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Effect of Mergers and Acquisitions on Operational Efficiency of Commercial Banks in Kenya

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Abstract: The purpose of this research was to examine the effect of M&A on operational efficiency of commercial banks in Kenya. The study adopted a descriptive research design. The study population comprised of 12 commercial banks in Kenya. The census frame comprised of four acquirer banks that have been combined for at least 5 years, that is, banks that combined between 2010 and 2015. The four banks include Kenya Commercial Bank Ltd., Equatorial Commercial Bank Ltd. (merger), Guaranty Trust Bank Ltd., and Sidian Bank Ltd. The data used in the study was quantitative as it included financial ratios and was collected using a data collection form. This secondary data was obtained from the CBK bank supervision annual reports as well as the banks' financial statements and annual reports dating back from 2005 to 2019. The paired t test revealed that there was a statistical difference in means of operating efficiency in the pre-merger and post-merger period. The independent t- test also showed a significant difference in means of operational efficiency in the pre-merger and post-merger period. The study also revealed that there was a statistical difference in the means of ROA in the pre-merger and post-merger period based on paired t-test. Additionally, independent t-test showed there was a statistical difference in the means of ROA in the pre-merger and post-merger period. Finally, merger and acquisitions, measured by EPS, did not show any statistical difference in the pre and post-merger period based on paired t –test and independent t-test. The study therefore recommends to management of commercial banks in the post-merger period to incorporate appropriate measures to improve their efficiency. For instance, the banks could transform their business models, adapt to new technology, introduce IT systems and maintain the stability of their institutions.

Keywords: Mergers, Acquisitions, Operational Efficiency, Commercial Banks.

1. Introduction

In a fast changing business world, companies continue to strive for quality and excellence in their fields of operation. Every business today seeks profitable internal and external growth. Internal growth in business is evident in the introduction and development of new products, expansion of product volume, sustained sales improvement, as well as reduced employee job absenteeism, turnover, and their associated costs (Aggarwal-Gupta, Kumar, & Upadhyayula, 2012). External growth, on the other hand, is attainable through mergers with and acquisitions of other firms. The current global economy has witnessed an increased use of M&A as a strategy for market entry, generating larger market shares and asset bases, and gaining complementary strengths for better marketplace competitiveness. As firms grow through M&A, the scale of their operations expands, which, in turn, reduces the average cost of operations and makes the firms more efficient in absorbing fixed costs (Yeboah & Asirifi, 2016). M&A also promote operational efficiency through such factors as management reconstitution, pooling of complementary capabilities, as well as diversification. M&A involve the combination of two or more companies into a single entity. Scholars provide different definitions of M&A depending on the scope of their studies. Gupta (2012), for instance, describes acquisition as the process of a company getting effective control over the management or assets of another company with no physical combination of the businesses. Mergers, on the other hand, occur when at least two companies blend into a single one. The entities involved exchange securities but only one company survives. A firm is said to have

attained operational efficiency when it provides products and services in a cost-effective manner and without compromising on quality. Operational efficiency is defined as the reduction of routine operation costs to optimal level by effectively combining business resources such as technology, processes, and people (Odunga, 2016). Maximizing existing and future operational performance is one of the most important goals a company's leadership should have because it influences share price and, consequently, shareholders' wealth (Gill, Singh, Mathur & Mand, 2014). As a proxy for competitive advantage, operational efficiency is also critical in determining profitability and firm performance both in the present and future. Firms also use operational efficiency to underpin strategic goals, including increasing shareholders' wealth and improving customer satisfaction. As firms grow, the scale of their operations expands and reduces the average operation cost to an optimal point. Any further decline in these costs would result in diseconomy (Yeboah & Asirifi, 2016). Therefore, growing to an optimal size allows firms to become more efficient at absorbing fixed costs. External growth strategies like M&A have the potential to influence the operational efficiency of firms. Growth through M&A promotes operational efficiency through such factors as reconstitution of management, pooling of complementary capabilities, and diversification (Yeboah & Asirifi, 2016). Kanyatte and Gekara (2015) further posit that the value of a combined firm is greater than the sum of its component companies before a merger or acquisition. Additionally, M&A are typically conducted on considerations of value creation and efficiency improvement through synergy effects including managerial, financial and operational synergies. One of the main reasons commercial banks in Kenya engage in M&A is to improve financial performance and benefit from newly available resources (Joash & Njangiru, 2015). Other motives for M&A can be grouped into synergy, growth, diversification, defensive strategies, vertical, and horizontal integration. Usually, growth is associated with acquisition of new customers and increasing profit (Almazur et al., 2018). However, it also translates to clearer governance, financial synergies, cost minimization, and growth of income. Diversification is usually a strategy for mitigating corporate risk, whereas defensive strategies involve responding to other M&A that threaten the firm's position. Vertical and horizontal integration involve making decisions about efficient supply (Almazur et al., 2018). This lack of conclusive evidence linking M&A activity to operational efficiency presents a distinct research gap. This paper examines the effect of M&A on a specific efficiency indicator, the bank efficiency ratio. The author also analyses other factors that reflect the operational efficiency of a bank including: capital adequacy, liquidity, and market share. The main research question remains: What is the impact of M&A on operational efficiency of commercial banks in Kenya? To assess the effect of M&A on the operational efficiency of commercial banks in Kenya.

