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Analysis of the pre-post-merger and acquisition financial performance of selected banks in Nepal

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ABSTRACT

Mergers and Acquisitions (M&A) have become an effective strategic tool to consolidate the Banks and Financial Institutions (BFIs) in Nepal to increase their capital base, expand their business, and bring financial stability. This paper evaluates 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 show 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-post-M&A period.

1. Introduction

Consolidation of BFIs through M&A is a new concept in Nepal. Although in the global context, M&A in the banking industry in Europe and the U.S. have been prevalent since 2000. The outcome of M&A in the banking industry in developed economies resulted in synergy, cost-savings, diversification of risk, efficiency, and profitability in the longer term.

However, after the liberalisation policy in 1990, the tremendous growth of BFIs in a short period created financial instability in the BFIs in Nepal. As a result, the central bank of Nepal (Nepal Rastra Bank) introduced "Mergers Bylaws 2011" to enforce financial stability in the BFIs and strengthen the financial sectors and their operational efficiency. Before 2015, few M&A occurred in the BFIs, but the phase of M&A deals started to increase after the Nepal Rastra Bank (NRB) introduced a new mandatory capital requirement for BFIs through monetary policy 2015/2016. According to the NRB financial stability report 2020/2021, 229 BFIs have undergone M&A, forming 58 BFIs at mid-July 2021. In the last ten years after the "Mergers Bylaw 2011" was introduced, 229 BFIs underwent the merger process, and the NRB revoked 171 BFIs due to the cessation of the business. Among them, five commercial banks, 71 development banks, and 79 finance companies no longer exist due to the implementation of the M&A process (see Table 1). The ongoing M&A deals between the BFIs after the M&A policy introduced a new capital requirement for BFIs successfully reduced the number of development banks and finance companies but were unsuccessful in reducing the number of commercial banks.

The imbalance between the deposit growth rate and loans, and the advances growth rate creates a liquidity crunch and instability in the interest rate. Furthermore, due to the size of the economy and limited markets, all the BFIs perform similar functions in terms of deposit collection and loan disbursements. This creates confusion within the banking sector as their functions, roles, and responsibilities are poorly defined by the regulatory bodies. Consequently, the surge in the number of savings and co-operatives creates further unhealthy competition within the banking sector. As a result, a massive increase has resulted in terms of non-performing loans and corporate governance issues in the banking sector. Nevertheless, the M&A policies have had little success in decreasing the number of "A" class commercial banks in the country (see Tables 1 and 2). Therefore, a mega-merger was needed in the banking industry to ensure the stability of the country's financial sectors, overcome shortages of investable funds in the commercial banks, eliminate cross-holdings of the same promoters, and prepare the banks for future challenges. Based on the

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Table 1
Overview of growth in the banking and financial institutions (BFIs).

Types of BFIs	1990 (July)	2000 (July)	2005 (July)	2010 (July)	2012 (July)	2015 (July)	2018 (July)	2019 (July)	2020 (July)	2021 (July)
Commercial Banks	5	13	17	27	32	30	28	28	27	27
Development Banks	2	7	26	79	88	76	33	29	20	18
Finance Companies		45	60	79	69	48	25	23	22	17
Microfinance		7	11	18	24	38	65	90	85	70
Infrastructure Development Banks								1	1	1
Total	**7**	**72**	**114**	**203**	**213**	**192**	**151**	**171**	**155**	**133**

Source: NRB Annual Report 2020/2021

Table 2
BFIs pre-post-M&A.

Sectors of BFIs and categories	Pre-merger 2012 July	Post-merger 2021 March	No of branches 2021 July	Current mandatory capital requirement
Commercial Banks (A)	32	27	4753	Rs 8 billion (Au$102.5 million)
Development Banks (B)	88	18	1023	Rs 2.5 billion (Au$32.5 million)
Finance Companies (C)	69	17	222	Rs 0.8 billion Au$10.3 million)
Microfinance (D)	24	70	4685	Depends on the wholesaler & retailer

Source: Developed for this study Notes: Rs = Nepalese Rupees Au$ = Australian dollar

current gaps in the study of M&A in Nepal, the main research question is:

1. To what extent will M&A affect the financial performance of the two commercial banks pre-merger and post-merger?

This research study evaluates the financial performance of two selected commercial banks (Bank of Kathmandu and Prabhu Bank) in terms of profitability, liquidity, leverage, and wealth of shareholders ratios and their significant differences in the pre-post M&A period. These two banks were selected because the focus of the study was to investigate M&A between one commercial bank and another commercial bank, an event that is rare in Nepal. The findings of this research are useful to the Government of Nepal, policymakers, and other regulatory bodies for enhancing the overall BFIs sector. It will be an excellent source of reference for future research studies on the topic of M&A in the banking and financial sectors in developing countries. This research further contributes to the existing literature on the effects of M&A on financial performance in the banking sector in developing countries. The contribution of this research is significant to the regulatory body NRB and the Government of Nepal in order to rethink whether the results are as intended when the M&A was initially introduced in the BFIs. The research will also be necessary to many stakeholders in the banking industry of Nepal as it studies the financial performance of commercial banks before and after the mandatory capital increment. The banks that are being merged in the future will overview the condition and impact of M&A in the banking industries and implement strategies to make it successful. The shareholders or potential investors will have an overview of the impact of M&A on the Nepalese BFIs. They will be able to analyse the trends and growth of the merged banks and pull out or invest more money in the banks according to their interests.

2. Literature review and hypothesis development

2.1. Literature review

M&A is one of the strategic tools to consolidate the banking sector in Nepal. M&A is regarded as one of the important means to consolidate business growth, bring skills and talent from other banks, and increase profitability in the longer term. Therefore, it is an effective strategy to make banks strong and competitive in the market. Horizontal mergers are more common in the banking industry in developing countries like Nepal.

