A COMPARATIVE STUDY OF BANKING SECTOR PERFORMANCE BEFORE AND AFTER MERGER & ACQUISITION: EVIDENCE FROM PAKISTAN

Hussain Muhammad *, Muhammad Waqas **, Stefania Migliori *

* University G.d'Annunzio of Chieti-Pescara, Italy
** University of Lahore Islamabad Campus, Pakistan

OPEN ACCESS

How to cite: Muhammad, H., Waqas, M., & Migliori, S. (2019). A comparative study of banking sector performance before and after merger & acquisition: Evidence from Pakistan. *Corporate Governance: Search for the Advanced Practices,* 275-292. https://doi.org/10.22495/cpr19p15

Received: 14.12.2018
Accepted: 23.01.2019
JEL Classification: G21, G30, G34
DOI: 10.22495/cpr19p15
Keywords: Mergers and Acquisitions, Financial Ratios, Banking Industry of Pakistan

Abstract

The purpose of this study is to make a comparative analysis of banking sector performance before and after the Merger and Acquisition (M&A). The analysis is based on the accounting measures to test the impact of pre and post M&A on the financial performance of banks in Pakistan during the period 2004-2015. The results reveal that liquidity, profitability and investment ratios of the banks are positively and significantly increased the performance after M&A. However, it also indicates that the solvency ratios are not statistically significant after M&A. In the light of these results, this study suggests implications for both theory and practice and also recommends ideas for future research.

1. INTRODUCTION

The dynamic global environment is changing the business processes with every passing day and thus making the business environment more challenging and competitive (Sherman, 2010). The most effective and well-known approach, organizations are used to compete in such a fast business environment is Merger & Acquisition (M&A). There is a small difference in both terms Merger and Acquisition, although they are used conversely. The merger is the combination of two or more companies in the creation of a new entity or formation of a holding company. Whereas, an acquisition is the purchase of shares or assets on another company to achieve a managerial influence (Chen & Findlay, 2003; Martynova & Rennenborg, 2006), not necessary by mutual agreement (Jagersma, 2005).

Walsh (1989) posit that merger is a combination of two corporations and makes a big one corporation, while acquisition means to buy a small corporation by a large corporation. Moreover, Sherman (2010) defines M&A as, if an organization agree to move forward as a single or joint new entity for their mutual benefits then merger occurs, however, acquisition occurs when an organization takes over some assets, equipment, and plant or business unit of another organization.

Recent literature highlight that M&A has been an important and critical strategy for firms to achieve growth and efficiency, by creating synergies, reducing costs, acquiring assets and expanding to new markets. (Martynova & Rennenborg, 2006; Marques-Ibanez & Altunbas, 2004). Organizations have to realize the advantages to go into M&A and to identify the target business (Zahid & Shah, 2014). In addition, one of the most common argument is that firms can avail "synergies" benefits after merging, because synergies refer to expected cost savings, growth opportunities, and other financial benefits that occur as a result of the combination of two firms working together for the success of the business (Ravenscraft & Scherer, 1987).

Recently, the trend of M&A moves from developed to developing the world and in this way the business landscape across the globe are experiencing modernization (Chapman, 2003) and through employing this strategy organizations clutch in time which ultimately leads the organization towards improved performance (Rhodes-Kropf & Viswanathan, 2004). M&A is becoming worldwide business practices that are exercised by the businessmen's for accomplishing their business enlargement and endurance (Fridolfsson & Stennek, 2005).

The expansion for banks has started through the wave of M&A in the US and Europe and also has been spread worldwide (Focarelli & Panetta, 2003). The flexibility in the banking industry has been increased by major renovations and also the chances of economic growth have increased because of the development of the efficient financial system. The entire phenomenon is steady with the results of different studies for example financial development is associated with economic growth (Fase & Amba, 2003).

Zahid and Shah (2011) argue that there is a dire need for organizations to realize the advantages associated with M&A. The Thomson Financial Institute of Mergers, Acquisitions, and Alliances Analysis (IMAA) (2011) analyzed the global scenario of M&A and reported that in 2007 the world experienced the highest boom in the M&A-based transactions as at the said time the total aforementioned transactions reached at the all-time highest level of 50,000 transactions worldwide. Further, this study also revealed the lowest point of M&A transactions in the past decades which is reported to be 42,000 M&A transactions in 2009 during the great recession. Moreover, it is also noted that the number of M&A experienced exponential growth in recent times as it increased from 3000 transactions worldwide to 42000 transactions from 1986 to 2011. Similarly, the same trend was experienced in the increase of the dollar amount of these transactions which have increased from $ 500 Billion to $ 6000 Billion in the previous period, which is twelve times increased. Afzal and Yousaf (2012) posit that this was the era of financial enlightenment in which financial institutions commenced consolidating in an attempt to meet the regulatory requirement laid down by the State Bank of Pakistan (SBP). Moreover, Mahmood and Loan (2006) argue that an important driver of financial sector consolidation and growing level of M&A was the implementation of Basel Accord II by SBP. Basel II was laid out by the influence of various international financial regulators and emphasized on basic detailing of resources and others requirement to be met in order to be qualified as good enough to run the banking business.

The primary concern of this study is to identify and highlight the important factors associated with the successful implementation of M&A in the Banking Industry of Pakistan. The insights achieved during this study facilitate the banking industry personnel and other corporate entities in Pakistan and all over the world about the outcomes associated with M&A. Moreover, this study also serves as a meaningful inclusion for banking literature later to be used by both academia and professionals.

This study establishes that whether there is a significant or insignificant impact, on the performance of banks after the M&A. Based on our prior discussion, our research questions are;

- Do M&A has effects on commercial bank's profitability?
- What effects are experienced on the financial ratios of the commercial bank, based on the impact of M&A?

