Effect of Merger and Acquisition on the Profitability in Nepalese Commercial Banks

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Abstract

The study examines the effect of mergers and acquisitions on the profitability in Nepalese commercial banks. Return on assets and return on equity are selected as the dependent variables. The selected independent variables are earnings per share, capital adequacy ratio, leverage, spread rate, loan-to-deposit ratio and bank size. The study is based on secondary data from 11 commercial banks with 110 observations for the study period from 2012/13 to 2021/22. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, publications and websites of Nepal Rastra Bank (NRB) and annual reports of the selected commercial banks. The correlation coefficients and regression models are estimated to test the significance and importance of mergers and acquisitions on the profitability of selected Nepalese commercial banks.

The study showed that earnings per share has a positive impact on return on assets and return on equity after merger and acquisition. It means that increase in earnings per share leads to increase in return on assets and return on equity. However, capital adequacy ratio has a negative effect on return on assets and return on equity after merger and acquisition. It means that decrease in capital adequacy ratio leads to decrease in return on assets and return on equity. Similarly, leverage has a negative impact on return on assets after merger and acquisition. It shows that increase in leverage leads to decrease in return on assets. Moreover, spread rate has a positive impact on return on assets and return on equity after merger and acquisition. It means that the increase in spread rate leads to increase in return on assets and return on equity. In contrast, loan to deposit ratio has as negative impact on return on assets and return on equity after merger and acquisition. It means that increase the loan-to-deposit ratio leads to decrease the return on assets and return on equity. Furthermore, bank size has a positive impact on return on equity after merger and acquisition. It shows that increase the bank size leads to increase in return on equity.

Keywords: earning per share, capital adequacy ratio, leverage, spread rate, loan to deposit ratio, bank size, return on assets, return on equity

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1. Introduction

Merger and acquisition (M&A) are considered as the useful strategies for the growth of the business in the corporate world (Rahman et al., 2017). The goal of most mergers and acquisition is to improve performance, reduce risk, tax considerations, synergies, improve economies of scale, eliminate competitions and enhance competitive advantage. The ownership and capital structure of most banks have changed drastically as a result of mergers and acquisitions in recent times (Barnor and Twumwaah, 2015). One of the primary reasons for banks to engage in M&A is to achieve economies of scale. By combining resources, infrastructure, and operations, the merged entity can potentially reduce costs, which can positively impact profitability. For example, overlapping branches can be closed, redundant back-office functions can be streamlined, and technology platforms can be integrated, leading to cost savings. Theoretically, mergers and acquisitions are not the same. Merger is a process when two or more companies join and emerge as new companies, while the acquisition is a process where one company takes over another company and runs its business right (Momodou et al., 2017). Mergers and acquisitions are defined as activities involving corporate takeovers, corporate restructuring, or corporate control that change the ownership structure of the company (Oirere, 2020). The impact on bank profitability will depend on the strategic rationale behind the merger, the execution of the integration process, and how well the combined entity is able to capitalize on the potential benefits while mitigating challenges. Mergers and acquisitions are generally aimed for synergy or added value, not only in short term but also for the long term, while increasing economies of scales and economics of scope and financial strength (Mardianto et al., 2018).

Oduro and Agyei (2013) defined mergers as an arrangement where the assets of two separate entities come under the control of one, which still have all or substantially all the shareholders of the previous companies. Mergers and acquisitions are a global business terms used in achieving business growth and survival. Merger entails the coming together of two or more firms to become one big firm while acquisitions the takeover or pursuing similar motives. Accordingly, Soludo (2004) opined that mergers and acquisitions are aimed at achieving cost efficiency through economies of scale and to diversify and expand on the range of business activities for improved performance. Berger et al. (1998) indicated that mergers and acquisitions may lead to changes in efficiency, market power, economies of scale and scope, availability of services to customers and payment systems efficiency. Besides improvement

in cost and profit efficiency, mergers and acquisitions may also lead to higher profits. The main purpose of carrying out M&A is to increase the shareholders' value. Most firms seeking mergers and acquisitions seek to become the leading player in the product- market area of the strategic business unit. M&A are continuously occurring world over because they improve competition by gaining greater market share and reducing business risk (Kemal, 2011). The process of merging or acquiring another bank can cause disruptions in normal business operations. This could lead to a temporary dip in profitability as the organization adjusts to the changes. If the bank being acquired has poor financial performance, it might take time and effort to turn it around. Until improvements are realized, the profitability of the merged entity might be impacted. Merging two organizations often involves combining different corporate cultures and managing human resource transitions. If cultural clashes or employee dissatisfaction occur, they could impact productivity and, consequently, profitability. The performance of two firms that have merged or acquired improves due to the increase of shareholders value (Sharma, 2009).