The motives of M&A are different according to the companies' objectives, but the main motive of the banking industry to undertake M&A is to achieve synergistic gain. The existing theories of M&A justify that synergistic gains are achieved in the longer term rather than the short-term (Harrison et al., 1991), and synergistic gains of M&A are reflected in profitability ratios such as ROA and ROE (Hitt et al., 1998). Much of the past research in the banking industry has produced mixed evidence regarding a M&A's ability to create value for shareholders. Studies are more relevant in Europe, the USA, and North America (DeYoung et al., 2009). However, it is less common in developing economies (Abbas et al., 2014; Kalra et al., 2013). Synergy theory indicates that three types of synergies affect the shareholders' wealth: financial, managerial, and operational synergies (Bradley et al., 1988; Seth et al., 2000). Synergy theory concludes that economic scope and scale are achieved when two banks are involved in the M&A process. They share their combined resources, close unnecessary branches, expand new products, reduce operating costs, consolidate debt, realise tax benefits, and improve the effectiveness of the management team (Gaughan, 2010; Pasiouras et al., 2005). Larger banks generate more profit as compared to small banks due to their investment in their intellectual capital stocks, which leads to increased efficiency (Olayinka et al., 2022). These authors find that bank size, and director's shareholding are the crucial factors that played significant roles in determining the intellectual capital efficiency in the banking sectors. Agency theory considers voting rights and cash flow rights to ensure the post-acquisition value of acquiring firms (Wang et al., 2020). But voting rights have become a more effective way for acquiring firms to increase their value after an acquisition (Wang et al., 2020). This is because shareholders can use their voting rights to participate in board activities, which will make changes at target companies. Similarly, market power plays a significant role in firms' growth, and highly integrated companies not only attract foreign institutional investors but also build the positive attitudes of domestic institutional investors through effective integration (Jhang et al., 2020). Foreign international institutional investors manage corporate governance extremely well (Reena et al., 2011). Market power plays a significant role in increasing bank credit risk. When compared to small banks, larger banks have a greater capacity for better resources, such as better management, resource efficiency, and technological capabilities to control overall bank risk (Hussain & Bashir, 2020). Pasiouras et al. (2005) suggest two reasons (economic and non-economic) that affect M&A decisions. Economic reasons are associated with internal factors of banks such as synergy, managerial motives, and managerial hubris motives. On the other hand, non-economic reasons are related to external factors such as regulations and laws, economic conditions, technological growth, globalisation, and other external factors. However, both factors aim to maximise the shareholders' wealth, although there is an agency problem in the corporate world (Pasiouras et al., 2005). These motives are consistent with the studies of banking sectors in Kazakhstan (Smirnova, 2014). This study concluded that the main motives for M&A that drive Kazakhstan's banking sector are internal and external (Smirnova, 2014). The main reasons for the internal motives of M&A are the desire to grow, raise share capital, increase revenue, increase client base, diversify the products, and strengthen the financial position (Smirnova, 2014). The external motives of M&A of the banks are economic, legal-political, and technological (Smirnova, 2014).

Past literature concludes there are mixed impacts on the financial performance in the banking sector in the pre-post-merger period. However, summarising their results was very complicated due to differences in the methodology researchers used. Some studies used accounting performance indicators, however, they used different variables and accounting data to conclude their findings. Most studies based on developing countries and using accounting performance measures found no significant changes in the financial performance before and after the M&A. On the other hand, studies done in Europe and the U.S. using the event study methodology conclude that shareholders benefit after the M&A. Their financial performance improved significantly through market diversification, managerial hubris, and efficiency after the M&A.

The effects of M&A on the financial performance in the banking sector did not significantly improve in the post-merger period (Abbas et al., 2014; Badreldin & Kalhoefer, 2009; Kemal, 2011; Pahuja & Aggarwal, 2016; Shah & Khan, 2017). However, other studies found that overall, the effects of M&A on the financial performance in the banking sector improved with significant changes compared to the pre-merger period (Mantravadi & Reddy, 2008; Muhammad et al., 2019; Oloye & Osuma, 2015; Sinha & Gupta, 2011). Mantravadi and Reddy (2008) studied the post-merger operating performance of acquiring companies in the different sectors in India, particularly Agri-products, chemicals, textile products, banking and finance, and electronic equipment firms. The study covers the period from 1991 to 2003 by using ratio analysis and a paired sample *t*-test. The findings conclude that M&A had improved the operational costs efficiencies, resulting in increased profitability margins. However, the efficiencies did not convert to higher profits due to the increase in debt after the M&A.

Sinha and Gupta (2011) studied the M&A impact on the Indian financial sector from 1993 to 2010. The study analysed eighty companies that had undergone M&A for eighteen years. The study found that M&A had a positive impact on profitability (Net profit and profit before interest, tax, depreciation, and amortisation ratio), a negative impact on liquidity (current ratio), and a reduction in total and systematic risk. Patel (2018) studied financial performance impacts before and after the M&A on the selected five banks in India during the period 2000 to 2014 by using the ratio analysis and paired sample *t*-test. The findings conclude with mixed results with ratios such as earning per share, profit per employee, and business per employee positively impacted in four banks in the sample in the post-merger period due to the effective utilization of human resources. Therefore, the results vary with the individual bank's performance. However, most banks in the sample effectively utilised the assets, equity, and investment, leading to positive impacts on profitability in the post-merger period.

Likewise, in his recent study, Rathinam (2016) concluded that the impact of M&A on financial efficiency in selected banks in India contributed positively and enabled banks to generate value after the post-merger period. The ratio analysis evaluates the post-merger period through profitability, liquidity, solvency, and efficiency parameters. Although the ratio analysis shows some variations in the results, overall post-merger period have shown upward trends in profitability, liquidity, and efficiency in the banking industries. Likewise, Adebayo and Olalekan (2012) studied the impact of M&A commercial bank performance in Nigeria by using correlation coefficient and *t*-test. The results found a significant relationship between profitability and capital base in the pre-post-merger period due to a significant increment of revenue enhancement and the bank's consolidation process. The overall performance of banks increased after the M&A, leading to increases in earnings per share, dividends per share, stock value, and a reduction in insolvency risk. Similarly, the studies of Oloye and Osuma (2015) found that M&A is an effective weapon to achieve stability and profitability in the banking sectors of Nigeria. These findings are consistent with a study by Elumilade (2010) who posited that M&A improved bank efficiency and competitiveness in the Nigerian banking sectors.