The remainder of this paper is organized as follows. Section 2 briefly provide a literature review on the impact of M&A on firm performance. Section 3 outlines the methodological approach and illustrates the sample and data. Section 4 describes the empirical results and analysis. Finally, Section 5 presents the conclusion and managerial implications.

2. LITERATURE REVIEW

2.1. Mergers, acquisitions and financial performance

The global financial sector is deeply involved in consolidation, restructuring procedures and exclusion of restrictions imposed on M&A; give rise to a new energetic wave of this phenomenon all across the globe. This phenomenon has been observed in European banking industries as more and more banks are consolidating into one another for the creation of a more strong existence (Berger & De Young, 2001). The firms are consolidating since 1989 by anticipating in holding the global financial system and probable to face further re-structuring against the consequences of the recent crisis in financial markets. Such firms are expected to hold the global financial system (Fixler & Zieschang, 1993).

Kersten and Wilson (2001) argue that the main goals of M&A are to infiltrate in the market. They also consider the vertical expansion so that the firms can control their supply and distribution sources etc. Hubbard (2001) posits that foreign investors have an opportunity to see themselves in world new market by M&A. Moreover, Fixler and Zieschang (1993) suggest that efficiency enhancement strategies can be effective not only with the cost controls but also with the management proficiency and competence. These skills required for achieving effectiveness can be achieved through undergoing M&A. Similarly, Resti (1998) states that after going through M&A; the company experience increased in profitability and based on the increased size and enhanced pool of resources at their disposal such companies also secured greater level of effectiveness.

Sufi (2004) extend a distinct dimension highlighting the fact that small organizations are more likely to bear fruitful results of M&A in comparison to the larger organizations, as they later may pose greater challenges for management. Moreover, Weingberg (2007) reveals that mergers influence the performance of the merged company as the newly established company has greater market power in addition to the whole set of skills and competencies which can easily dominate many of the management challenges based on the intent and strive of decision makers. Furthermore, Reddy and Mantravadi (2008) note that post-merger time of an organization is characterized by positive fluctuations in the market offering of the particular company, however, they also noted that the impact of this merger on the profitability of the company is very little.

On the contrary, some studies proved that near about half of M&A go negative to fulfill their goals (Badreldin & Kalhoefer, 2009). Some studies concluded that the failure of M&A companies keep a lot of reasons behind them including, distinctiveness between their goal due to their size, their spread of risk into irrelevant it may have cultural obstacles in company policies, procedures and their style of operation (Adereti & Sanni, 2007).

The critical review of the relevant literature revealed that M&A are effective techniques available on the hand of the companies, contributing towards achieving growth, progress, and survival in the long run (Fowler & Schmidt, 1989). It has been also highlighted in the literature that merger is an activity through which two or more small companies combine to develop a unified whole, whereas acquisition refers to taking over a company on account of another company with the intention of enjoying profitability and survival (Akhtar, 2010). Shareholders are the most important consideration and motivation for an organization undergoing mergers or acquisitions as they are related to converging resources, technology and skills in an attempt to increase shareholders wealth (Soludo, 2004).

In addition, De Nicolo et al. (2003) find that there is a positive relationship between M&A of the bank and efficiency of the financial sector. However, the relationship between M&A and performance of the bank has remained ambiguous. Similarly, Stahl & Voigt (2004) also extend that the relationship between banks undergoing M&A and impact of the same on their subsequent performance is trending topic which requires a great deal of work. Thus, on the basis of the identified gap on this trending topic, this study is extending the following hypothesis;

H1: There is a significant difference in overall financial performance of the banks in Pakistan between pre and post-M&A.

2.2. Liquidity ratios and performance of banks

Liquidity of a bank is defined as the ability of a bank to meet its short-term obligations swiftly and in a streamlined manner. There are numerous determinants of liquidity identified as being abundantly used in the relevant literature. For instance, Horne and Wochowicz (2004) reveal that the current ratio is achieved by dividing current assets by current liabilities. Further, they suggest that it reflects the capacity of the bank to meet its short-term obligations like claims against the current and savings account, short-term borrowings from other banks, regulatory reserves with the central bank, payroll and other payable employee benefits. Pazarskis et al. (2006) posit that after M&A, firm liquidity increase because the firms are in a good position to meet the current obligations through current assets. Shakoor et al. (2014) used four measurement ratios to analyze the impact of M&A on firm performance. They revealed that liquidity has positive, while profitability, solvency, and investment ratios have a negative impact on firm performance after M&A. Moreover, Haider et al. (2015) conduct a study on a small set of six bidder banks and find that bidder banks did not improve the post-merger performance in term of profitability, liquidity, leverage, capital adequacy, and size.

However, the scope of liquidity in this study has been operationalized to the level of four proxies i.e. Deposits to total assets (DTA), Advances to deposit ratio (ADR), Cash to assets ratio (CTA) and the Current ratio (CR). Thus, the research hypothesis for testing the liquidity ratio between pre and post-M&A is as follow;

H2: There is a significant difference in the liquidity ratio between pre and post-M&A.

2.3. Investment ratios and performance of banks

Investment of a bank is defined as monetary and non-monetary inputs required for the streamlined running of operations in an attempt to generate maximum economic benefit (profit maximization). There are various determinants of investment ratio identified in the prior literature. For instance, Pearce (2015) suggests that return on investment is considered as the most authentic one and it is calculated by subtracting the total cost from total revenue and dividing it with the total cost and multiplying the output with 100 to achieve a percentage. Sinha and Gupta (2011) indicate that M&A specifically affect particular financial parameters such as economies of scale and scope, EBIT, return on investment, profit and interest ratios. Moreover, Pasiouras et al. (2007) also argue that firms undergo M&A with the intention of expanding business operations and optimizing shareholders wealth.