According to Malik et al. (2014), most firms employ mergers and acquisition as a strategic strategy for organization restructuring. Initially, this movement was limited to wealthy countries such as the United States and the United Kingdom. However, developing countries began to employ the mergers and acquisition approach. Musah *et al.* (2020) revealed a negative and significant association between mergers and acquisition and net profit margin. The study showed that there exists a positive but statistically insignificant relationship between mergers and acquisition and return on assets of commercial banks in Ghana. Further, there was a negative but statistically insignificant relationship between mergers and acquisition and return on equity. Singh and Gupta (2015) stated that there is significant difference in post-merger net profit margin, operating profit margin, return on capital employed, return on net worth, interest coverage, deposit per employee and credit deposit ratio. This indicates that mergers between BFIS where one party is not a commercial bank increases the risk assets and reduces the cushion against the risks in the company. Joash and Njangiru (2015) revealed that mergers and acquisitions have a significant positive effect on their market share, gross profit and net profit. Sujud et al. (2018) found that return on assets and return on equity improved but only insignificantly because of the merger. The merger had no significant positive impact on the rate of return on shareholders' equity and return on assets. The study also showed that earnings per share increased significantly after the merger. The merger had significant

positive impact on earnings per share. Muhammad et al. (2018) showed that merger and acquisition have insignificant effects on return on equity. Similarly, Houstan et al. (2001) found that the profitability of banks improved after merger and acquisition. After merger, gross profit margin, net profit margin, return on capital employed, return on equity and debt-equity ratio shows an increasing trend, but operating profit margin shows mixed trend. The study also showed that there is a significant difference in gross profit margin, net profit margin, operating profit margin, and return on equity and debt-equity ratio between before and after merger. Rajamani and Ramakrishnan (2015) concluded that the financial performance of banks increases after merger.

George et al. (2021) investigated whether acquisition and merger as a tool of recapitalization improves the performance of Ecobank Ghana Limited in the long run. The study revealed that acquisition and merger have an insignificant relation with the return on equity, return on capital employed, shareholders equity to total assets, debt to equity and total liabilities to total asset. The merged banks have lower costs than non-merged banks. The return on assets improves after merger of the banks (Focarelli et al., 2002). The return on assets makes the positive effect on the profitability of Indian overseas banks. Similarly, Cornett et al. (2006) found that return on equity improves after merger of the banks. Mergers and acquisitions often require regulatory approvals and compliance with various legal and regulatory frameworks. Meeting these requirements can lead to additional costs, which could affect profitability in the short term. While M&A can offer various benefits, the integration process can be complex and challenging. If not managed effectively, integration issues can lead to disruptions in services, customer attrition, and increased operational costs, which could initially impact profitability. Larger and more consolidated banks might find it easier to raise capital in the markets due to increased size and credibility. This enhanced access to capital can support the bank's growth initiatives and boost profitability. M&A can allow banks to diversify their services and expand into new markets. This diversification can lead to additional revenue streams and reduce the bank's risk exposure to a particular sector or region, which can enhance long-term profitability. Abbas et al. (2014) found that profitability slightly decreases in post-merger and acquisition period. The study also showed that post-merger and acquisition period was more financially improved than the pre-merger and acquisition period.

In the context of Nepal, Shrestha et al. (2017) analyzed the financial performance of merged banking and financial institutions relative to their pre-

merger performance, and assess the perception of the stakeholders towards merger. The study found that merger impacts performance positively when larger and stable parties such as commercial banks act as bidders as opposed to the merger between smaller BFIs mainly other than commercial banks as bidder. The loan quality significantly deteriorates after merger in most of the cases and profitability measured in terms of ROA and ROE is adversely affected in most of the cases after the merger. Adhikari et al. (2023) evaluated the impact of M&A on the financial performance of two commercial banks between 2013 and 2020 by using twelve accounting ratios and a paired sample t-test. The findings for the first bank showed that the impact of the merger on the financial performance ratios is mixed, despite significant improvements in return on assets, net interest margin, and earnings per share. However, in the case of the second bank, there is an insignificant impact of M&A on the financial ratios except for dividends per share (DPS) in the pre and post M&A period.

The above discussion shows that empirical evidences vary greatly across the studies on the impact of mergers and acquisitions on bank profitability. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The objective of this study is to investigate the impact of mergers and acquisitions on the profitability of Nepalese commercial banks. More specifically, it examines the impact of earnings per share, capital adequacy ratio, leverage, spread rate, loan-to-deposit ratio and bank size on return on asset and return on equity of Nepalese commercial banks.

The remainder of this study is organized as follows: Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 11 commercial banks for the study period from 2012/13 to 2021/22, leading to a total of 110 observations. The study employed purposive sampling method. The main sources of data include Banking and Financial Statistics published by Nepal Rastra Bank, reports published by Ministry of Finance and the annual report of respective banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial

banks selected for the study along with the study period and number of observations.