Jallow et al. (2017) studied the effects of M&A on the financial performance of forty UK companies from 2006 to 2010. The study found a significant impact of M&A on ROA, ROE, and EPS and an insignificant impact on NPM. The study concludes that companies' significant decline in ROA and ROE in the post-merger period is associated with a lack of management efficiency, inefficient deployment of shareholder funds, and increased financial costs. Agarwal et al. (2019) studied the effects of M&A on the performance of commercial banks in India from 2008 to 2018. The study selected four samples and the impacts of M&A in the pre-post-merger period were measured through five accounting ratios using the CAMEL framework and the paired *t*-test. The findings conclude that the M&A had significant effects on the performance of private commercial banks more so than public banks, although the impact on ratios varies depending on individual bank performances. In contrast, studies by Abdulwahab and Ganguli (2017) concluded that the overall financial performance of local banks in Bahrain did not significantly improve after the M&A due to the impact of the global financial crisis after 2007, the competitive market environment, and the stricter regulatory requirements of the central bank of Bahrain (CBB). However, other studies found that the impacts of M&A improved the value of shareholder wealth in the Bahrain banking industry (Bansal & Abdulla, 2020). These authors found that 50% of mergers improved profitability after the M&A, indicating that banks gain more resources and reduce operational costs after the merger process. However, studies by AL-HROOT et al. (2020) conclude that M&A has overall insignificant improvement in the performance of the Jordanian banking sector, although profitability ratios such as ROA, ROE, and interest margin(IM) ratios significantly improved in the post-merger period. The main reason for the insignificant performance was due to the global financial crisis of 2007 and other factors related to management expertise after the M&A. Aggarwal and Garg (2022) found that mergers have significantly improved non-banking firms' profitability and liquidity ratios in India, with no significant differences in solvency ratios in the five-year post-merger period compared to the previous three and one-year periods. The results showed that service sector firms created synergies in the medium and long term, but manufacturing firms took longer because the high cost of the merger process made the integration process take longer.

Similarly, limited research using the accounting ratios in Nepal found mixed results regarding individual banks, but the overall financial performance was not improved in the post-merger period (Bipin et al., 2018; Dwa & Shah, 2017; Shrestha et al., 2017). In an emerging market like Nepal, without forceful government intervention, M&A is very rare in the banking sector due to the vested interests of the shareholders. In the majority of banks, shares are held by certain groups and business firms (Bhatta, 2016). Similarly, studies by Dwa and Shah (2017) conclude that the overall financial performance of commercial banks did not improve after the M&A due to the poor performance of the target banks. However, Bipin et al. (2018) conclude that overall financial performance has an insignificant impact after the M&A, but the majority of BFIs used the M&A as a strategic tool to increase their mandatory capital to fulfil the regulatory requirement.

As a result of the gaps identified the following Hypotheses will be investigated for the Study:

2.2. Hypotheses development

2.2.1. Profitability parameters

H01. There is no significant difference in banks' Return on Equity (ROE) between pre-post M&A.

H02. There is no significant difference in banks' Return on Assets (ROA) between pre-post M&A.

H03. There is no significant difference in banks' Net Interest Margin (NIM) between pre-post M&A.

2.2.2. Liquidity parameters

H04. There is no significant difference in banks' Cash Equivalent to Total Assets Ratio (CTA) between pre-post M&A.

H05. There is no significant difference in banks' Investments to Total Assets Ratio (ITA) between pre-post M&A.

2.2.3. Leverage parameters

H06. There is no significant difference in banks' Debt to Equity Ratio (DE) between pre-post M&A.

H07. There is no significant difference in banks' Capital Adequacy Ratio (CAR) between pre-post M&A.

H08. There is no significant difference in banks' Total Loans to Total Deposit Ratio (TLTDO) between pre-post M&A.

H09. There is no significant difference in banks' Non-performing Loans to Total Loans Ratio (NPL) between pre-post M&A.

2.2.4. The wealth of shareholders parameters

H010. There is no significant difference in banks' Earning Per Share (EPS) between pre-post M&A.

H011. There is no significant difference in banks' Market Price Per Share (MPS) between pre-post M&A.

H012. There is no significant difference in banks' Dividend Per Share (DPS) between pre-post M&A.

3. Research methodology

3.1. Research design

This research follows a descriptive and comparative research design that evaluates the effect of M&A on the financial performance of selected banks before and after an M&A.

3.2. Sources and period of data

This research study is based on secondary data which is collected from the Annual Reports of selected individual banks. Furthermore, statistical data were collected from the NRB BFIs Supervision Report and Financial Stability Report available in the public domain. The study will cover the period from 2013/2014 to 2019/2020 fiscal years. The main reason for selecting this period was because the phase of M&A started after the NRB raised the paid-up-capital requirement of BFIs in 2015, which indirectly forced BFIs to be involved in the ongoing M&A process.

3.3. Sample selection

The sample of this study consists of all 27 commercial banks. Among them, only 19 commercial banks were involved in M&A deals with commercial banks, development banks, and finance companies from 2004 to 2020 (see Appendix A.1). To reduce the sample size, a purposive sampling technique and the following selection criteria are applied:

- The merger between one commercial bank and another commercial bank
- M&A between commercial banks and commercial banks between 2013/2014 and 2019/2020.

After the sampling and selection criteria, only three banks qualified for the study period. Among them, two banks (Bank of Kathmandu and PRVU Bank Limited) were selected for this study.