However, in this study, the scope of investment is operationalized to the level of return on investment and earnings per share. The research hypothesis for testing the investment ratios between the pre and post-M&A is as follow;

H3: There is a significant difference in the investment ratios between pre and post-M&A.

2.4. Solvency ratios and performance of the banks

Solvency of a bank can be referred to its ability to pay off the long-term obligations. Solvency is essential to staying in business as it asserts a company ability to continue operations into the foreseeable future (Willett, 2005). Solvency is chiefly associated with the capacity of the bank to pay its long-term liabilities whether individual or combined including the obligation due to associated undertakings. In order to be solvent, a bank must maintain its assets in greater quantity in comparison to the sum of its liabilities (Mishkin, 1998). There are numerous determinants of liquidity identified as being abundantly used in the relevant literature. For instance, Gaist (2009) extend that debt to equity ratio is the best imperative indicator to determine insights regarding the percentage of debt financing against equity financing used to acquire and maintain assets of the bank. Awan and Mahmood (2015) find a positive impact of pre and post M&A on firm performance by using the four ratios i.e. solvency, liquidity, profitability, and investment. However, Liargovas and Repousis (2011) reveal that bank after M&A have no impact and do not create wealth.

In this study, the solvency of the bank has been operationalized to the level of debt to equity ratio, interest coverage ratio, and debt service coverage ratio. The research hypothesis for testing the solvency ratios between pre and post-M&A is as follow;

H4: There is a significant difference in solvency ratios between pre and post-M&A.

2.5. Profitability ratios and performance of banks

Profitability of a bank is characterized by its ability to engender earnings being compared against its expenditure and other related costs over a particular time period. Profitability ratios measure the company use of its assets and control of its expenses to generate an acceptable rate of return (Williams et al., 2008, Muhammad et al., 2016). Further, Oral and Yolalan (1990) indicate that DuPont analysis is an effective proxy for measuring the profitability of a bank. DuPont analysis combines various profitability indicators and uses their collective benefits to make implications regarding the profitability of a bank. There are numerous determinants of liquidity identified as being abundantly used in the relevant literature. For instance, Akhavein et al. (2007) find that there is a significant positive impact of pre and post-M&A on the profitability of banks. Similarly, Sinha and Gupta (2011) also reveal that there is a positive effect of pre and post-M&A on the performance of banks. However, Kouser and Saba (2011) find a negative association between M&A and profitability of banks.

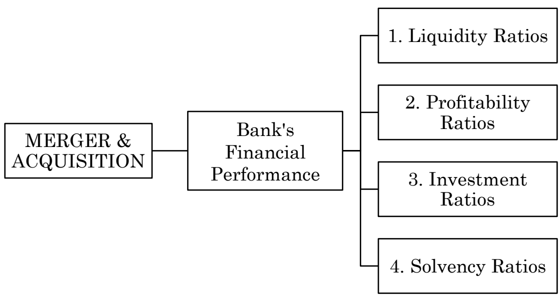
In this study, the scope of profitability has been operationalized to the level of DuPont's analysis, net profit margin, gross profit margin and total assets to turnover ratio. The research hypothesis for testing the profitability ratios between pre and post-M&A is as follow;

H5: There is a significant difference in profitability ratios between pre and post-M&A.

2.6. Theoretical model

Based on the preceding discussion the proposed theoretical model used in this study is shown in Figure 1. However, Table 1 indicates all the ratios that are used in this study to find out the comparison between the performance of banks before and after M&A.

Figure 1. Theoretical model



Source: Author's elaboration

Table 1. Ratios and its formulas

Ratios	***Formulas***	***Ratios***	***Formulas***
Deposit to Total Assets (DTA)	Net sales/Average total assets	Total Assets Turnover (TAT)	Net sales/average total assets
Advance to Deposit Ratio (ADR)	Advance/Deposits	Return on Investment (ROI)	Net profit/total investment(100)
Cash to Asset Ratio (CTA)	Marketable securities/current liabilities	Earnings per share (EPS)	Net income available to shareholders/ Number of shares outstanding
Return on Asset (ROA)	Net income/Average total assets	Debt to equity (D/E)	Total Debt/ Total Equity
Return to Equity (ROE)	Net income/Average stockholder equity	Interest coverage (IC)	EBIT/Interest Expense
Net Profit Margin (NPM)	Profit after Tax/Revenue	Debt ratio (DR)	Total liabilities/total asset
Gross Profit Margin (GPM)	(Revenue - Cost of Goods Sold)/Revenue		

3. METHODOLOGY & DATA COLLECTION

In an attempt to select best tools and techniques constituting the methodology mix, we have critically reviewed various techniques from previous studies which have been conducted in the similar context of evaluating the role of M&A on the financial performance of organizations. For instance, Ravinchandran et al. (2010) used the statistical techniques of paired sample t-test and ratio analysis to examine the impact of M&A on banks performance. Similarly, Kouser and Saba (2011) and Hunjra et al. (2014) used only ratio analysis comparison to evaluate the impact of M&A on financial performance. However, Shakoor et al. (2014) used multiple linear regression models to investigate the said impact. In the light of the aforementioned discussion, it can be safely concluded that ratio analysis comparison is most commonly used the technique to be applied in the context of this study, however, in an attempt to achieve greater rigor regression analysis has also been used.

The present study used a panel data set of the banking sector in Pakistan to empirically test the impact of pre and post-M&A on banks performance. The target population was composed of all deals (Banking/Non-banking financial institutions) of M&A approximately 100 in number available on Karachi Stock Exchange (KSE). We employed a purposive sampling technique for the purpose of drawing a sample from the population. Under the purposive sampling technique, our final sample is comprised of 15 sets of banks (30 Banks) as shown in Table 2. We extracted data from the KSE website from 2004-2015.