Table 1

List of commercial banks selected for the study along with the study period and number of observations

S. N.	Name of the banks	Study period	Observations
1	Citizens Bank International Limited	2012/13-2021/22	10
2	Global IME Bank Limited	2012/13-2021/22	10
3	Kumari Bank Limited	2012/13-2021/22	10
4	Laxmi Bank Limited	2012/13-2021/22	10
5	Machhapuchchhre Bank Limited	2012/13-2021/22	10
6	Rastriya Banijya Bank Limited	2012/13-2021/22	10
7	Sanima Bank Limited	2012/13-2021/22	10
8	Nepal Investment Mega Bank Limited	2012/13-2021/22	10
9	NMB Bank Limited	2012/13-2021/22	10
10	Prime Commercial Bank Limited	2012/13-2021/22	10
11	Sunrise Bank Limited	2012/13-2021/22	10
Total number of observations			110

Thus, the study is based on the 110 observations.

The model

The model used in this study assumes that profitability depends upon different variables. The dependent variables selected for the study are return on assets and return on equity. Similarly, the selected independent variables are earnings per share, capital adequacy ratio, leverage, spread rate, loan-to-deposit ratio and bank size. Therefore, the model takes the following form:

$$ROA = \beta_0 + \beta_1 EPS + \beta_2 CAR + \beta_3 L + \beta_4 SR + \beta_5 LDR + \beta_6 BS + e$$

$$ROE = \beta_0 + \beta_1 EPS + \beta_2 CAR + \beta_3 L + \beta_4 SR + \beta_5 LDR + \beta_6 BS + e$$

Where,

ROA = Return on assets as measured by the ratio of net profit after tax to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net income to shareholder's equity, in percentage.

EPS = Earnings per share as measured by the ratio of net profit after tax to number of shares outstanding, in Rs.

CAR = Capital adequacy ratio as measured by the ratio of total capital to risk

weighted exposure, in percentage.

L = Leverage as measured by the ratio of total liabilities to total assets, in ratio.

SR = Spread rate as measured by the difference between deposit and credit rate, in percentage.

LDR = Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage.

BS = Bank size as measured in terms of total assets, Rs. in billions.

The following section describes the independent variables used in this study along with hypothesis formulation.

Earnings per share

Sinha and Kaushik (2010) and Abbas et al. (2014) revealed that earnings per share have significant positive relationship with financial performance after merger and acquisition. If the M&A results in improved profitability due to factors like cost synergies, increased revenues, or operational efficiencies, it can lead to higher earnings. Higher earnings, when divided by the same number of shares, can result in an increase in EPS. Amel et al. (2004) and Muhammad (2010) found that earnings per share has positive impact on the financial performance of the firm after merger and acquisition. Jallow et al. (2017) showed that earnings has increased after merger of the banks. Based on it, the study develops following hypothesis:

H_1: There is a positive relationship between earnings per share and profitability of banks after merger and acquisition.

Capital adequacy ratio

The capital adequacy ratio is a measurement of a bank's available capital expressed as a percentage of a bank's risk-weighted credit exposures. Capital adequacy ratio has negative impact on performance of banks after merger and acquisition (Sharma, 2018). Mathuva (2009) found that higher profitability often comes with a higher level of risk-taking. Engaging in activities that generate higher returns usually involves more exposure to market fluctuations, credit risks, and other uncertainties. If these risks materialize unfavorably, they could lead to losses that negatively impact capital ratios. Nedunchezhian and Premalatha (2013) found that the capital adequacy has negative impact on return on asset after the merger of commercial banks. Based on it, this study develops following hypothesis:

H_2: There is a negative relationship between capital adequacy ratio and profitability of banks after merger and acquisition.

Leverage

Padmasani (2014) showed that firms could increase financial leverage either because of an increase in debt capacity or because of unused debt capacity after merger of banks which reduce the profitability of the firms. Likewise, Kumar (2014) concluded a negative relationship between financial leverage and firm's profitability. Similarly, Abbas et al. (2014) indicated that leverage has negative and insignificant relationship with profitability after merger and acquisition. Sugiastuti et al. (2018) found that leverage has negative and insignificant relationship with profitability after merger. Based on it, the study develops following hypothesis:

H_3: There is a negative relationship between leverage and profitability of banks after merger and acquisition.