2. Literature Review

Various theories of M&A have been advanced to explain the motive for which firms engage in M&A deals. Existing research on these theories is necessary to bring insight into the potential benefits of mergers. Among these theories is the Efficiency theory of M&A, which states that firms can gain efficiency by eliminating idle resources, sharing expensive technologies, reducing transaction costs, and reallocating existing expenses (Leepsa & Mishra, 2016). Another theory is the synergy gains theory, which stipulates that the value of the combined company is likely greater than that of its separate constituents (Aggarwal-Gupta et al., 2012). Gains may arise from financial or operating synergies through economies of scale of operations. Lastly, according to the Market Power theory, M&A are done with the motive of increasing a firm's market share (Leepsa & Mishra, 2016). An enhanced market share would allow the combined firm to wield greater power in the market, charge higher prices and earn larger margins by appropriating consumer surplus.

Becalli and Frantz (2009) investigated the impact of M&A on profitability and cost efficiency in European Union (EU) banks engaged in M&A. The researchers' objective was to analyze whether M&A leads to improved performance using cost and alternative profit measures of X-efficiency as well as standard accounting ratios. The study was carried out on 714 M&A deals between EU banks between 1991 and 2005 and uses ANOVA tests to compare pre- and post-M&A performance values for the acquirer and target banks. It was found that M&A leads to a slight decline in profit efficiency and significant improvement in cost efficiency 6 years after the deal. However, this study fails to consider the impact of different cross-border M&A barriers to efficiency improvement. Jayaraman et al. (2014) use data envelopment analysis to study the influence of M&A on the efficiency of Indian banks. The main objective was to determine the effects of M&A on profitability and operational cost of banks. The study sample included 6 banks that had merged between 2006 and 2008, a period during which the global financial crisis was felt in the country's banking sector. Jayaraman et al. (2014) found that the post-merger performance in 4 out of 6 banks fell below the efficient frontier and the other 2 exceeded the frontier. While the under- or over-performance of the banks is attributable to M&A, extraneous factors such as the global financial crisis cannot be ruled out. The research period was also short (2 years), explaining the inconsistency of findings.

In Yeboah and Asirifi (2016) the main objective was to determine the extent to which M&A impacted cost efficiency in select Ghanaian banks. The study used financial data analysis and ratio analysis in assessing cost efficiency in 2 banks, Ecobank and Access Bank, between 2008 and 2012. It was found that pre- and post-merger operational cost-income ratio was equal. The inconsistency of these findings with those in Becalli and Frantz (2009) and Jayaraman et al. (2019) is attributable to the fact that Yeboah and Asirifi (2016) study spanned only 4 years. The outcome would have been more accurate if the period was

extended to, say, at least 5 years. Maranga's (2010) study sought to determine the effects of M&A on scale and cost efficiency of commercial banks in Kenya. The study hypothesized that combined banks should demonstrate improved post-M/A efficiency. Data Envelopment Analysis was used to assess cost and profit efficiency of 14 listed banks between 1994 and 2009. Maranga (2010) found that the banks recorded little or declining cost efficiency after the M&A. It is possible the 5-year period of study was not sufficient to produce relevant results. Other factors such as overstaffing from workforce combination and the steep management learning curve on technology implementation could also have influenced this outcome.