Table 2. Sample of the study

S. No.	*Type of Deal*	*Date*	*Acquirer / Bidder Bank*	*Acquired / Merged*
1	Merger	01/01/2008	NIB Bank Limited	PICIC Commercial Bank Limited
2	Acquisition	25/06/2008	Standard Chartered Bank Limited	American Express Bank in Pakistan
3	Acquisition	18/09/2008	Habib Bank Limited	Saif Power Leasing Limited
4	Acquisition	28/10/2008	Dubai Islamic Group LLC	Bank Islami Pakistan Limited
5	Merger	07/11/2008	Atlas Bank Limited	KASB Capital Limited
6	Merger	05/02/2008	KASB Bank Limited	Network Leasing Company Limited
7	Merger	30/01/2009	HSBC Bank Middle East Limited	Amalgamation of HongKong and Shangai Bank branches in Pakistan
8	Acquisition	27/03/2009	BankAl-Habib Limited	Habib Financial Company Limited
9	Acquisition	21/09/2009	MCB Bank Limited	Royal Bank of Scotland
10	Merger	22/12/2009	Askari Bank Limited	Askari Leasing Company Limited
11	Acquisition	26/07/2006	AtlasInvestment Bank	Atlas Bank Limited
12	Acquisition	06/07/2011	MyBank Limited	Summit Bank Limited
13	Acquisition	03/01/2011	Royal Bank of Scotland	Faysal Bank Limited
14	Merger	11/10/2010	Al-Zamin Leasing Corporation Limited	Capital Investment Bank Limited
15	Merger	30/04/2004	Trust Investment Bank Limited	Trust Commercial Bank Limited

4. DATA ANALYSIS & DISCUSSION

4.1. Descriptive statistics

In Table 3, the descriptive analysis indicates the comparison of all ratios before and after M&A. The mean values for all variables improved after experiencing M&A, which clearly indicates an increase in the performance of banks. However, the numerical values relating to the data of solvency experienced declining. Therefore, it can be partially concluded that solvency of a bank is negatively associated with M&A undertaken, but contrary to it liquidity, investment, and profitability of the bank is showing incremental trend after M&A time series.

Table 3. Descriptive analysis before and after M&A

Descriptive analysis (Before M&A)				
	Liquidity	*Solvency*	*Investment*	*Profitability*
Mean	0.881	4.372	4.168	4.347
Maximum	9.952	28.3	88.6625	9.09
Minimum	0.144	5.205	0.759521	0.4329
Skewness	0.911251	0.391	2.011554	1.734043
Kurtosis	2.960202	3.319	6.049257	6.444721
Descriptive analysis (After M&A)				
	Liquidity	*Solvency*	*Investment*	*Profitability*
Mean	1.24	5.95	3.77	5.78
Maximum	28.2	46.431	89.375	12.17
Minimum	0.127	4.485	1.928	1.024
Skewness	3.932	1.112	2.796	0.353
Kurtosis	22.435	4.796	11.201	1.413

4.2. Bivariate correlation analysis

Yamane (1973) posits that a bivariate correlation is considered in displaying positive and strong association, when the value of correlation coefficient is equal to or greater than 0.4 and when the value of correlation coefficient for two variables is greater than 0 but less than 0.4, then it is the indication of a moderately positive association between the two. Further, Hahs-Vaughn and Lomax (2013) indicate that the value of the correlation coefficient between 0 and -1 is the indication of a negative relationship between the two variables. However, the value of the correlation coefficient between 0 to - 0.4 is considered to be exhibiting strong negative relationship and the value of the relationship between - 0.4 and -1 is considered to be a moderately negative association between the two variables.

Table 4 reveals that the correlation among all variables is positive and they are linked clearly with each other. However, the liquidity has negatively linked with solvency, while all other variables have a positive relationship with each other.

4.3. Ratio analysis of banks pre and post M&A

The information included in Table 5 has been extracted after conducting financial statement analysis on two distinct time series. One time series constituted pre-M&A data having five-year observations for each bank, whereas the other time series constituted post-M&A data having five-year observations for each bank. In totality, there are 150 observations including 75 observations for pre-M&A time series; whereas the remaining 75 observations were for the post-M&A time series.

Table 4. Correlation analysis before and after M&A

Correlation analysis (Before M&A)				
	Liquidity	*Solvency*	*Investment*	*Profitability*
Liquidity	1			
Solvency	-0.026	1		
Investment	0.009	0.019	1	
Profitability	0.475	0.395	0.513	1
Correlation analysis (After M&A)				
	Liquidity	*Solvency*	*Investment*	*Profitability*
Liquidity	1			
Solvency	0.084	1		
Investment	0.003	0.024	1	
Profitability	0.638	0.595	0.875	1

Table 5. Ratio analysis of banks before and after M&A

Mean of averages from all banks for each ratio		
	Pre M & A	*Post M & A*
Liquidity ratios		
Deposits to Total Assets	0.67	0.78
Advances to Deposits	0.75	0.91
Cash to Assets	1.03	1.69
Current Ratio	1.06	1,58
Investment ratios		
Return on Investment	6.68	9.32
Earnings Per Share	2.06	2.57
Solvency ratios		
Debt to Equity	3.14	3.85
Interest Coverage	4.34	3.15
Debt Service Coverage	4.99	4.32
Profitability ratios		
Return on Assets	2.55	3.47
Return on Equity	9.75	12.50
Net Profit Margin	1.60	2.10
Gross Profit Margin	5.60	6.88
Total Assets Turnover	2.18	3.97

As evident in Table 5, the liquidity ratios for the post-M&A scenario are improving and thus it can be safely concluded that undertaking M&A have improved the liquidity position of the banks. Moreover, the comparative analysis of investment ratios is converged at the implication that M&A has also improved the investment returns of the banks. This indicates that the investment ratios in the time series comprising post-M&A data are better than the ratios calculated against the pre-M&A time series. Similarly, the profitability ratios of the post-M&A indicate that the ratios have improved when compared against pre-M&A time series. However, it is pertinent to mention here that with the happening of M&A in the banks; the solvency position of the same has not properly improved. But instead, a mixed trend has been observed. In totality, we can safely conclude that undertaking M&A on account of the banks operating in Pakistan is positively associated with enhanced performance. Therefore, our hypotheses *H1, H2, H3*, and *H5* have been accepted; whereas *H4* is rejected.