3.4. Data analysis techniques

Ratio Analysis (see Table 3) of individual bank's performance calculated based on the Annual Reports and their average financial performance pre-merger three years (T-3, T-2, T-1) compared with the average post-merger three years (T+3, T+2, T+1). The year of merger (T0) is not considered for evaluating financial performance to eliminate the effects of M&A. After the ratio analysis, a paired sample *t*-test is applied using SPSS to test the hypothesis at a 5% significance level.

4. Data analysis and discussions

This research study first discusses the findings of the comparative analysis and paired sample *t*-test of the Bank of Kathmandu, followed by GBIME Bank and PRVU Bank Ltd.

4.1. Bank of Kathmandu (BOKL)

Bank of Kathmandu (BOKL) was established in March 1995 under the license of Nepal Rasta Bank as an ‘A’ class commercial bank in Nepal. The bank merged with Lumbini bank (see Appendix A.1), another ‘A’ class commercial bank. The paid-up capital of BOKL reached Rs 4.87 billion from Rs.2.67 billion after the merger.

Table 4 shows that three profitability ratios of the BOKL have improved in the post-merger period. However, a paired *t*-test in Table 5 shows that the improvement of the ROA and NIM ratios is

Table 3
Financial performance variables used in this study.

Parameters:	Variables Names	Description/Measurement
Profitability:	Return on Equity (ROE)	Net profit after tax/Total Equity
	Return on Assets (ROA)	Net profit after tax/Total Assets
	Net Interest Margin (NIM)	Interest earned-interest expense/Total Assets
Liquidity:	Cash & Cash Equivalent to Total Assets (CETA)	Cash & Cash Equivalent/Total Assets
	Investment to Total Assets Ratio (ITA)	Investment/Total Assets
Leverage:	Debt to Equity Ratio (DE)	Total Debt/Total Equity
	Capital Adequacy Ratio (CAR)	Total Equity/Total Assets
	Total Loans to Total Deposit Ratio (TLOTD)	Total Loans/Total Deposit
	Non-Performing Loans to Total Loans (NPL)	Total Non-Performing Loans/Total Loans
Wealth of Shareholders:	Earnings Per Share (EPS)	Net profit after tax/No. of ordinary shares
	Market Price Per Share (MPS)	Closing price of ordinary shares traded on the stock exchange
	Dividends Per Share (DPS)	Total Dividends/No of outstanding Shares

Source: (Abbas et al., 2014; Kalra et al., 2013; Shah & Khan, 2017)

Table 4
Comparison of financial ratios of BOKL.

	Pre-merger	Post-merger	Change	Relative Change (%)
Profitability Parameters:				
Return on Equity (ROE)	8.09	11.47	3.38	41.78
Return on Assets (ROA)	0.74	1.59	0.85	114.86
Net Interest Margin (NIM)	0.81	1.80	0.99	122.22
Liquidity Parameters:				
Cash & Cash Equivalent to Total Assets (CETA)	2.15	3.06	0.91	42.33
Investment to Total Assets Ratio (ITA)	12.47	13.86	1.39	11.15
Leverage Parameters:				
Debt to Equity Ratio (DE)	9.97	6.40	−3.57	−35.81
Capital Adequacy Ratio (CAR)	12.53	14.45	1.92	15.32
Total Loans to Total Deposit Ratio (TLOTD)	83.21	87.18	3.97	4.77
Non-Performing Loans to Total Loans (NPL)	2.44	2.29	−0.15	−6.15
The Wealth of Shareholders Parameters:				
Earnings Per Share (EPS)	12.05	19.77	7.72	64.07
Market Price Per Share (MPS)	533.00	246.33	−286.6	−53.78
Dividends Per Share (DPS)	20.44	19.33	−1.11	−5.43

Source: see Appendix B.1

Table 5
Paired samples *t*-test of the BOKL.

		Paired Differences					t	Df	Sig. (2-tailed)	Hypothesis Relation	Results
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference						
					Lower	Upper					
	Profitability Ratios:										
Pair 1	ROE (Pre-Post)	−3.37667	1.54546	0.89227	−7.21579	0.46246	−3.784	2	0.063	NS	**NS**
Pair 2	ROA (Pre-Post)	−0.85667	0.25968	0.14993	−1.50175	−0.21159	−5.714	2	0.029	NS	**S**
Pair 3	NIM (Pre-Post)	−0.98333	0.37554	0.21682	−1.91624	−0.05043	−4.535	2	0.045	NS	**S**
	Liquidity Ratios:										
Pair 4	CETA (Pre-Post)	−0.91333	0.46608	0.26909	−2.07115	0.24448	−3.394	2	0.077	NS	**NS**
Pair 5	ITA (Pre-Post)	−1.39000	0.48031	0.27731	−2.58316	−0.19684	−5.012	2	0.038	NS	**S**
	Leverage Ratios:										
Pair 6	DE (Pre-Post)	3.56667	0.94108	0.54333	1.22889	5.90444	6.564	2	0.022	NS	**S**
Pair 7	CAR (Pre-Post)	−1.92000	1.20611	0.69635	−4.91614	1.07614	−2.757	2	0.110	NS	**NS**
Pair 8	TLOTD (Pre-Post)	−3.97000	4.27509	2.46822	−14.58991	6.64991	−1.608	2	0.249	NS	**NS**
Pair 9	NPL (Pre-Post)	0.15000	2.09115	1.20732	−5.04470	5.34470	0.124	2	0.912	NS	**NS**
	Wealth of Shareholders Ratios:										
Pair 10	EPS (Pre-Post)	−7.71333	2.92049	1.68614	−14.96822	−0.45845	−4.575	2	0.045	NS	**S**
Pair 11	MPS (Pre-Post)	286.66667	37.07200	21.40353	194.57471	378.75862	13.393	2	0.006	NS	**S**
Pair 12	DPS (Pre-Post)	1.11000	13.22804	7.63721	−31.75028	33.97028	0.145	2	0.898	NS	**NS**