Spread rate

Al-Hroot (2015) revealed that spread rate is negatively related to profitability of the banks. Abbas et al. (2014) also found that spread ratio has a negative improvement in profitability after merger and acquisition. After an M&A, the spread rate might experience changes due to a variety of factors, including changes in the interest rate environment, shifts in the composition of assets and liabilities, and alterations in the bank's risk profile. The spread rate can be influenced by how the merged entity manages its loan portfolio, the pricing of loans and deposits, and the overall funding mix. Shrestha et al. (2017) found that spread ratio has negative impact on profitability after merger and acquisition. Based on it, the study develops following hypothesis:

H_4: There is a negative relationship between spread rate and profitability of banks after merger and acquisition.

Loan-to-deposit ratio

After an M&A, the combined entity might have a larger customer base and access to more deposits. This can provide the bank with increased funding capacity, allowing it to lend out more money. If the bank is able to efficiently deploy these funds into profitable loans, it could lead to higher profitability (Sari and Septiano, 2020). Pandya (2015) found that there exists statistically significant and positive relationship between credit to deposit ratio and ROA. A higher LTD ratio implies that the bank is more reliant on deposits for its funding. If the bank can lend out these deposits at higher interest rates than

it pays on the deposits, it can result in a wider interest rate spread, which can contribute to increased profitability. Furthermore, Sharifi and Akhter (2016) found that credit to deposit ratio has positive impact on public sector bank's financial performance Based on it, the study develops following hypothesis:

H_5: There is a positive relationship between loan to deposit ratio and profitability after merger and acquisition.

Bank size

The size of the bank is measured by the amount of total assets. Large banks are likely to enjoy higher. Bank size has a positive effect on the ROE and influence ROE positively (Kevser, 2020). It implies that larger banks can benefit from economies of scale, which means they can spread their fixed costs over a larger asset base. This could lead to reduced costs and improved operational efficiency, potentially contributing to higher profitability. Likely, Molyneux and Thornton (2004) revealed positive impact of bank size on bank performance. Pervan (2012) found that firm size has a significant positive influence on firm profitability. A bigger bank might have a stronger market presence and better negotiating power with suppliers, customers, and partners. This can lead to favorable terms, better pricing, and potentially improved profitability. Further, Kaynak et al. (1993) found that firm size has a positive relationship with performance implying that bigger firms are expected to achieve better performance. Based on it, the study develops following hypothesis:

H_6: There is a positive relationship between bank size and profitability after merger and acquisition.

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2012/13 to 2021/22.

Table 2

Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 11 Nepalese commercial banks for the study period from 2012/13 to 2021/22. ROA (Return on assets as measured by the ratio of net profit after tax to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to shareholder's equity, in percentage) are the dependent variables. The independent variables are EPS (Earnings per share as measured by the ratio of net profit after tax to number of shares outstanding, in Rs.), CAR (Capital adequacy ratio as measured by the ratio of total capital to risk weighted

exposure, in percentage), L (Leverage as measured by the ratio of total liabilities to total assets, in ratio), SR (Spread rate as measured by the difference between deposit and credit rate, in percentage), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), and BS (Bank size as measured in terms of total assets, Rs. in billions).

Before merger and acquisition				
Variables	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
EPS	5.54	54.07	23.72	8.35
CAR	2.94	15.57	11.82	2.06
L	0.59	0.95	0.89	0.06
SR	2.91	5.5	4.15	0.62
LDR	53.84	93.72	79.57	7.94
BS	21.19	179.07	64.83	38.87
ROA	0.28	3.22	1.49	0.5
ROE	1.44	27.28	14.25	4.92
After merger and acquisition				
EPS	12.08	56.04	20.29	8.23
CAR	11.46	16.88	13.49	1.25
L	0.59	0.95	0.88	0.05
SR	2.49	4.95	4.04	0.54
LDR	67.16	95.9	88.4	5.77
BS	59.46	360.54	160.86	73.13
ROA	0.76	2.23	1.45	0.34
ROE	6.71	23.37	13.67	3.59

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3

Pearson's correlation coefficient matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 11 Nepalese commercial banks for the study period from 2012/13 to 2021/22. ROA (Return on assets as measured by the ratio of net profit after tax to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to shareholder's equity, in percentage) are the dependent variables. The independent variables are EPS (Earnings per share as measured by the ratio of net profit after tax to number of shares outstanding, in Rs.), CAR (Capital adequacy ratio as measured by the ratio of total capital to risk weighted exposure, in percentage), L (Leverage as measured by the ratio of total liabilities to total assets, in ratio), SR (Spread rate as measured by the difference between deposit and credit rate, in percentage), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), and BS (Bank size as measured in terms of total

assets, Rs. in billions).