4.4. Multiple regression analysis

Using the correlation analysis it was established that a positive association exists between the dependent and explanatory variables; however, in order to measure the causation effect with precision, this study employed regression analysis. According to Gujrati (2008), regression analysis is a measure that is used to determine the strength of the relationship between one dependent variable and a set of changing explanatory variables. The regression was developed using the standard regression equation and is provided as follows:

$$\text{Profitability} = \beta_0 + \beta_1 (DTA) + \beta_2 (ATD) + \beta_3 (CTA) + \beta_4 (CR) + \beta_5 (ROI) + \beta_6 (EPS) + \beta_7 (DTE) + \beta_8 (ICR) + \beta_9 (DSCR) + e \quad (1)$$

Table 6 reveals that the obtained results clearly indicate a significant association between dependent and explanatory variables. The F-value (4.041) against p-value (0.000) clearly demonstrates that H_0 is rejected and there is a considerable difference between the variations explained by intercept slope and intercept model. Moreover, the value of R^2 explains that approximately 13% of the variations in the dependent variable are being caused by the explanatory variables, which indicates that the model is good fitted. Further, the beta values of deposit to total assets (0.0267), advance to total deposit (0.0372) and cash to assets (0.0233) show that one unit change in these predictor variables brings 2.7%, 3.7% and 2.3% change in the outcome variable respectively. However, these coefficients are insignificant as the p-value against its corresponding t-statistic is 0.3156, 0.4529 and 0.1736 respectively. Similarly, the beta values of the current ratio (0.0194), debt to equity (0.0428) and interest coverage (0.0306) indicate that one unit change in these predictors brings 1.9%, 4.8% and 3.1% change in outcome variables respectively. On the other hand, the beta values of return on investment (0.0722) and earning per share (0.0867) explain that one unit change in these predictors brings 7.2% and 8.7% changes in the outcome variable respectively. The coefficient of these predictors is significant as the p-value against its corresponding t-statistic is (0.0271) and (0.0378) respectively.

In addition, it has also observed in Table 6 that the regression model does not contain the problems of heteroskedasticity, autocorrelation, and multicollinearity. Heteroskedasticity was measured by the application of Breusch and Pagan Test, the p-value of (0.043) demonstrates that there is no heteroskedasticity exists within the regression model. Similarly, autocorrelation was measured with the help of the Durbin Watson test and its value (1.975) being approximately (2.0) is the clear indication that no autocorrelation exists. Moreover, the variance inflation factor (VIF) was used to measure the effect of multicollinearity in the regression model and the value of VIF (1.0) suggests that no such problem exists.

Table 6. Multiple linear regression model (Before M&A)

Outcome variable: Profitability				
Parameter	***Coefficient***	***SE***	***t-statistic***	***p-value***
Deposits to Total Assets	0.0267	0.026	1.0139	0.3156
Advances to Deposits	0.0372	0.049	0.7565	0.4529
Cash to Assets	0.0233	0.017	1.3807	0.1736
Current Ratio	0.0194	0.018	1.1111	0.2719
Return on Investment	0.0722	0.032	2.2783	0.0271
Earnings Per Share	0.0867	0.041	2.1346	0.0378
Debt to Equity	0.0428	0.057	0.7545	0.4542
Interest Coverage	0.0306	0.023	1.3580	0.1807
Debt Service Coverage	0.0489	0.044	1.1187	0.2687
F-statistic	4.041			0.0009
R-squared	0.1328	0.009		
Breusch and Pagan Test	17.285			0.0430
Durbin Watson	1.975			
Variance Inflation Factor	1.000			

Table 7 indicates the results of the banks after the M&A. The F-value (211.366) against p-value 0.000 clearly demonstrates that H_0 is rejected and there is a considerable difference between the variations explained by intercept slope and intercept model. Moreover, the value of R^2 explains that approximately 54% of the variations in the dependent variable are being caused by the explanatory variables, which indicates that the model is good fitted. Further, the beta values of deposit to total assets (0.026), advance to total deposit (0.036), cash to assets (0.023) and interest coverage (0.038) show that one unit change in these predictor variables bring 2.6%, 3.6%, 2.3% and 3.8% changes in the outcome variable respectively. However, these coefficients are insignificant as the p-value against its corresponding t-statistic is 0.4729, 0.3189, 0.5209 and 0.087 respectively. On the other hand, the beta values of current ratio (0.074), return on investment (0.0246), earning per share (0.0075) and debt to equity (0.214) explain that one unit change in these predictors bring 7.4%, 2.5%, 0.7% and 2.1% changes in the outcome variable respectively. The coefficient of these predictors are significant as the p-value against its corresponding t-statistic is (0.000), (0.000), (0.000) and (0.000) respectively.

In addition, Table 7 also indicates that Breusch and Pagan Test (13.424) against p-value (0.037) and Durbin Watson Test (2.08) reveal that there is no problem of heteroskedasticity and autocorrelation. Similarly, the value of VIF (4.401) suggests that there is no issue of multicollinearity within the regression model.