Notes: Significant at 0.05 level (2- tailed) **NS** = Not significant **S** = Significant.

statistically significant as its p-value is below the 5% significance level, but the enhancement of the ROE ratio is not statistically validated. Therefore, null hypotheses $\mathbf{H_{02}}$ and $\mathbf{H_{03}}$ are rejected, and $\mathbf{H_{01}}$ is accepted. These results conclude that a merger has a significant impact on ROA, and NIM ratios but an insignificant impact on the ROE ratio in the pre-post-merger period. The ROE increased by 41.78% in the post-merger period, which indicates that management has utilised shareholders' funds properly to generate more income, and that bank business started to increase after the merger with Lumbini Bank (LBL). Similarly, ROA increased by 114.86%, a significant improvement in the post-merger period. The substantial change in ROA indicates management has utilised its assets effectively and efficiently to generate profit. Likewise, NIM increased by 122.22%, which indicates that interest income from the business started to grow in the post-merger period.

The liquidity ratios show that two ratios improved in the post-merger period (see Table 4). However, a paired *t*-test results in Table 5 reveal that the improvement of the CETA ratio is statistically insignificant, but the ITA ratio is statistically significant at a 5% significance level. Therefore, hypothesis $\mathbf{H_{04}}$ is accepted, and $\mathbf{H_{05}}$ is rejected, and it can be concluded that the merger had an insignificant impact on the CETA ratio and a significant impact on the ITA ratio. Similarly, CETA increased by 42.33%, and there was a positive change in ITA by 11.15% in the post-merger period, indicating that bank productivity and liquidity positions increased after the merger.

According to Table 4, all four ratios of the leverage parameters of BOKL improved in the post-merger period. A paired *t*-test results in Table 5 show that improvement in the DE ratio is statistically significant, and CAR, TLOTD, and NPL ratios improvement is statistically insignificant at a 5% significance level. Therefore, hypothesis $\mathbf{H_{06}}$ is rejected, and hypotheses $\mathbf{H_{07}}$, $\mathbf{H_{08}}$, and $\mathbf{H_{09}}$ are accepted, and it is concluded that M&A has a significant impact on the DE ratio and an insignificant impact on the CAR and TLOTD ratios in the pre-post-merger period. A decline in the DE ratio by 35.81% in the post-merger period indicates the bank's financial leverage improved to pay its long-term obligations. On the other hand, the improvement of CAR by 15.32% in the post-merger period indicates that the bank's ability to absorb unforeseeable losses increased and was maintained above the rate of the central bank at 11%. Furthermore, the increase in TLO/TD by 4.77% in the post-merger period indicates that banks have optimised deposit amounts to increase their profitability. Likewise, NPL decreased by 6.15% in the post-merger periods indicating banks can recover non-performing loans through a recovery plan.

The wealth of shareholders parameters decreased substantially in the post-merger period except for EPS (see Table 4). However, paired T-test results in Table 5 reveal that improvements in EPS and deteriorated performance of MPS ratios are statistically significant, but the decline of the DPS ratio is statistically insignificant in the pre-post-merger period at a 5% significance level. Therefore, null hypotheses $\mathbf{H_{010}}$ and $\mathbf{H_{011}}$ are rejected, and hypothesis $\mathbf{H_{012}}$ is accepted. These results conclude that M&A has a significant impact on the EPS and MPS ratios but an insignificant impact on the DPS ratio in the pre-post-merger period. The EPS improved by 64.07% in the post-merger period despite capital raised in a short period to meet the minimum capital requirement. Similarly, a negative relative change of 53.78% seen in the MPS in the post-merger period indicates the stock price is falling due to the new mandatory capital requirement of BFIs in the short period, with the oversupply of the number of shares in the market. In addition, a relative change of 5.43% in the DPS in the post-merger period indicates that the bank's dividend capacity is falling due to competition in the banking sector.

4.2. Prabhu Bank (PRVU)

Prabhu Bank Limited (PRVU) started its journey to becoming an “A” class commercial bank through Prabhu Finance Limited (see Appendix A.1). In the year 2014, the bank was involved in a merger with an “A” class commercial bank (Kist Bank Limited), one development bank (Gaurishankar Development Bank Limited), and one finance company (Zenith Finance Limited). After the merger with Kist Bank, the bank adopted a new name as “Prabhu Bank Limited” (PRVU), with the status of an “A” class commercial bank, and its paid-up capital reached Rs 3.20 billion. In the year 2016, PRVU bank acquired Grand Bank Nepal Limited (GBN), another “A” commercial bank, and its paid-up capital reached Rs 5.88 billion. Before going to the acquisition, Grand Bank Nepal Limited (GBN) fell into a financial crisis due to non-performing loans (NPL), and the bank incurred a huge loss of Rs 1.60 billion. The GBN failed to maintain the central bank capital adequacy ratio (CAR) of 10%. The GBN crisis was one of the biggest scandals at the BFIs in the country. The central bank took action against the Board of Directors and management to increase their CAR ratio above 10% within six months and forced them to go to M&A.

Profitability ratios show that all three ratios of PRVU banks have improved in the post-merger period (see Table 6). However, a paired *t*-test result in Table 7 indicates the improvement of ROE, ROA, and NIM ratios in the pre-post-merger period are not statistically significant at a 5% significance level. Therefore, hypotheses $\mathbf{H_{01}}$, $\mathbf{H_{02}}$, and $\mathbf{H_{03}}$ are accepted, and it is concluded that M&A has no significant impact on ROE, ROA, and NIM ratios. Table 6 shows that the ROE increased by 83.07%, the ROA by 20.51%, and the NIM by 17.89% in the post-merger. These results suggest that management has utilised shareholders' funds and assets properly. As a result, interest income started to increase in the post-merger period.