In Ogada et al. (2016), the objective was to determine the effect of cost efficiency ratios on the profitability of merged firms in the Kenyan financial services industry. The researchers employed a mixed research design for collecting data from 41 firms and performed Panel Data Analysis to determine trends in variables between 2009 and 2013. Results indicated improvement in cost efficiency after M&A, leading to growth in ROA and ROE. ROA and ROE are, however, determined by a myriad factor. Cost efficiency only explains a trivial proportion of the changes. There is a dearth of research on M&A and operational efficiency in Kenya. Most studies assess the impact of M&A on financial performance such Joash and Njangiru (2015) and Muita (2010). However, these studies still make for relevant empirical research because they assess profitability, a factor proven to influence operational efficiency (Olarewaju & Obalade, 2015; Lotto, 2019; Pancheva, 2019). Joash and Njangiru's (2015) research, for example, sought to determine the effect of M&A on shareholders' value and profitability. Fourteen banks that engaged in M&A from 2000 to 2014 were investigated and the data collected through questionnaires analyzed using Stata software. Findings revealed that M&A increases shareholders' value and profitability. The issue with this research is that there is no direct link of M&A to operational efficiency. One can only infer.

3. Methodology

The study adopted a descriptive research design. Descriptive research design was also appropriate here given that the objective of the study is to identify a correlation between M&A and operational efficiency. Banks drawn from the CBK repository of banks that engaged in M&A between 2010 to 2015 constituted the population. In this study, the population comprised of 12 commercial banks in Kenya. The target population comprised of four acquirer banks that had combined for at least 5 years, that is, banks that combined between 2010 and 2015. The four banks included Kenya Commercial Bank Ltd., Equatorial Commercial Bank Ltd. (merger), Guaranty Trust Bank Ltd., and Sidian Bank Ltd. The study period, therefore, was 10 years that is five years before M&A and 5 years after M&A. The period was spread from 2005 to 2019. The data to be used in the present study was quantitative as it included financial ratios. A data collection form (see appendix B) was used to obtain the relevant figures over a period of 10 years. M&A, the independent variable was assessed through profitability of the commercial bank, which is indicated by the return on assets (ROA) and earnings per share (EPS). ROA is the most appropriate ratio for measuring M&A performance. This ratio was calculated by dividing a bank's net income with its average total assets. The secondary data was obtained from the CBK bank supervision annual reports as well as the bank's financial statements dating back from 2005 to 2019. Operational efficiency was determined using the operational or cost efficiency ratio of the sampled banks before and after M&A. The efficiency ratio was calculated by dividing a bank's operating expenses with its net revenues. The data collected was recorded on data collection sheet. The data was then checked for completeness. The data was then exported to Microsoft excel and Statistical package for social scientists (SPSS) Version 23 for further analysis. The data was then smoothened to remove outliers that would interfere with inferential analysis. The study generated descriptive statistics on the Microsoft excel. The descriptive statistics included mean, minimum, maximum, kurtosis, skewness, bar graphs and line graphs. The inferential statistics involved the paired t-test and independent sample t-test. The t-test enabled the researcher to establish the difference in the pre-merger and post-merger period with a view to establishing whether the change was statistically significant or not.

4. Results

4.1 Descriptive Analysis

The descriptive analysis was carried out to establish the general movement in data. The descriptive analysis involved the line graphs, mean, standard deviation, Skewness, Ketosis and graphs.

4.1.1 Operating Efficiency

Operational efficiency of KCB has been on a decline since 2005. The largest decline in the efficiency ratio occurred in 2010, the year of KCB's merger with Savings and Loan Kenya Limited. Before 2010 in merger with Southern Credit Banking Corporation Ltd., Equatorial's operational efficiency was as high as 3.04, significantly above the optimal level of 0.5. It is only after the merger that the bank was able to improve its efficiency to a certain extent. Before the 2013, the year Guaranty Trust Bank acquired Fina Bank, its operating efficiency was on a steady increase. However, efficiency went from 0.730 in 2012 to 0.6264 in 2014 indicating an improvement. Operational efficiency of Sidian Bank (formerly K-Rep Bank) declined in the year

of the merger, 2014, but increased thereafter. The results are summarized in the figure 1.