Table 7. Multiple linear regression model (After M&A)

Outcome variable: Profitability				
Parameter	***Coefficient***	***SE***	***t-statistic***	***p-value***
Deposits to Total Assets	0.026	0.0356	0.723	0.4729
Advances to Deposits	0.036	0.036	1.007	0.3189
Cash to Assets	0.023	0.0348	0.647	0.5209
Current Ratio	0.074	0.0357	2.068	0.0000
Return on Investment	0.246	0.0278	8.821	0.0000
Earnings Per Share	0.075	0.0279	2.697	0.0096
Debt to Equity	0.214	0.0218	9.786	0.0000
Interest Coverage	0.038	0.0219	1.747	0.0870
Debt Service Coverage	0.244	0.0218	11.184	0.0000
F-statistic	211.366			0.0000
R-squared	0.541	0.029		
Breusch and Pagan Test	13.424			0.0370
Durbin Watson	2.08			
Variance Inflation Factor	4.401			

4.5. Paired sample t-Test

Paired sample t-test was used to establish the statistically significant differences between the two-time series; one comprising data including pre-M&A statistics whereas the other comprising the data including the post-M&A statistics. Table 8 indicates that the negative mean difference is the indication of the difference in means of variables between the two-time series. The p-values against t-statistic indicate that all the variables are statistically significant and have a positive incremental impact on the performance of banks in Pakistan; is evidenced as a result of M&A. However, it is pertinent to mention here that solvency of the bank after experiencing M&A has not improved with respect to our sample data.

Table 8. Paired sample t-Test

Name / ***Variable***	***Mean Difference***	***t-statistic***	***p-Value***
Liquidity	-0.36	11.484	0.000
Solvency	+0.39	16.746	0.000
Investment	-1.58	21.677	0.000
Profitability	-1.44	19.908	0.000

5. CONCLUSION

The purpose of this study is to make a comparative analysis of the impact of pre and post M&A on the financial performance of banks in Pakistan during the period 2004-2015. The results revealed that liquidity, profitability, and investment of the banks are positively and significantly impacted by the experience of M&A and after facing such experiences the impact of aforesaid factors on profitability increased considerably. However, there is mixed evidence on the effect of M&A on the financial performance; some studies report improvement in the financial performance after M&A (Calomiris & Karenski, 2000; Caprion, 1999; Heron & Lie, 2002; De Nicolo et al., 2003; Gugler et al., 2003; and Feroz et al., 2005). On the contrary, some studies indicate decreases in financial performance such as (Berger & Humphrey, 1992; Fee & Thomas, 2004; Straub, 2007; and Reddy & Mantravadi, 2008)

Moreover, this study investigates that investment among all other indicators is the most affected factor after M&A, which means that a bank becomes able to achieve a relatively larger pool of funds at its disposal after being merged with or acquired. In the end, it can be safely concluded that M&A have a positive and significant on the financial performance of the bank. However, it also reveals that solvency ratios are not statistically significant and different between pre and post-M&A scenarios which are mainly based on the fact that after undergoing M&A the acquiring company has to deal with the greater amount of debt burden as compared to the pre-M&A position (Kumar, 2009). But, all other indicators clearly extend that there is a significantly positive impact of M&A on the financial performance of banks.

5.1. Managerial implications and recommendations

This study has revealed that after experiencing M&A banking players in Pakistan were characterized by enhanced business profitability, efficiency, and effectiveness. The aforesaid is greatly based on the notion which has been tested and proved in this study that with the consolidation of physical and intellectual resources a subsequent organization possesses greater strength to cope up with the challenges faced within the prevailing business contemporary environment. It is therefore recommended to the financial industry key players that effective coping up strategy to deal with the scarcity of resources and market competitiveness; it is imperative to consider M&A based consolidation of resources and competencies. The said transformation of resources, skills and competencies will enable an organization to start reaping fruits as soon as the consolidation happens against when new talent acquisition is being done the organization has to deploy dedicated resources and allocate learning initiatives to the newly acquired talent with the intention of getting them on board in an attempt to achieve the organizational objectives in a superior manner. Furthermore, the post-M&A scenario enables an organization to secure for itself a better and competitive position within the industry and a greater level of competence associated with consolidation enable such organizations to materialize customer expectation in a more effective manner, thus achieving the level of both economies of scales and scopes.

5.2. Future research implications

This study has been conducted within the context of the Banking Industry of Pakistan, therefore; generalizability of the results is only limited to the said industry. Keeping in view the aforesaid, it is recommended for the future research that a greater pool of sample banks including countries having similar macroeconomic conditions must be selected so that greater generalizability of the results could be achieved.

References

1. Adereti, A., & Sanni, M. R. (2007). The effects of mergers and acquisitions on corporate performance. *Knowl. Rev., 15(9),* 81-87.
2. Akhavein, J. D., Berger, A. N., & Humphrey, D. B. (1997). The effects of megamergers on efficiency and prices: Evidence from a bank profit function. *Review of Industrial Organization, 12(1),* 95-139. https://doi.org/10.1023/A:1007760924829
3. Akhtar, M. H. (2010). X-Efficiency analysis of Pakistani commercial banks. *International Management Review, 6(1),* 12-24.
4. Awan, A. G., & Mahmood, U. B. (2015). Impact of mergers and acquisitions on the performance of commercial banks in Pakistan. *Journal of Poverty, Investment and Development, 16,* 48-56.