Similarly, liquidity ratios show that two ratios of PRVU bank have mixed results in the post-merger period (see Table 6). However, paired *t*-test results in Table 7 revealed that improvements in the CETA and a decline in the ITA ratios are not statistically significant at a 5% significance level. Therefore, hypotheses $\mathbf{H_{04}}$ and $\mathbf{H_{05}}$ are accepted, and it is concluded that M&A has no significant impact on CETA and ITA in the pre-post-merger period. The CETA increased by 56.13%, indicating that the bank's liquidity improved after the merger. On the other hand, a negative decline in ITA by 32.0% in the post-merger period indicates that bank productivity decreased.

Likewise, the four leverage ratios of PRVU bank indicate that the financial leverage improved post-merger (see Table 6). However, paired *t*-test results in Table 7 reveal that improvements in the DE, CAR, TLOTD, and NPL ratios are not statistically validated at a 5% significant level. Therefore, hypotheses $\mathbf{H_{06}}$, $\mathbf{H_{07}}$, $\mathbf{H_{08}}$, and $\mathbf{H_{09}}$ are accepted, and it is concluded that M&A has no significant effects on the leverage ratios. The DE ratio improved by 28.35% in the post-merger period, which is a positive sign in-terms of paying its long-term obligations. Likewise, the NPLs ratio improved by 73.07% in the post-merger period. The growth trend of higher NPL in the pre-merger period is due to acquiring the Grand Bank of Nepal (many loans defaulted, and the bank went into a financial crisis). So, the improvement of the NPL ratio after the M&A activities indicates that the bank's recovery strategy is working to recover its non-performing loans and generate profit. A relative change of 8.26% in the CAR ratio in the post-merger period indicates that the bank's financial strength improved to absorb financial risk and economic stress. On the other hand, the mean value of TLOTD improved by 20.36%, which shows the bank has utilised the maximum deposit amount to generate interest income in future periods.

The Wealth of Shareholders Parameters of PRVU bank show that two out of three ratios have improved in the post-merger period (see Table 6). However, a paired *t*-test result in Table 7 reveals the improvement of EPS and deteriorated performance of MPS ratios are not statistically validated at a 5% significance level, but the improvement in the DPS is statistically significant. Therefore, hypotheses $\mathbf{H_{010}}$, and $\mathbf{H_{011}}$ are accepted, and hypothesis $\mathbf{H_{012}}$ is rejected, and it can be concluded that M&A has no significant impact on the EPS and MPS ratios and a significant impact on the DPS ratio. The EPS ratio improved by 19.78% in the post-merger period despite its stock being raised in a short period to meet the minimum capital requirement and the bank being able to recover its non-performing loans. Similarly, a negative relative change of 30.51% in the MPS in the post-merger period indicates the stock

Table 6
Comparison of financial ratios of PRVU.

	Pre-Merger	Post-Merger	Change	Relative Change (%)
Profitability Parameters:				
Return on Equity (ROE)	5.08	9.30	4.22	83.07
Return on Assets (ROA)	0.78	0.94	0.16	20.51
Net Interest Margin (NIM)	0.89	1.05	0.16	17.98
Liquidity Parameters:				
Cash & Cash Equivalent to Total Assets (CETA)	5.63	8.79	3.16	56.13
Investment to Total Assets Ratio (ITA)	14.72	10.01	−4.71	−32.00
Leverage Parameters:				
Debt to Equity Ratio (DE)	12.45	8.92	−3.53	−28.35
Capital Adequacy Ratio (CAR)	10.53	11.40	0.87	8.26
Total Loans to Total Deposit Ratio (TLOTD)	64.55	77.69	13.14	20.36
Non-Performing Loans to Total Loans (NPL)	13.48	3.63	−9.85	−73.07
The wealth of Shareholders Parameters:				
Earnings Per Share (EPS)	11.83	14.17	2.34	19.78
Market Price Per Share	323.33	224.67	−98.66	−30.51
Dividends Per Share (DPS)	0.00	11.93	11.93	1193.00

Source: see Appendix C. 1

Table 7
Paired samples *t*-test of PRVU.

		Paired Differences									
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		T	df	Sig. (2-tailed)	Hypothesis Relation	Result
					Lower	Upper					
	Profitability Ratios:										
Pair 1	ROE (Pre-Post)	−4.22333	26.60975	15.36315	−70.32563	61.87896	−0.275	2	0.809	NS	**NS**
Pair 2	ROA (Pre-Post)	−0.16000	1.82732	1.05500	−4.69932	4.37932	−0.152	2	0.893	NS	**NS**
Pair 3	NIM (Pre-Post)	−0.16333	1.98072	1.14357	−5.08370	4.75704	−0.143	2	0.900	NS	**NS**
	Liquidity Ratios:										
Pair 4	CETA (Pre-Post)	−3.16667	6.62769	3.82650	−19.63075	13.29742	−0.828	2	0.495	NS	**NS**
Pair 5	ITA (Pre-Post)	4.70667	13.76201	7.94550	−29.48006	38.89340	0.592	2	0.614	NS	**NS**
	Leverage Ratios:										
Pair 6	DE (Pre-Post)	3.53667	5.65709	3.26612	−10.51632	17.58965	1.083	2	0.392	NS	**NS**
Pair 7	CAR (Pre-Post)	−0.87333	2.16320	1.24892	−6.24702	4.50035	−0.699	2	0.557	NS	**NS**
Pair 8	TLOTD (Pre-Post)	−13.14000	10.38581	5.99625	−38.93979	12.65979	−2.191	2	0.160	NS	**NS**
Pair 9	NPL (Pre-Post)	9.85333	9.11699	5.26369	−12.79452	32.50118	1.872	2	0.202	NS	**NS**
	Wealth of Shareholders Ratios:										
Pair 10	EPS (Pre-Post)	−2.34000	20.69481	11.94816	−53.74877	49.06877	−0.196	2	0.863	NS	**NS**
Pair 11	MPS (Pre-Post)	98.66667	88.18919	50.91605	−120.40743	317.74076	1.938	2	0.192	NS	**NS**
Pair 12	DPS (Pre-Post)	−11.93000	4.38111	2.52943	−22.81327	−1.04673	−4.716	2	0.042	NS	**S**

Notes: Significant at 0.05 level (2- tailed) **NS** = Not significant **S** = Significant.

price is falling due to the bearish trend of NEPSE or an oversupply of shares. On the other hand, the DPS ratio improved by 1193% in the post-merger period, indicating that the bank's dividend capacity increased after the significant reduction in non-performing loans, business growth, and changes in the management team.