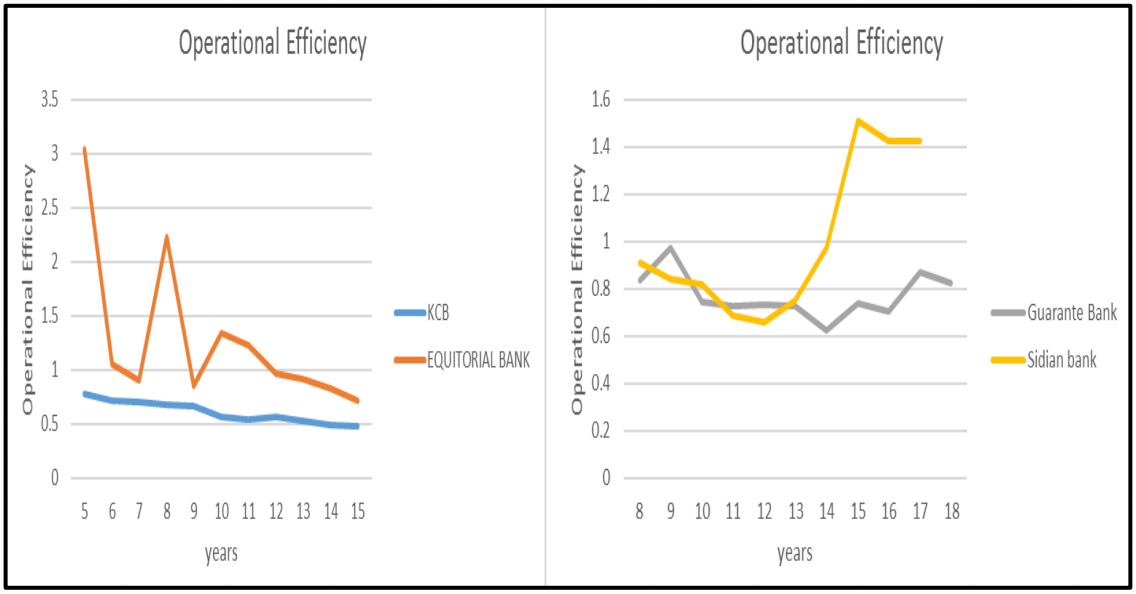

Figure 1: Operational Efficiency

4.1.2 Return on Assets

KCB's ROA has been increasing since 2005 with the largest increase happening in the year 2010, the year of its merger. Equatorial Bank has had oscillating ROA, declining in in 2010 and increasing the year after. The ROA for Guarantee bank has stabilized after merger in the year 2013. Finally, for Sidian bank, ROA reached the highest level immediately after merger in the year 2014. However, the ROA declined around the year 2017 the time interest on loans were regulated. The figure 2 illustrates this trend.