5. Badreldin, A. M., & Kalhoefer, C. (2009). *The effect of mergers and acquisitions on bank performance in Egypt* (Working Papers No. 18, Faculty of Management Technology, The German University in Cairo).
6. Berger, A. N., & DeYoung, R. (2001). The effects of geographic expansion on bank efficiency. *Journal of Financial Services Research*, *19(2-3),* 163-184. https://doi.org/10.1023/A:1011159405433
7. Berger, A. N., & Humphrey, D. B. (1992). Megamergers in banking and the use of cost efficiency as an antitrust defense. *The Antitrust Bulletin, 37(3),* 541-600. https://doi.org/10.1177/0003603X9203700302
8. Calomiris, C., & Karceski, J. (2000). Is the bank merger wave of the 1990s efficient? Lessons from nine case studies. In S. N. Kaplan (Ed.), *Mergers and productivity* (pp. 93-178). Chicago, USA: University of Chicago Press. Retrieved from: https://www.nber.org/chapters/c8650
9. Caprion, L. (1999). *The long term performance of horizontal acquisitions* (INSEAD Work Paper, 99/24/SM, April).
10. Chapman, K. (2003). Cross-border mergers/acquisitions: A review and research agenda. *Journal of Economic Geography, 3(3),* 309-334. https://doi.org/10.1093/jeg/3.3.309
11. Chen, C., & Findlay, C. (2003). A review of cross-border mergers and acquisitions in APEC. *Asian-Pacific Economic Literature, 17(2),* 14-38. https://doi.org/10.1046/j.1467-8411.2003.00129.x
12. De Nicoló, M. G., Zephirin, M. M., Bartholomew, P. F., & Zaman, J. (2003). *Bank consolidation, internationalization and conglomeration: Trends and implications for financial risk* (IMF Working Papers No. 158, International Monetary Fund). https://doi.org/10.5089/9781451857603.001
13. Fase, M. M. G., & Abma, R. C. N. (2003). Financial environment and economic growth in selected Asian countries. *Journal of Asian economics*, *14(1),* 11-21. https://doi.org/10.1016/S1049-0078(02)00237-3
14. Fee, C. E., & Thomas, S. (2004). Sources of gains in horizontal mergers: Evidence from customer, supplier, and rival firms. *Journal of Financial Economics, 74(3),* 423-460. https://doi.org/10.1016/j.jfineco.2003.10.002
15. Feroz, E. H., Kim, S., & Raab, R. (2005). Performance measurement in corporate governance: Do mergers improve managerial performance in the post-merger period? *Review of Accounting and Finance, 4(3),* 86-100. https://doi.org/10.1108/eb043432
16. Fixler, D. J., & Zieschang, K. D. (1993). An index number approach to measuring bank efficiency: An application to mergers. *Journal of Banking & Finance, 17(2-3),* 437-450. https://doi.org/10.1016/0378-4266(93)90043-D
17. Focarelli, D., & Panetta, F. (2003). Are mergers beneficial to consumers? Evidence from the market for bank deposits. *American Economic Review, 93(4),* 1152-1172. https://doi.org/10.1257/000282803769206241
18. Fowler, K. L., & Schmidt, D. R. (1989). Determinants of tender offer post-acquisition financial performance. *Strategic Management Journal, 10(4),* 339-350. https://doi.org/10.1002/smj.4250100404
19. Fridolfsson, S.-O., & Stennek, J. (2005). Why mergers reduce profits and raise share prices – A theory of preemptive mergers. *Journal of the European Economic Association, 3(5),* 1083-1104. https://doi.org/10.1162/1542476054729455
20. Gugler, K., Mueller, D. C., Yurtoglu, B. B., & Zulehner, C. (2003). The effects of mergers: An international comparison. *International journal of industrial organization, 21(5),* 625-653. https://doi.org/10.1016/S0167-7187(02)00107-8
21. Gujarati, D. N. (2003). *Basic econometrics* (4th ed.). New York, USA: McGraw-Hill Education.

22. Hahs-Vaughn, D. L., & Lomax, R. G. (2013). *An introduction to statistical concepts* (3rd ed.). New York, USA: Routledge. https://doi.org/10.4324/97802 03137819
23. Haider, A., Shoaib, M., & Kanwal, S. (2015). Impact of mergers on performance of banking sector of Pakistan. *Pakistan Business Review, 17(1),* 60-79.
24. Heron, R., & Lie, E. (2002). Operating performance and the method of payment in takeovers. *The Journal of Financial and quantitative analysis, 37(1),* 137-155. https://doi.org/10.2307/3594998
25. Horne, J. C. V., & Wachowicz, J. M. J. (2004). *Fundamentals of financial management* (12th ed.). USA: Prentice Hall.
26. Irfan Shakoor, M., Nawaz, M., Zulqarnain Asab, M., & Khan, W. A. (2014). Do mergers and acquisitions vacillate the banks' performance? (Evidence from Pakistan banking sector). *Research Journal of Finance and Accounting, 5(6),* 123-137.
27. Jagersma, P. K. (2005). Cross-border acquisitions of European multinationals. *Journal of General Management, 30(3),* 13-34. https://doi.org/10.1177/030630700503000302
28. Kouser, R., & Saba, I. (2011). Effects of the business combination on financial performance: Evidence from Pakistan's banking sector. *Australian Journal of Business and Management Research, 1(8),* 54-64.
29. Kumar, R. (2009). Post-merger corporate performance: an Indian perspective. *Management Research News, 32(2),* 145-157. https://doi.org/10.1108/01409170910927604
30. Liargovas, P., & Repousis, S. (2011). The impact of mergers and acquisitions on the performance of the Greek banking sector: An event study approach. *International Journal of Economics and Finance, 3(2),* 89-100. https://doi.org/10.5539/ijef.v3n2p89
31. Mahmood, A., & Loan, U. (2006). Effects of financial liberalization on the cost efficiency of Pakistani banks: A stochastic frontier approach. *Pakistan Economic and Social Review, 44(1),* 93-116. Retrieved from: https://www.jstor.org/stable/25825286
32. Marques-Ibanez, D., & Altunbas, Y. (2004). Mergers and acquisitions and bank performance in Europe: The role of strategic similarities. *Journal of Economics and Business, 60(3),* 204-222. https://doi.org/10.1016/ j.jeconbus.2007.02.003
33. Martynova, M., & Renneboog, L. (2006). Mergers and acquisitions in Europe. In L. Renneboog (Ed.), *Advances in Corporate Finance and Asset Pricing* (pp. 13-75). Amsterdam, Netherlands: Elsevier.
34. Mishkin, F. S. (1998). Bank consolidation: A central banker's perspective. In Y. Amihud, & G. Miller (Eds.), *Bank mergers & acquisitions* (pp. 3-19). Boston, USA: Springer. https://doi.org/10.1007/978-1-4757-2799-9_1
35. Muhammad, H., Rehman, A. U., & Waqas, M. (2016). The relationship between working capital management and profitability: A case study of tobacco industry of Pakistan. *The Journal of Asian Finance, Economics and Business, 3(2),* 13-20. https://doi.org/10.13106/jafeb.2016.vol3.no2.13.
36. Oral, M., & Yolalan, R. (1990). An empirical study on measuring operating efficiency and profitability of bank branches. *European Journal of Operational Research, 46(3),* 282-294. https://doi.org/10.1016/0377-2217(90)90002-S
37. P. A. Gaist (Ed.). (2009). *Igniting the power of community: The role of CBOs and NGOs in global public health.* Baltimore, USA: Springer.
38. Pasiouras, F., Tanna, S., & Zopounidis, C. (2007). The identification of acquisition targets in the EU banking industry: An application of multicriteria approaches. *International Review of Financial Analysis, 16(3),* 262-281. https://doi.org/10.1016/j.irfa.2006.09.001
39. Pazarskis, M., Vogiatzogloy, M., Christodoulou, P., & Drogalas, G. (2006). Exploring the improvement of corporate performance after mergers – The case of Greece. *International Research Journal of Finance and Economics, 6(22),* 184-192.