5. Conclusion and recommendation

M&A has become an effective strategy to reduce the growing number of BFIs in Nepal, although it has become less effective in commercial banks. Most commercial banks adopted M&A as a strategic tool to increase their capital base and expand their business. This study aims to evaluate the impacts of M&A on the financial performance of selected banks (Bank of Kathmandu and PRVU Bank Limited) in the pre-post-M&A period. The findings of this research study concluded that the overall financial performance of BOKL has mixed results in the pre-post-merger period. The results indicated that profitability ratios and liquidity ratios such as ROA, NIM, and ITA improved significantly, but there were no significant changes in other ratios in the post-merger period. However, other key indicators such as the leverage ratio did not improve significantly, in terms of the wealth of shareholder parameters. The merger did not create wealth for shareholders as its key indicators DPS and MPS ratios deteriorated in the post-merger period. On the other hand, the M&A has an insignificant impact on all the profitability, liquidity, leverage, and wealth of shareholders ratios of PRVU bank except for a significant improvement in the DPS ratio in the pre-post-M&A.

The findings of this research encourage commercial banks to become involved with M&A with other commercial banks rather than the weaker development banks and finance companies to gain synergy benefits, cost efficiency, risk diversification, and be more competitive. On the other hand, this research concludes that the merger associated with commercial banks does not benefit from the weaker BFIs. Therefore, the NRB should encourage commercial banks to find the right partners and force them to merge with stronger commercial banks rather than two weaker and smaller commercial banks. Furthermore, NRB needs to implement forceful mergers of commercial banks that single-family households or business groups have directly or indirectly promoted and banks with cross-holdings to create financial stability and maintain corporate governance in the BFIs in the country.

The limitation of this research is the unavailability of data from the electronic database. The main reasons for not selecting other sectors (development banks and finance companies) in this study are the consistency and unavailability of data. As a result, the findings of this research limit the scope of the overall impacts of M&A on the financial performance of acquirer banks as it ignores the effect of M&A on target BFIs excluded from the data analysis. Therefore, the future researcher should use a longer period to measure the overall impacts of M&A by using both qualitative and quantitative data.

Author contributions

These authors contributed equally.

Declaration of competing interest

The author declares no conflict of Interest.

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Appendix A.1. Merger and Acquisitions deals of Nepalese Commercial Banks

S. N	Commercial bank Names after M&A	Acquired/Merged BFIs Names	Final Approval Date	Share SWAP Ratio	Type
1	Bank of Kathmandu Limited	Lumbini Bank Limited	08/07/2016	100:83	Merger
2	Century Commercial Bank Limited	Sagarmatha Finance Ltd.	31/05/2017	100:95	Acquisition
		Innovative Development Bank Ltd.		100:85	Acquisition
		Araniko Development Bank Ltd.		100:90	Acquisition
		Alpine Development Bank Ltd.		100:93	Acquisition
		Seti Finance Ltd.		100:70	Acquisition
3	Citizen Bank International Limited	Sahayogi Vikas Bank Ltd.	24/06/2020	100:91.75	Acquisition
		Premier Finance Ltd.	09/04/2015	100:28	Acquisition
		Nepal Housing and Merchant Finance		100:40	Acquisition
		Peoples Finance Ltd.		100:40	Acquisition
4	Civil Bank Limited	Unique Finance Ltd.	15/06/2017	100:90	Acquisition
		Hama Merchant and Finance Ltd.		100:89	Acquisition
		International Leasing & Finance		100:74.72	Mergers
		Axis Development Bank Ltd	27/09/2016	100:79	Mergers
		Civil Merchant Bitiya Sanstha Ltd.	6/04/2014	100:79	Mergers
5	Global IME Bank Limited	Janata Bank Nepal Ltd	20/12/2019	100:85	Mergers
		Hathway Finance Ltd	01/09/2019	100:42	Acquisition
		Reliable Development Bank Ltd	09/07/2017	100:82.9	Acquisition
		Pacific Development Bank Ltd	12/02/2017	100:69.26	Acquisition
		Social Development Ltd.	09/07/2013	100:40	Merger
		Gulmi Bikash Bank Ltd.		100:50	Merger
		Commerz & Trust Bank Ltd.	03/04/2014	100:65	Acquisition
		IME Finance Ltd.	25/06/2012	100:79	Merger
		Lord Buddha Finance Ltd		100:70	Merger
6	Kumari Bank Limited	Kasthamandap Development Bank	26/06/2017	100:85	Acquisition
		Mahakali Bikash Bank Ltd		100:86	Acquisition
		Kakrebihar Bikash Bank Ltd.		100:87	Acquisition
		Paschimanchal Finance Ltd.		100:88	Acquisition
7	Laxmi Bank Limited	Professional Diyalo Development	26/12/2006	100:50	Acquisition
		Hisef Finance Ltd.	02/04/2004	100:100	Merger
8	Macchapuchhre Bank Limited	Standard Finance Ltd	25/12/2006	100:85	Merger
9	Mega Bank Nepal Limited	Gandaki Bikas Bank Ltd	24/06/2020	100:100	Acquisition
		Tourism Development Bank Ltd.	22/04/2018	100:95	Merger
		Pashchimanchal Development Bank		104.25:67	Merger
10	Nepal Credit & Commerz Bank Limited	Infrastructure Development Bank	05/12/2016	100:76	Merger
		Apex Development Bank Ltd.		100:47	Merger
		Supreme Development Bank Ltd.		100:77	Merger
		International Development Bank Ltd		100:72	Merger
11	Nepal Investment Bank Limited	City Express Finance Ltd	10/07/2019	100:30	Acquisition
		Jebil's Finance Ltd	10/07/2019	100:33	Acquisition
		Ace Development Bank Ltd	13/07/2017	100:41	Acquisition
12	NIC Asia Bank Limited	Bank of Asia Limited		100:50	Merger
13	NMB Bank Limited	Kanchan Development Bank Ltd.	09/08/2020	100:85	Acquisition
		Om Development Bank Ltd.	18/09/2018	100:76	Merger
		Pathibara Bikas Bank		100:67	Merger
		Bhrikuti Bikas Bank		100:87	Merger
		Clean Energy Development Bank		100:75	Merger
		Prudential Finance		100:43	Merger
14	Prabhu Bank (Kist Bank Limited)	Kist Bank Ltd.	06/08/2014	107.31:97.31	Acquisition
		Prabhu Bikas Bank Ltd.		100:107.31	Acquisition
		Grand Bank Nepal Ltd.	29/01/2016	121.45:65.58	Merger
		Gaurishankar Development Ltd.		107.31:107.31	Acquisition

