literature, many contributions have offered different perspectives of merger in different industries worldwide and valuation techniques followed by merging companies, and shareholders wealth effect due to merger. From the review of many excellent research papers analyzing the pre and post-merger performance of merged companies, it is inferred that there is divergent findings resulting from the studies.

Theoretical framework

Theory of efficiency or synergy

According to the value increasing school, mergers occur, broadly, because mergers generate 'synergies' between the acquirer and the target, and synergies, in turn, increases the value of the firm (Hitt, Harrison, & Ireland 2001). The theory of efficiency suggests that mergers will only occur when they are expected to generate enough realizable synergies to make the deal beneficial to both parties; it is the symmetric expectations of gains which results in a 'friendly' merger being proposed and accepted. If the gain in value to the target was not positive, it is suggested, the target firm's owners would not sell or submit to the acquisition, and if the gains were negative to the bidders' owners, the bidder would not complete the deal. Hence, if we observe a merger deal, efficiency theory predicts value creation with positive returns to both the acquirer and the target. Banerjee and Eckard (1998) and Klein (2001) evidence this suggestion.

Data and Methodology

The population of this study consists of all merged companies listed on the Nigerian Stock Exchange (NSE) as at December 2015. However, using data filtering technique, a purposive sampling of fourteen (14) mergers and acquisitions of companies from four economic sectors which are banking sector, Industrial sector, Petroleum sector, and foods and consumables sector. The study covered the period of 2006 to 2015 which formed our sample size. The data used in this study was obtained from MachameRATIOS® database (www.machameratios.com). The data was arranged in a manner of pre and post-merger and acquisition. i.e.A year data before Merger and acquisition (pre) and one year data after merger and acquisition (post). The stock return data was measured as one year percentage change in share prices while the returns variations (risk) was measured using standard deviations of monthly share price returns.

Wilcoxon Pair-Wise Sign Test

In testing the hypotheses of this study we used the Wilcoxon Signed Test. The choice of the Wilcoxon signed test is based on the ground that it is the best statistical techniques for testing for difference in before and after events and also appropriate for testing difference in data even when they are not normally distributed. The Wilcoxon sign test statistic is presented as:

$$T^{+} = \sum_{i=1}^{n} \delta_{ii} R$$

Where: T = is the Wilcoxon sign test statistic $\delta_i R_i$ = computed ranked data, The decision rule is that if the calculated |z| score is greater than 1.96, the Null hypothesis is rejected, and the alternative hypothesis is accepted, namely the difference is significant. If the calculated |z| score is less than 1.96, then Null hypothesis is accepted, i.e. the difference is NOT significant.

Discussion of Results

The results obtained from our statistical analysis are presented and discussed as follows:

Table 1. Wilcoxon Signed Test for M&A Share Returns

	Before M&A	After M&A
Mean	6.04	-6.25
Z-Value	0.91	
Prob(Z)	**0.36**	
N	14	14

Source: Authors' Computation 2017, (STATA13)

Following the above results which seek to test hypotheses one of this study (Ho_1 There is no significant difference in abnormal stock returns for pre and post mergers and acquisitions period). The mean share returns before merger and acquisitions was 6.04 while after merger and acquisitions it became -6.25. This means that there was an average downward movement in the 14 cases of mergers and acquisitions that was sampled in this study. In testing for significant difference, the z-values was 0.91 while its probability value was 0.36. This therefore means that there was no statistically significant difference in the share returns of the sampled merger and acquisitions companies. This finding is in conformity with the findings of (Appah& John, 2011 and Badreldin&Kalhoefer, 2009) found no significant difference between the return on equity of banks pre and post-merger and acquisition. Similarly,(Ahmed & Ahmed 2014) found no significant difference in company performance before and after mergers and acquisitions.However, these are contrary to (Liargovas&Repousis, 2011; Beitel&Schiereck, 2001; Rani, Yadav& Jain 2015) whose studies found that stock prices showed significant positive cumulative average abnormal returns.

Table 2. Wilcoxon Signed Test for M&A Share Returns Variations (risk)

	Before M&A	After M&A
Mean	19.74	12.81
Z-Value	1.60	
Prob(Z)	**0.11**	
N	14	14

Source: Authors' Computation 2017, (STATA13)

In testing hypotheses two above (Ho_2 There is no significant difference in stock returns variations for pre and post mergers and acquisitions period). We observed that mean share returns variations before merger and acquisitions was 19.74 while after merger and acquisitions it became 12.81. This means that there was an average decrease in share returns variations (risk) in the 14 cases of mergers and acquisitions that was sampled in this study. In testing for significant difference in returns variations, the z-values was 1.60 while its probability value was 0.11. This therefore implies that there is no significant difference in firm stock returns variations (Risk) before and after mergers and acquisition. This finding is in conformity with the findings of (Ilaboya&Uwubamwen, 2008) that found no significant difference in company performance before and after mergers and acquisitions.However, this is contrary to (Anderibum&Obute2015) whose study found a positive and significant difference in the performance of UBA bank.

Concluding remark and recommendations

The process of corporate restructuring through mergers and acquisitions is very relevant in face of financial crises. Mergers and acquisition have become a worldwide commercial or business phenomenon; they are popularly employed by investors to engender large and financially viable companies, which in turn facilitate the rapid growth and stock return on shareholders' investment. M&N are employed in developing countries like Nigeria, where the unfolding scenario requires the pooling together of resources for optimal use by corporations in order to ensure shareholder holder benefits from that decision.The success of M & A is attributable to the synergistic expectations whereby the synergies create value for shareholders value in terms of stock returns.

Following the divergence views on the resultant outcome of merger and acquisition in Nigeria, this study tested for significant difference in firm market performance in Nigeria under Pre and Post-Merger and Acquisition. The study found that there is no significant difference in firm's stock returns before and after mergers and acquisition. The study also found that there is also no significant difference in firm stock returns variations (Risk) before and after mergers and acquisition. This study therefore recommended that investors and portfolio managers should not try to invest on the basis of Merger and acquisition as this does not translate into improvement of shareholders' returns.

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Appendix

Descriptive Statistics

stats	pre1yprc	post1y~c	prestdrt	postst~t
mean	6.041429	-6.255	19.74	12.81786
p50	11.77	-10.255	16.85	12.215
max	96.48	133.77	40.42	28.8
min	-64.14	-63.09	1.31	2.83
N	14	14	14	14

Wilcoxon Signed Rank Test for Share Returns

Wilcoxon signed-rank test

sign	obs	sum ranks	expected
positive	9	67	52.5
negative	5	38	52.5
zero	0	0	0
all	14	105	105

```
unadjusted variance       253.75
adjustment for ties         0.00
adjustment for zeros        0.00
                      ----------
adjusted variance         253.75

Ho: pre1yprc = post1yprc
             z =   0.910
    Prob > |z| =   0.3627
```

Wilcoxon Signed Rank Test for Share Returns Variations (Risk)

Wilcoxon signed-rank test

sign	obs	sum ranks	expected
positive	8	78	52.5
negative	6	27	52.5
zero	0	0	0
all	14	105	105

```
unadjusted variance       253.75
adjustment for ties         0.00
adjustment for zeros        0.00
                      ----------
adjusted variance         253.75

Ho: prestdrt = poststdrt
             z =   1.601
    Prob > |z| =   0.1094
```