40. Pearce, J. M. (2015). Return on investment for open source scientific hardware development. *Science and Public Policy, 43(2),* 192-195. https://doi.org/10.1093/scipol/scv034
41. Ravenscraft, D. J., & Scherer, F. M. (1989). The profitability of mergers. *International journal of industrial organization, 7(1),* 101-116. https://doi.org/10.1016/0167-7187(89)90048-9
42. Ravichandran, K., Mat-Nor, F., & Mohd-Said, R. (2010). Market based mergers in Indian banking institutions. *International Research Journal of Finance and Economics, 37,* 30-39.
43. Reddy, A. V., & Mantravadi, P. (2008). Type of merger and impact on operating performance: the Indian experience. *Economic and Political Weekly, 43(39)*, 66-74. Retrieved from: https://www.epw.in
44. Resti, A. (1998). Regulation can foster mergers, can mergers foster efficiency? The Italian case. *Journal of Economics and Business, 50(2),* 157-169. https://doi.org/10.1016/S0148-6195(97)00075-1
45. Rhodes-Kropf, M., & Viswanathan, S. (2004). Market valuation and merger waves. *The Journal of Finance, 59(6),* 2685-2718. https://doi.org/10.1111/ j.1540-6261.2004.00713.x
46. Sherman, A. J. (2010). *Mergers & Acquisitions: Retrieved from A to Z* (3rd ed.). New York, USA: AMACOM.
47. Sinha, P., & Gupta, S. (2011). *Mergers and acquisitions: A pre-post analysis for the Indian financial services sector*. Retrieved from: https://mpra.ub.uni-muenchen.de/id/eprint/31253
48. Soludo, C. C. (2004). Consolidating the Nigerian banking industry to meet the development challenges of the 21st century. Being an address delivered to the *Special Meeting of the Bankers Committee,* held on July 6, at the CBN Headquarters, Abuja.
49. Stahl, G. K., & Voigt, A. (2004). Impact of cultural differences on merger and acquisition performance: A critical research review and an integrative model. In C. Cooper, & S. Finkelstein (Eds.), *Advances in mergers and acquisitions* (Vol. 4, pp. 51-82). Bingley, UK: Emerald Group Publishing Limited. https://doi.org/10.1016/S1479-361X(04)04003-7
50. Straub, T. (2007). *Reasons for frequent failure in mergers and acquisitions: A comprehensive analysis*. Wiesbaden, Germany: Deutscher Universitäts-Verlag. https://doi.org/10.1007/978-3-8350-9637-0
51. Sufi, A. (2004). *Does joint production of lending and underwriting help or hurt firms? A fixed effects approach.* Retrieved from: https://ssrn.com/abstract=596201
52. Walsh, J. P. (1989). Doing a deal: Merger and acquisition negotiations and their impact upon target company top management turnover. *Strategic Management Journal, 10(4),* 307-322. https://doi.org/10.1002/smj.4250100402
53. Weinberg, M. (2007). The price effects of horizontal mergers. *Journal of Competition Law and Economics, 4(2),* 433-447. https://doi.org/10.1093/joclec/nhm029
54. Willett, S. (2005). The shallows of deepening insolvency. *The Business Lawyer, 60(2),* 549-575.
55. Williams, J. R., Haka, S. F., Bettner, M. S., & Carcello, J. V. (2008). *Financial accounting* (13th ed.). Boston, USA: McGraw-Hill Irwin.
56. Yamane, T. (1973). *Statistics: An introductory analysis* (6th ed.). New York, USA: Harper & Row.
57. Zahid, N., & Shah, A. M. (2014). Mergers and acquisitions in international business. *European Scientific Journal, ESJ*, *22(August),* 43-56.