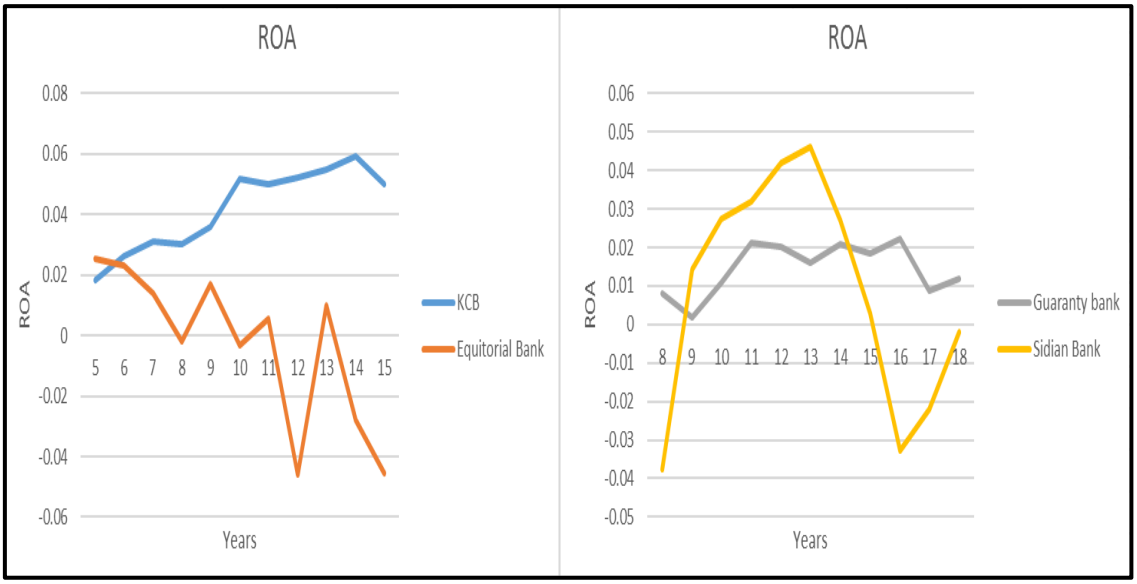

Figure 2: Return on Assets

4.1.3 Earning per Share

KCB's EPS has been increasing since year 2005, with a sharp increase happening in the sixth year 2010 the year of its merger. Equatorial bank has had negative EPS before the merger. However, EPS of the bank improved after the merger in the year 2010. Guaranty Trust Bank's EPS appears to be on a steady increase before and after the acquisition period that happened in the year 2013. Sidian Bank's EPS also showed rising EPS after merger that happened in the year 2014. However, the EPS declined years later. The results are summarized in the figure 3.

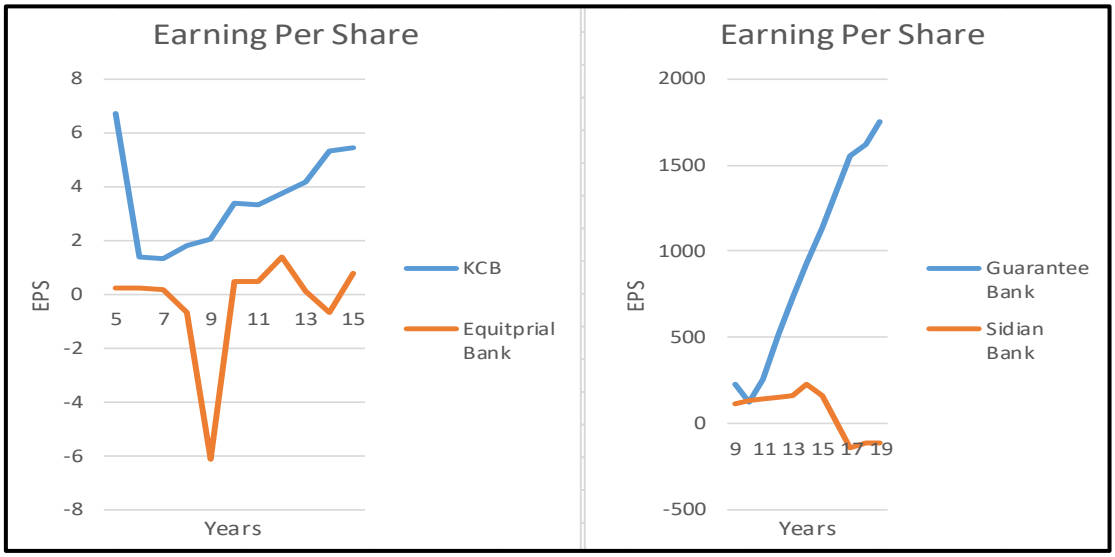

Figure 3: Earning Per Share.

4.1.3 Summary descriptive analysis

The study carried our summary descriptive statistics comprising the mean, Kurtosis, Skewedness, minimum and Maximum. The results is presented in Table 1.

Table 1: Summary Descriptive Statistics

	OE_1	ROA_1	EPS_1	OE_2	ROA_2	EPS_2
Mean	0.919	0.017	127.112	0.821	0.014	115.903
Kurtosis	16.326	5.129	4.737	2.093	-0.586	3.045
Skewness	3.927	-1.822	2.133	1.558	-0.480	1.792
Minimum	0.671	-0.038	-6.17	0.48	-0.05	-143.5
Maximum	3.042	0.042	727.22	2.23	0.06	730

OE_1= operating efficiency before M/A, **OE_2**= operating efficiency after M/A, **ROA_1**= Return on Assets before M/A, **ROA_2**= Return on assets after M/A. **EPS_1**= Earnings per share before M/A and **EPS_2** = Earnings per share after M/A, M/A = Merger and Acquisition.

Table 1 showed that the mean for operating efficiency before M/A was 0.919 while the mean of operating efficiency after M/A was 0.821 implying that M/A was associated with improving operation efficiency given a fall in operating expenses to operating revenues ratio. The mean for return on assets before merger was 0.017 while the mean after M/A was 0.014 meaning that the profitability fell after the M/A period. The mean for Earning per share before M/A was 127.112 while the mean for earning per share after M/A was 115.903 meaning that there was rise in earnings per share after the M/A. The minimum operating efficiency before M/A was 0.671 while the minimum operating efficiency after M/A was 0.48 implying that M/A was associated with improving operation efficiency given a fall in operating expenses to operating revenues ratio. The minimum for return on assets before merger was -0.038 while the minimum for ROA after M/A was -0.05 meaning that the profitability fell after the M/A period. The minimum for Earning per share before M/A was -6.17 while the minimum earning per share after M/A was -143.5 meaning that there was a fall in earning per share after the M/A for some banks.