(*continued*)

S. N	Commercial bank Names after M&A	Acquired/Merged BFIs Names	Final Approval Date	Share SWAP Ratio	Type
		Zenith Finance Ltd.		107.31:92.31	Acquisition
15	Prime Commercial Bank Limited	Kailash Bikas Bank Ltd,	01/03/2020	100:94	Acquisition
		Kanki Bikas Bank Ltd.	01/09/2019	100:71.50	Acquisition
		Biratlaxmi Bikash Bank Ltd.	03/04/2017	100:75	Acquisition
		Country Development Bank Ltd.	03/04/2017	100:40	Acquisition
16	Sanima Bank Limited	Bagmati Development Bank Ltd.	16/12/2016	100:41	Acquisition
17	Siddhartha Bank Limited	Business Universal Development Limited	05/06/2016	100:55	Merger
18	Sunrise Bank Limited	NIDC Capital Market Ltd.	26/01/2017	100:65	Acquisition
		Narayani National Finance		100:77	Acquisition
19	Nepal Bangladesh Bank Limited	Nepal Bangladesh Finance Ltd	18/09/2007	100:50	Merger
		Nepal Sri Lanka Merchant Finance Ltd	02/01/2011	100:50	Merger
20	Everest Bank Limited	No M&A			
21	Himalayan Bank Limited	No M&A			
22	Nepal SBI Bank Limited	No M&A			
23	Standard Charted Bank Limited	No M&A			
24	Nabil Bank Limited	No M&A			
25	Agriculture Development Bank Limited	No M&A			
26	Nepal Bank Limited	No M&A			
27	Rastra Banijya Bank Limited	NO M&A			

Source: Authors developed for this study

Appendix B.1. Financial ratios of Bank of Kathmandu (BOKL)

Year	ROE	ROA	NIM	CETA	ITA	DE	CAR	TLOTD	NPL	EPS	MPS	DPS
2013/2014	7.17	0.65	0.72	2.39	11.73	10.00	11.57	82.97	1.06	12.00	564.00	10.96
2014/2015	8.68	0.74	0.81	2.14	13.40	10.67	13.00	80.83	3.74	12.52	571.00	27.37
2015/2016	8.42	0.82	0.91	1.92	12.29	9.24	13.01	85.83	2.51	11.64	464.00	23.00
Pre-Merger Mean	**8.09**	**0.74**	**0.81**	**2.15**	**12.47**	**9.97**	**12.53**	**83.21**	**2.44**	**12.05**	**533.00**	**20.44**
2017/2018	10.59	1.45	1.68	3.75	12.65	6.31	14.88	87.92	3.04	18.68	265.00	25.00
2018/2019	13.58	1.88	2.18	3.09	14.77	6.23	14.30	88.50	1.54	23.53	255.00	17.00
2019/2020	10.23	1.45	1.53	2.35	14.17	6.67	14.16	85.12	2.28	17.09	219.00	16.00
Post-Merger Mean	**11.47**	**1.59**	**1.80**	**3.06**	**13.86**	**6.40**	**14.45**	**87.18**	**2.29**	**19.77**	**246.33**	**19.33**

Notes: Financial ratios are calculated and extracted from the annual reports of BOKL.

Appendix C.1. Financial ratios of PRVU Bank (PRVU)

Year	ROE	ROA	NIM	CETA	ITA	DE	CAR	TLOTD	NPL	EPS	MPS	DPS
2013/2014	−26.88	−1.44	−1.52	3.72	27.41	17.69	8.68	54.87	24.29	−15.24	207.00	0.00
2014/2015	27.57	2.19	2.38	3.67	9.70	11.59	10.61	65.79	7.33	31.73	348.00	0.00
2015/2016	14.54	1.60	1.80	9.49	7.04	8.08	12.29	72.98	8.83	19.00	415.00	0.00
Pre-Merger Mean	**5.08**	**0.78**	**0.89**	**5.63**	**14.72**	**12.45**	**10.53**	**64.55**	**13.48**	**11.83**	**323.33**	**0.00**
2017/2018	7.69	0.83	0.93	11.34	7.03	8.23	11.86	78.32	3.98	10.87	187.00	8.42
2018/2019	12.45	1.29	1.44	10.00	10.56	8.63	11.16	79.08	3.76	20.06	266.00	16.84
2019/2020	7.76	0.71	0.78	5.04	12.44	9.89	11.18	75.66	3.15	11.58	221.00	10.53
Post-Merger Mean	**9.30**	**0.94**	**1.05**	**8.79**	**10.01**	**8.92**	**11.40**	**77.69**	**3.63**	**14.17**	**224.67**	**11.93**

Notes: Financial ratios are calculated and extracted from the annual reports of PRVU.

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