Before merger and acquisition								
Variables	**EPS**	**CAR**	**L**	**SR**	**LDR**	**BS**	**ROA**	**ROE**
EPS	1							
CAR	-0.125	1						
L	-0.06	-0.141	1					
SR	0.212	-0.106	0.171	1				
LDR	-0.302*	0.754**	-0.119	-0.244	1			
BS	0.507**	-0.322*	0.004	0.209	-0.481**	1		
ROA	0.780**	0.05	-0.02	0.061	-0.132	0.548**	1	
ROE	0.613**	-0.051	-0.164	0.033	-0.051	0.408**	0.732**	1
After merger and acquisition								
EPS	1							
CAR	-0.146	1						
L	0.150	-0.148	1					
SR	0.279*	-0.225	0.108	1				
LDR	-0.622**	0.223	-0.082	-0.375**	1			
BS	0.352**	-0.112	0.019	0.142	-0.294*	1		
ROA	0.485**	-0.018	-0.101	0.268*	-0.137	-0.242	1	
ROE	0.510**	-0.351**	0.212	0.314*	-0.291*	0.012	0.574**	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that before the merger, leverage has a negative relationship with return on assets. It means that increase in leverage leads to decrease in return on assets. In contrast, there is a positive relationship between earnings per share and return on assets. It means that increase in earnings per share leads to increase in return on assets. Likewise, capital adequacy ratio has a positive relationship with return on assets. It shows that higher the capital adequacy ratio, higher would be the return on assets. However, there is a negative relationship between loan to deposit ratio and return on assets. It indicates that increase in loan to deposit ratio leads to decrease in return on assets. In addition, spread rate has a positive relationship with return on assets. It indicates that increase in spread rate leads to increase in return on assets. Similarly, there is a positive relationship between bank size and return on assets. It means that larger the bank size, higher would be the return on assets.

Similarly, after the merger, leverage has a negative relationship with return on assets. It means that increase in leverage leads to decrease in return on assets. In contrast, there is a positive relationship between earnings per share and return on assets. It means that increase in earnings per share leads

to increase in return on assets. Likewise, capital adequacy ratio has a negative relationship with return on assets. It shows that higher the capital adequacy ratio, lower would be the return on assets. However, there is a negative relationship between loan to deposit ratio and return on assets. It indicates that increase in loan to deposit ratio leads to decrease in return on assets. In addition, spread rate has a positive relationship with return on assets. It indicates that increase in spread rate leads to increase in return on assets. Similarly, there is a negative relationship between bank size and return on assets. It means that larger the bank size, lower would be the return on assets.

Moreover, before the merger, leverage has a negative relationship with return on equity. It means that increase in leverage leads to decrease in return on equity. In contrast, there is a positive relationship between earnings per share and return on equity. It means that increase in earnings per share leads to increase in return on equity. Likewise, capital adequacy ratio has a negative relationship with return on equity. It shows that higher the capital adequacy ratio, lower would be the return on equity. However, there is a negative relationship between loan to deposit ratio and return on equity. It indicates that increase in loan to deposit ratio leads to decrease in return on equity. In addition, spread rate has a positive relationship with return on equity. It indicates that increase in spread rate leads to increase in return on equity. Similarly, there is a positive relationship between bank size and return on equity. It means that larger the bank size, higher would be the return on equity.

On the other hand, after the merger, leverage has a positive relationship with return on equity. It means that increase in leverage leads to increase in return on equity. In contrast, there is a positive relationship between earnings per share and return on equity. It means that increase in earnings per share leads to increase in return on equity. Likewise, capital adequacy ratio has a negative relationship with return on equity. It shows that higher the capital adequacy ratio, lower would be the return on equity. However, there is a negative relationship between loan to deposit ratio and return on equity. It indicates that increase in loan to deposit ratio leads to decrease in return on equity. In addition, spread rate has a positive relationship with return on equity. It indicates that increase in spread rate leads to increase in return on equity. Similarly, there is a positive relationship between bank size and return on equity. It means that larger the bank size, higher would be the return on equity.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression

analysis has been carried out and results are presented in Table 4, Table 5, Table 6 and Table 7. More specifically, Table 4 shows the regression results of earnings per share, capital adequacy ratio, leverage, spread rate, loan-to-deposit ratio and bank size with return on assets of Nepalese commercial banks.

Table 4

Estimated regression results of earnings per share, capital adequacy ratio, leverage, spread rate, loan-to-deposit ratio and bank size with return on assets of Nepalese commercial banks before merger and acquisition

The results are based on 110 observations using linear regression model. The model is ROA = $\beta_0 + \beta_1$ EPS + β_2 CAR + β_3 L + β_4 SR + β_5 LDR + β_6 BS + e, where ROA (Return on assets as measured by the ratio of net profit after tax to total assets, in percentage) is the dependent variable. The independent variables are EPS (Earnings per share as measured by the ratio of net profit after tax to number of shares outstanding, in Rs.), CAR (Capital adequacy ratio as measured by the ratio of total capital to risk weighted exposure, in percentage), L (Leverage as measured by the ratio of total liabilities to total assets, in ratio), SR (Spread rate as measured by the difference between deposit and credit rate, in percentage), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), and BS (Bank size as measured in terms of total assets, Rs. in billions).