The maximum for operating efficiency before M/A was 3.042 while the maximum operating efficiency after M/A was 2.23 implying that M/A was associated with improving operation efficiency given by fall in operating expenses to operating revenues ratio. The maximum for return on assets before merger was 0.042 while the maximum for ROA after M/A was 0.06 meaning that the profitability improved after the M/A period. The maximum for Earning per share before M/A was 727.22 while the maximum earning per share after M/A was 730 meaning that there was a rise in general earnings per share after the M/A for some banks. Most of the Kurtosis for the banks variables were around 3 meaning the data was fairly normal. Additionally, the Kurtosis tended to decline with the merger assuming lower value than before merger. The Skewness values were not so far distributed away from the value of zero implying that the data was fairly normal. In addition, the Skewedness tended to decline with the merger assuming lower values after the merger.

4.3 Inferential Analysis

4.3.1 Paired Sample t-test

The paired t test tested the null hypothesis that the means of the operating efficiencies, return on assets and earning per share before and after the merger were equal. The test compared the means before merger and means after merger for operating efficiency, ROA and earning per share. The results of paired t-tests is demonstrated in the Table 2.

Table 2: Paired Sample t- test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation.	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
$OE_1 - OE_2$	.060	.355	.019	-.105	.226	3.157	19	.025
$ROA_1 - ROA_2$	-.0017	.035	.0003	-.018	.014	-5.66	19	.002
$EPS_1 - EPS_2$	-6.244	186.29	41.657	-93.433	80.945	-.150	19	.882

Where OE_1= operational efficiency before M/A, OE_2= operational efficiency after M/A, ROA_1= Return on Assets before M/A, ROA_2= Return on assets after M/A. EPS_1= Earnings per share before M/A and EPS_2 = Earnings per share after M/A, M/A = Merger and Acquisition.

Table 2 revealed that there was a statistical difference in means of operating efficiency in the pre-merger and post-merger period given by p-values less than 0.05 level of significance (t= 3.157 and p-value = .025<.05). The value of t statistic was negative implying inverse relationship between merger and operating expense to net income ratio that implies positive relationship between mergers and operating efficiency. The study also established that there was a statistical difference in the means of ROA in the pre-merger and post-merger period given by p-value less than .05 (t=-5.66, p-value=.002<.05). However, EPS did not show a statistical difference in means in the pre-merger and post-merger period given by p-values higher than 0.05 level of significance (t=-.150 and p-value= .882). The study thus concludes that there was a statistical difference in operational efficiency of the commercial banks studied in the pre-merger and post-merger period implying that the effect of merger on operational efficiency was statistically significant.

4.3.2 Independent Sample t-test

The study also performed independent t-test as confirmatory test for the paired t-test. The test is based on the grouping of study variable into two groups that is pre-merger period and post-merger period. The pre-merger period was given a value of zero (0) and post-merger period was given a value of one (1). The test is based on the comparison of the means in the two groups. The findings are presented in Table 3.

Table 3: Independent sample t-test

	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
OE	3.571	40	.016	.025	.007	-.235	.366
ROA	-5.833	40	.003	-.007	.000	-.024	.008
EPS	-.181	40	.857	-11.77	64.973	-142.9	119.4

Where OE= operational efficiency, ROA= Return on Assets, EPS= Earnings per share

The Table 3 presents the results of the independent sample t test. The p-values for the operational efficiency was less than 0.05 level of significance (t= 3.571, p-value= .016<.05). Implying a significant difference in means of operational efficiency in the pre-merger and post-merger period. The study also revealed that the p-value for ROA that was used as proxy for mergers was less than .05 implying that there was a statistical difference in the means of ROA in the pre-merger and post-merger period (t= -5. 833, p-value= .003<.05). However, the mean for earning per share that was used as second proxy for mergers and acquisition were not statistically different given by p-values greater than .05 (t=-.181, p-value= .857>.05). The study therefore concluded that means for operational efficiency and ROA in the pre- and post-merger period were statistically different while the means for earning per share was not statistically different.

