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----- ORIGINAL RESEARCH ARTICLE -----

### Abnormal Returns around Mergers and Acquisitions in the Nepali Stock Market

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#### ABSTRACT

A merger includes two relatively equal entities that are combined to form one legal entity worth more than a sum of its two separate parts. In the last few years, many Nepali financial institutions have been consolidating through mergers and acquisitions. This paper aims to investigate how the stock market reacts when financial institutions announce mergers and acquisitions. This paper also examines the impact of cross-sectional variables on the abnormal returns obtained around merger announcements. The study covers 22 successful merger deals that occurred among 48 financial institutions over the period of 2004 to 2013. This paper used the event study method based on the market model to derive abnormal returns associated around the merger announcement date. The event dates are specified as the dates on which the mergers and acquisitions were announced. The results show that leaving a very few exceptional cases, none of the merged financial institutions received significant cumulative abnormal returns on the merger announcements, regardless of the use of different event periods. The cross-sectional regressions show that the pre-merger performance of target and relative market value are the significant influencing variables on

acquirers' cumulative abnormal returns. The finding implies that Nepali financial institutions merge merely to increase their capital base without producing any synergistic effect. Therefore, they need strategic plans for choosing the right partner and achieving other benefits like synergy effect, economies of scale and cost reduction from mergers and acquisitions.

**KEYWORDS:** Abnormal returns, event study, financial institutions, mergers and acquisitions

## INTRODUCTION

A business firm's goal of wealth maximization can be accomplished internally either by developing new products or by increasing the market of existing products. Alternatively, the expansion process is often accelerated outwardly by mergers and acquisitions (Copeland et al., 2014). Mergers are any transactions that combine two or more previous economic units to create a single economic unit. High competition among firms in the same sector, which focuses on growth, cost-effectiveness, and economies of scale, is the primary driver of merger deals (DePamphilis, 2008).

If the combined value of the bidder and target companies increases after the merger is announced, the merger is supposed to generate value. Pilloff and Santomero (1997) found that most studies have failed to find a positive relationship between the merger operation and the value of firms. However, according to the research of Asimakopoulos and Athanasoglou (2013), the merger announcements result in a positive reaction in the stock prices of target banks and a negative reaction in the stock prices of bidding banks. Forced mergers have eroded the capital of acquired banks, according to an analysis of Malaysian bank mergers (Chong et al., 2006).

With the liberal licensing policy adopted by the central bank, several financial institutions were established during 1990 – 2010 (NRB, 2012). Their number upsurged very high but their capital-base remained too small to bear financial shocks. Moreover, some of them failed to maintain the good corporate governance. There have been several corporate governance failures<sup>1</sup> in financial institutions that call for more transparency and accountability in the way the institutions are regulated, operated and monitored (Upadhyaya, 2018). In this scenario, being the central bank of the country, it was the responsibility of the Nepal Rastra Bank (NRB) to take an immediate action. So, NRB decided to reduce the number of financial institutions, increase their capital base, and promote good governance for sustainable growth of the corporate financial sector (NRB, 2012). To achieve this, the NRB has been using the M&A as a major instrument and encouraging financial institutions by providing various incentives as well as making the regulatory requirement to increase their paid-up capital. Following the direction of the NRB, a good number of financial institutions have been merged, and still, some are in the process of consolidation. Thus, the NRB has been able to reduce the number of financial institutions, increase their capital base and increase the supervision activities on the reduced number of financial institutions.

If the deal is taken rightly, the M&A in the banking sector will help banks achieve substantial growth in their operations while also reducing their expenses to a significant extent (Liu & Tripe, 2001). Another important advantage behind the M&A is that it reduces unfair competition in the banking sector by reducing the number of competitors (DePamphilis, 2008). The Nepali financial institutions should go for the M&A not only to fulfill the regulatory obligation of increasing capital base but also to remain competitive and upgraded, expand geographical area of operation and achieve advantages of economies of scale to mention just a few benefits. As the international studies have shown mixed results regarding the success of M&A (Gates et al., 2006; Houston & Ryngaert, 1994; Weber et al., 2019), it is an issue of interest to investigate whether the Nepali M&As have been able to provide benefits to the shareholders of merged firms or not. Such benefits can be measured from different perspectives. This study uses stock market returns to shareholders around the M&A announcements to

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<sup>1</sup> Some of them include - Capital Merchant Banking and Finance Limited, Gorkha Development Bank, Nepal Development Bank, Samjhana Finance, United Finance Company, Nepal Share Market and Finance.

measure such benefits. This study, therefore, attempts to address the following issues: (i) what is the effect of M&A announcement on stock market returns? and (ii) how do cross-sectional variables like the pre-merger performance of the acquirer, pre-merger performance of the target, relative market size, the correlation coefficient of partners' stock returns, and geographic focus influence the stock returns of financial institutions around the announcements of mergers events? An appraisal of the event's impact requires a measure of the abnormal return (MacKinlay, 1997). So, this paper focuses on the examination of abnormal returns gained by shareholders of merged financial institutions and the variables that influence such returns.