Model	Intercept	Regression coefficients of						Adj. R_bar^2	SEE	F-value
		EPS	CAR	L	SR	LDR	BS			
1	0.387 (2.893)**	0.046 (8.712)**						0.600	0.314	75.905
2	1.344 (3.252)**		0.012 (0.350)					0.018	0.5007	0.122
3	1.633 (1.579)			-0.165 (0.142)				0.020	0.5012	0.020
4	1.284 (2.696)**				0.049 (0.431)			0.017	0.5003	0.186
5	2.141 (3.024**)					-0.008 (0.929)		0.003	0.4969	0.863
6	1.033 (8.979)**						0.007 (4.587)**	0.286	0.4193	21.044
7	0.760 (2.591)**	0.041 (6.937)**			0.106 (1.503)		0.003 (2.242)*	0.634	0.3003	29.85
8	-0.581 (0.641)	0.049 (8.649)**		-0.352 (0.477)		-0.008 (1.267)		0.597	0.3149	25.708
9	-0.068 (0.227)	0.047 (9.019)**	0.036 (1.694)					0.614	0.3082	40.835
10	-0.748 (0.8340	0.041 (7.165)**	0.045 (1.447)	-0.621 (0.908)	0.103 (1.478)	-0.004 (0.490)	0.004 (0.004)	0.665	0.287	17.57

Notes:

i. Figures in parenthesis are t-values.

ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.

iii. Return on assets is the dependent variable.

Table 4 shows that the beta coefficients for capital adequacy ratio are positive with return on assets. It indicates that capital adequacy ratio has a positive impact on return on assets. This finding is consistent with the findings of Vu *et al.* (2020). However, the beta coefficients for earnings per share are positive with return on assets. It indicates that earnings per share have a positive impact on return on assets. This finding is consistent with the findings of Gizaw *et al.* (2015). Similarly, the beta coefficients for spread rate are positive with return on assets. It indicates that spread rate has a positive impact on return on assets. This finding contradicts with the findings of Mennawi (2020). In contrast, the beta coefficients for loan-to-deposit ratio are negative with return on assets. It indicates that loan-to-deposit ratio has a negative impact on return on assets. This finding is consistent with the findings of Habibniya *et al.* (2022). In addition, the beta coefficients for bank size are positive with return on assets. It indicates that bank size has a positive impact on return on assets. This finding is consistent with the findings of Jibreel *et al.* (2022).

Table 5 shows the regression results of earnings per share, capital adequacy ratio, leverage, spread rate, loan-to-deposit ratio and bank size with return on equity of Nepalese commercial banks.

Table 5

Estimated regression results of earnings per share, capital adequacy ratio, leverage, spread rate, loan-to-deposit ratio and bank size with return on equity of Nepalese commercial banks before merger and acquisition

The results are based on 110 observations using linear regression model. The model is ROE $= \beta_0 + \beta_1 EPS + \beta_2 CAR + \beta_3 L + \beta_4 SR + \beta_5 LDR + \beta_6 BS + e$, where ROE (Return on equity as measured by the ratio of net income to shareholder's equity, in percentage) is the dependent variable. The independent variables are EPS (Earnings per share as measured by the ratio of net profit after tax to number of shares outstanding, in Rs.), CAR (Capital adequacy ratio as measured by the ratio of total capital to risk weighted exposure, in percentage), L (Leverage as measured by the ratio of total liabilities to total assets, in ratio), SR (Spread rate as measured by the difference between deposit and credit rate, in percentage), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), and BS (Bank size as measured in terms of total assets, Rs. in billions).

Model	Intercept	Regression coefficients of						Adj. R_bar^2	SEE	F-value
		EPS	CAR	L	SR	LDR	BS			
1	5.667 (3.387)**	0.362 (5.430)**						0.363	3.930	29.489
2	15.704 (3.829)**		-0.123 (0.36)					0.018	4.968	0.130
3	26.042 (2.572)**			-13.24 (1.167)				0.007	4.906	1.363
4	13.168 (2.783)**				0.26 (0.231)			0.019	4.971	0.053
5	16.769 (2.369)*					-0.032 (0.722)		0.018	4.968	0.128
6	10.897 (8.746)**						0.052 (3.128)**	0.149	4.541	9.784
7	15.145 (1.816)	0.316 (4.095)**		-10.687 (1.178)			0.017 (1.052)	0.368	3.914	10.709
8	0.023 (0.003)		-0.184 (0.077)			-0.154 (1.153)	0.064 (3.363)**	0.145	4.553	3.827
9	0.872 (0.108)	0.395 (5.586)**			0.606 (0.651)	-0.082 (1.095)		0.363	3.931	10.481
10	1.396 (0.116)	0.344 (4.435)**	-0.462 (1.118)	-8.526 (0.928)	0.433 (0.464)	-0.221 (1.897)	0.030 (1.666)	0.387	3.857	6.251

Notes:

i. Figures in parenthesis are t-values.

ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.

iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for capital adequacy ratio are negative with return on equity. It indicates that capital adequacy ratio has a negative impact on return on equity. This finding is consistent with the findings of Vu *et al.* (2020). However, the beta coefficients for earnings per share are positive with return on equity. It indicates that earnings per share have a positive impact on return on equity. This finding is consistent with the findings of Gizaw *et al.* (2015). Similarly, the beta coefficients for spread rate are positive with return on equity. It indicates that spread rate has a positive impact on return on equity. This finding contradicts with the findings of Mennawi (2020). In contrast, the beta coefficients for loan-to-deposit ratio are negative with return on equity. It indicates that loan-to-deposit ratio has a negative impact on return on equity. This finding is consistent with the findings of Habibniya *et al.* (2022). In addition, the beta coefficients for bank size are positive with return on equity. It indicates that bank size has a positive impact on return on equity. This finding is consistent with the findings of Jibreel *et al.* (2022).

Table 6 shows the regression results of earnings per share, capital adequacy ratio, leverage, spread rate, loan-to-deposit ratio and bank size with return on assets of Nepalese commercial banks.

Table 6

Estimated regression results of earnings per share, capital adequacy ratio, leverage, spread rate, loan to deposit ratio and bank size with return on assets of Nepalese commercial banks after merger and acquisition

The results are based on 110 observations using linear regression model. The model is ROA = $\beta_0 + \beta_1$ EPS + β_2 CAR + β_3 L + β_4 SR + β_5 LDR + β_6 BS + e, where ROA (Return on assets as measured by the ratio of net profit after tax to total assets, in percentage) is the dependent variable. The independent variables are EPS (Earnings per share as measured by the ratio of net profit after tax to number of shares outstanding, in Rs.), CAR (Capital adequacy ratio as measured by the ratio of total capital to risk weighted exposure, in percentage), L (Leverage as measured by the ratio of total liabilities to total assets, in ratio), SR (Spread rate as measured by the difference between deposit and credit rate, in percentage), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), and BS (Bank size as measured in terms of total assets, Rs. in billions).

Model	Intercept	Regression coefficients of						Adj. R_bar^2	SEE	F-value
		EPS	CAR	L	SR	LDR	BS			
1	1.038 (9.826)**	0.020 (4.190)**						0.222	0.3027	17.557
2	1.514 (3.070)**		-0.005 (0.132)					0.017	0.3462	0.017
3	2.079 (2.527)*			-0.712 (0.759)				0.007	0.3442	0.577
4	0.764 (2.323)*				0.170 (2.100)*			0.055	0.3336	4.408
5	2.169 (3.139)**					-0.008 (1.044)		0.002	0.343	1.091
6	1.632 (15.326)**						0.001 (1.88)	0.042	0.336	3.533
7	1.966 (2.18)*	0.021 (4.358)	-0.009 (0.291)	-1.224 (1.146)				0.228	0.3013	6.603
8	0.784 (1.226)		-0.006 (0.166)		0.198 (2.439)		0.001 (2.255)	0.106	0.324	3.288
9	1.706 (1.842)				0.167 (0.1984)	-0.008 (0.955)	0.001 (2.465)	0.120	0.322	3.636
10	0.251 (0.236)	0.033 (6.388)**	-0.002 (0.062)	-1.506 (2.206)	0.154 (2.372)*	-0.018 (2.237)*	0.002 (0.463)	0.491	0.2447	10.147

Notes:

i. Figures in parenthesis are t-values.

ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.

iii. Return on assets is the dependent variable.

Table 6 shows that the beta coefficients for capital adequacy ratio are negative with return on assets. It indicates that capital adequacy ratio has a negative impact on return on assets. This finding is consistent with the findings of Vu *et al.* (2020). However, the beta coefficients for earnings per share are positive with return on assets. It indicates that earnings per share have a positive impact on return on assets. This finding is consistent with the findings of Gizaw *et al.* (2015). Similarly, the beta coefficients for spread rate are positive with return on assets. It indicates that spread rate has a positive impact on return on assets. This finding contradicts with the findings of Mennawi (2020). In contrast, the beta coefficients for loan-to-deposit ratio are negative with return on assets. It indicates that loan-to-deposit ratio has a negative impact on return on assets. This finding is consistent with the findings of Habibniya *et al.* (2022). In addition, the beta coefficients for bank size are positive with return on assets. It indicates that bank size has a positive impact on return on assets. This finding is consistent with the findings of Jibreel *et al.* (2022).