5. Discussion

The study sought to establish the effect mergers and acquisitions return on operational efficiency of commercial banks in Kenya. The firm merger was measured using return on assets and EPS. The paired t test revealed that there was a statistical difference in means of operating efficiency in the pre-merger and post-merger period given by p-values less than 0.05 level of significance (t= 3.157 and p-value = .025<.05) implying that operational efficiency changed significantly between pre-merger

and post-merger period. The independent t test also showed that the p-values for the operational efficiency was less than 0.05 level of significance (t= 3.571, p-value= .016<.05) implying a significant difference in means of operational efficiency in the pre-merger and post-merger period. The sign for t statistic in both paired t-test and independent t-test was negative showing inverse relationship between mergers and operating expense to income ratio implying positive association between mergers and operational efficiency. The result of the study is in congruence with study by Yeboah and Asirifi (2016) who found that that pre- and post-merger operational cost-income ratio was not equal.

The significant difference in means of operational efficiency in the pre- and post-merger period was accompanied by a significant change in ROA. Based on paired t test, the study established that there was a statistical difference in the means of ROA in the pre-merger and post-merger period given by p-value less than .05 (t=-5.66, p-value=.002<.05). This implies that merger measured by return on assets changed significantly when the banks merged with other banks. Additionally, independent t-test showed that that the p-value for ROA was less than .05 implying that there was a statistical difference in the means of ROA in the pre-merger and post-merger period (t= -5.833, p-value =.003<.05). Given negative sign of the t statistic generated in paired t-test and independent t-test, study finding implies positive relationship between merger, measured by ROA, and operational efficiency of the commercial banks. The finding is in line with Pancheva (2019) who established that Banks with higher profitability have larger operational efficiencies that their less profitable counterparts. The efficiency of profitable banks stems from their lower operational costs, less competitive pressures, and better flow of information.

The effect of merger and acquisitions, measured by EPS, however, did not show any statistical difference in the pre and post-merger period. Paired t –test revealed that EPS did not show a statistical difference in means in the pre-merger and post-merger period given by p-value higher than 0.05 level of significance (t=-.150 and p-value= .882). The finding implies that the commercial banks did not realize significant difference in the earning per share in the pre-merger and post-merger period. Merger thus does not significantly affect the earning per share. Additionally, based on independent t-test the study revealed that the means for earning per share in the pre-merger and post-merger period were not significantly different (t=-.181, p-value= .857>.05). The negative t-statistics in both the paired t-test and independent t-test implies that positive relationship between earnings per share and operational efficiency.

6. Conclusions

From the summary of findings, it is possible to conclude that, generally, mergers and acquisitions have a positive impact on the operational efficiency of commercial banks in Kenya. The positive association between merger and operational efficiency as demonstrated significant changes in operational efficiency in the pre-merger and post-merger period could be due to cost savings that comes with mergers especially when their shared resources leading to reduced operational cost. Although the banks demonstrate overall similarity in pre-M/A and post-M/A performance, the positive outcomes cannot be purely attributed to the impact of M&A. It would be erroneous to rule out the influence of extraneous factors such as economic or financial crisis in the post-combination period. The study also concluded that mergers, measured by ROA, showed a statistical difference in the means in the pre-merger and post-merger period as established by paired t-test and independent t-test. This implied that merger measured by return on assets changed significantly when the banks merged with other banks. The negative sign of the t statistic generated in paired t-test and independent t-test showed a positive relationship between merger, measured by ROA, and operational efficiency of the commercial banks. The study therefore concludes that ROA changed significantly between the pre-merger period and post-merger period. The positive relationship could be explained by synergies created by mergers hence increasing profitability. Finally, merger and acquisitions, measured by EPS, did not show any statistical difference in the pre and post-merger period. The t statistic generated in paired t-test and independent t-test was accompanied by p-values greater than the level of significance chosen. The finding implies that the commercial banks did not realize significant difference in the earning per share in the pre-merger and post-merger period. Additionally, based on independent t-test the study revealed that the means for earning per share in the pre-merger and post-merger period were not significantly different. The negative t-statistics in both the paired t-test and independent t-test implies that positive relationship between earnings per share and operational efficiency.

Conflicts of Interest

The authors declare no conflicts of interest.

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