## **LITERATURE REVIEW**

### **Concept of Mergers and Acquisitions**

The M&A is a process in which two or more companies combine all or part of their operations in order to achieve specific strategic and business objectives. According to Copeland et al. (2014), a merger occurs when two companies agree to consolidate into one company. The choice of joining together is the diversification of operation and external development decisions, which are intended to benefit from competitiveness by integrating the operations of two firms (Muslumov, 2001). The M&A is one of the methods used by businesses to generate value. The motives for such accomplishments also include, but are not limited to, growth in new markets, acquiring of know-how, cost reduction, economies of scale and competition reductions (DePamphilis, 2008).

The merge between banks may add value by lowering costs and/or rising revenues. Reduction of costs can be accomplished by the elimination of dispensable management roles, closure of overlapping units, the vacation of redundant headquarters and a combination of back-office functions, for instance, checking. When combining banks with the regional overlap, the cost-cutting opportunity can be greater (Houston et al., 2001).

### **Motives for Mergers and Acquisitions**

The M&A makes financial institutions more competitive and reduces operational costs or increases income (Liu & Tripe, 2001). Its activity should support firms participating in a restructuring program both operationally and financially. According to Ogden et al. (2003), financial institutions pursue the M&A for the following reasons: (1) synergistic effect; (2) economies of scale; (3) liquidation prevention; (4) avoid financial sluggish; (5) hubris; and (6) self-interest of the acquirer's board. As a result, there are various explanations why the M&A occurs. According to Bruner (2004), DePamphilis (2008), Moeller and Brady (2007), and Pautler (2001) synergy, diversification, strategic re-alignment, market control, hubris and managerialism, purchasing undervalued assets (q-ratio), tax considerations, misevaluation, and agency issues are some of the most common.

### **Financial Institutions Mergers and Acquisitions in Nepali Context**

The history of the merger in the Nepali economy began with the merger of Laxmi Bank and HISEF Finance in April 2004. But no significant M&A activities were observed in the country until 2007. After 2007, the M&A took the momentum and 23 successful mergers deals occurred till July 2013. Out of the 23 cases, four cases of mergers were completed before the promulgation of Merger Bylaw-2068 (B.S.). The rest nineteen cases took place after the bylaw was put into effect.

So far as acquisition is concerned, Butwal Power Company purchased the Khimti and Bhotekoshi Hydropower companies. Similarly, Grindlays Bank was acquired by

Standard Chartered Bank from the ANZ Group (Nepal Economic Forum, 2010). Teliasonera, meanwhile, acquired Spice Nepal and made NCell (Nepal Economic Forum, 2010). In the banking sector, acquisition started only after the promulgation of Acquisition Bylaw-2070 (B.S.).

### **The Concept of Event Study and Abnormal Returns**

The efficient market hypothesis of finance suggests that capital markets reflect all available information about firms in the firms' stock prices (Fama, 1970). This notion of informationally efficient markets leads to develop a powerful research methodology, named event study (Bodie et al., 2018). If security prices reflect all currently available information, then price changes must reflect new information. Based on this basic premise, one can study how a particular event changes a firm's prospects by quantifying the impact of the event on the firm's stock. Using financial market data, an event study measures the impact of a specific event, like the M&A, earnings announcements and issues of new equity, on a firm's stock price (MacKinlay, 1997).

The initial task of conducting an event study is to define the event of interest and determine the event window, estimation window and event day (MacKinlay, 1997). The event window is the period over which the security prices of the firms involved in the event will be examined. An estimation period is defined as a period before the event window, which is sufficiently long to enable the parameters of the chosen return-generating process to be properly estimated (Aktas et al., 2007). Generally, the event period itself is not included in the estimation period to prevent the event from influencing the normal performance model parameter estimates (MacKinlay, 1997). The event day is the day on which the event of interest is publicly announced.

The rationale behind the event study methodology is that the effects of an event are reflected in security prices immediately (Bodie et al., 2018). Event studies quantify an event's economic impact on abnormal returns. Abnormal returns are calculated by deducting the returns that would have been realized if the analyzed event would not have taken place (normal or predicted returns) from the actual returns of the stocks (Fama et al., 1969). While the actual returns can be empirically observed, the normal returns need to be estimated. For this, the event study methodology makes use of expected return models (Bodie et al., 2018). The market model is the most frequently used expected return model. Event study tests whether the abnormal return is statistically different from zero. The impact of the event can be perceived if non-zero abnormal returns and the CARs exist after the release of the information for the event (Fama et al., 1969).