Table 7 shows the regression results of earnings per share, capital adequacy ratio, leverage, spread rate, loan-to-deposit ratio and bank size with return on equity of Nepalese commercial banks.

Table 7

Estimated regression results of earnings per share, capital adequacy ratio, leverage, spread rate, loan-to-deposit ratio and bank size with return on equity of Nepalese commercial banks after merger and acquisition

The results are based on 110 observations using linear regression model. The model is ROE $= \beta_0 + \beta_1 EPS + \beta_2 CAR + \beta_3 L + \beta_4 SR + \beta_5 LDR + \beta_6 BS + e$, where ROE (Return on equity as measured by the ratio of net income to shareholder's equity, in percentage) is the dependent variable. The independent variables are EPS (Earnings per share as measured by the ratio of net profit after tax to number of shares outstanding, in Rs.), CAR (Capital adequacy ratio as measured by the ratio of total capital to risk weighted exposure, in percentage), L (Leverage as measured by the ratio of total liabilities to total assets, in ratio), SR (Spread rate as measured by the difference between deposit and credit rate, in percentage), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), and BS (Bank size as measured in terms of total assets, Rs. in billions).

Model	Intercept	Regression coefficients of						Adj. R_bar^2	SEE	F-value
		EPS	CAR	L	SR	LDR	BS			
1	9.167 (8.44)**	0.222 (4.473)**						0.247	3.112	20.006
2	27.254 (5.649)**		-1.007 (2.826)					0.108	3.387	7.788
3	-0.146 (-0.017)			15.787 (1.639)				0.028	3.524	2.686
4	5.29 (1.562)				2.076 (2.497)			0.083	3.4342	6.237
5	29.637 (4.251)**					-0.181 (2.294)		0.068	3.461	5.264
6	13.58 (11.851)**						0.001 (0.09)	0.017	3.617	0.008
7	13.292 (1.494)	0.198 (4.097)**	-0.772 (2.423)	7.737 (0.104)				0.313	2.973	9.791
8	18.937 (2.889)**		-0.861 (2.39)		1.685 (2.024)*		0.003 (0.469)	0.14	3.3256	4.145
9	4.648 (1.532)	0.199 (3.909)**			1.233 (1.593)			0.267	3.071	11.541
10	3.868 (0.307)	0.246 (4.001)**	-0.777 (0.27)	6.237 (0.77)	1.086 (1.409)	-0.080 (0.901)	0.010 (1.780)	0.344	2.905	6.063

Notes:

i. Figures in parenthesis are t-values.

ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.

iii. Return on equity is the dependent variable.

Table 7 shows that the beta coefficients for capital adequacy ratio are negative with return on equity. It indicates that capital adequacy ratio has a negative impact on return on equity. This finding is consistent with the findings of Vu *et al.* (2020). However, the beta coefficients for earnings per share are positive with return on equity. It indicates that earnings per share have a positive impact on return on equity. This finding is consistent with the findings of Gizaw *et al.* (2015). Similarly, the beta coefficients for spread rate are positive with return on equity. It indicates that spread rate has a positive impact on return on equity. This finding contradicts with the findings of Mennawi (2020). In contrast, the beta coefficients for loan-to-deposit ratio are negative with return on equity. It indicates that loan-to-deposit ratio has a negative impact on return on equity. This finding is consistent with the findings of Habibniya *et al.* (2022). In addition, the beta coefficients for bank size are positive with return on equity. It indicates that bank size has a positive impact on return on equity. This finding is consistent with the findings of Jibreel *et al.* (2022).

4. Summary and conclusion

Merger and acquisition (M&A) activities can have significant effects on

the profitability of banks. However, it's important to note that the impact can vary widely based on the specific circumstances of each merger or acquisition, the strategies involved, and the market conditions. It's important to recognize that M&A outcomes can be complex and multifaceted. The impact on bank profitability will depend on the strategic rationale behind the merger, the execution of the integration process, and how well the combined entity is able to capitalize on the potential benefits while mitigating challenges.

This study attempts to examine the impact of mergers and acquisitions on the profitability of Nepalese commercial banks. The study is based on secondary sources of data from 11 commercial banks for the period of 2012/13 to 2021/22.

The study showed that earnings per share and spread rate have a positive impact on return on assets and return on equity after merger and acquisition. However, capital adequacy ratio and loan-to-deposit ratio have a negative effect on the return on assets and return on equity after merger and acquisition. Similarly, leverage and bank size have a negative impact on return on assets and a positive impact on return on equity after merger and acquisition. The study concluded that merger and acquisition have a significant impact on the profitability of Nepalese commercial banks. The study also concluded that spread rate and earnings per share are the most influencing factors that explain the changes in the profitability of Nepalese commercial banks.

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