### **Review of Empirical Studies**

The empirical analyses of the stock market response to M&A announcements show no evidence of wealth formation, with the acquired firm's shareholders benefiting at the cost of the acquiring firm's shareholders (Houston & Ryngaert, 1994). Likewise, the operating performance of consolidated banks after acquisition tends to have little or no change as compared to non-merged firms (Berger et al., 1999; Piloff, 1996). Considering the rapid speed of bank mergers, the lack of empirical proof of efficiency improvements is surprising.

Asquith (1982) discovered that during the event times, the stock prices of acquiring companies are unaffected or not substantially impacted by M&A announcements. Jensen and Ruback (1983) found that the shareholders of the bidding company earn a small but significant benefit. Desai and Stover (1985) and James and Weir (1987) discovered that acquiring firms in banking acquisitions earned positive abnormal returns. Negative reactions in the stock prices of bidding banks were stated by

Neely (1987), Hannan and Wolkan (1989), Baradwaj et al. (1990) and Cornett and Tehranian (1992). According to Houston and Ryngaert (1994), samples that focus on larger acquisitions are more likely to find negative acquirer returns.

Bharath and Wu (2005) looked at the instability and loss of bidders in the context of M&A and discovered that over time, the systematic volatility and beta started to decrease. Kumar and Prabina (2007) investigated the post-merger performance of Indian companies and discovered that performance increases after mergers. McGowan and Sulong (2008) discovered that target firm stockholders received substantial abnormal returns not only during the announcement time but also in the weeks following it. According to Liang (2009), the announcement of a merger and acquisition is not important for US firms during the event time (from 10 days before the merger to 10 days after the merger), but it is significant for Chinese companies during the 10 days leading up to the announcement day.

Taking the data of the period 1995-2005, Chuang (2010) investigated the effect of investor security and bank regulation on shareholder capital around M&A announcements in the financial sector. Over a three-day (-1,+1) event window, targets, acquirers, and combined firms received 13.25 percent, -0.63 percent, and 0.39 percent cumulative abnormal returns, respectively.

To assess managerial performance, Reda (2013) looked at the effect of mergers and acquisitions on Egyptian banks. She contrasted the outcomes of two periods: the pre-consolidation time (2000-2003) and the post-consolidation time (2007-2010). The hypothesis was that banking performance increased after M&A, and the empirical investigation was designed to test the hypothesis. The finding confirmed that even though managerial performance, capital-base, and risk are improved after mergers, the banks' intermediation role and profits remained poor.

It is often said that acquired companies are financially constrained before acquisition and that these constraints are improved after the consolidation. Erel et al. (2015) used a wide sample of European acquisitions to show that the amount of cash held by target companies, the sensitivity of cash to cash flow, and the sensitivity of investment to cash flow all decreased after the acquisition, while investment increased. These results were more pronounced in transactions that were more likely to include funding improvements. Acquisitions, according to their findings, alleviate financial frictions in acquired firms, particularly when the acquired firm is small. Patel (2018) found a negative impact of the merger on return on equity, return on assets, net profit ratio, yield on advance and yield on investment. However, variables, namely, the earnings per share, profit per employee and business per employee have shown a positive trend and grown after the merger.

Gurung (2013) has discovered that the current practice of bank mergers in Nepal has no problem. The study also discovered some barriers to the merger, such as difficulty in identifying suitable partners, extensive legal procedures and processes other issues include difficulties in valuing assets and evaluating the creditworthiness of acquisition partners and handling the BOD portfolio and management. The author, therefore, suggested that the NRB update some of its laws and take appropriate measures to minimize all of these problems to accelerate the consolidation practice.

There are no consistent findings in the literature related to the effect of the merger deals declarations. Studies by Asquith (1982) and Padmavathy and Ashok (2012), for example, found that there are no major differences in share price movements with the impact of merger announcement nor do there be any substantial abnormal return during the event window. On the other hand, Baradwaj et al. (1990), Cornett and Tehranian (1992) and Houston and Ryngaert (1994) found that the stock prices of acquirer firms

reacted negatively to the announcement of mergers. However, James and Weir (1987) reported substantial positive abnormal returns to the acquirer companies. Studies in the Nepali context by Sharma (2018) and Acharya (2020) found a positive impact of mergers on the performance of financial institutions while the studies by Dwa and Shah (2017) and Chhetri and Baral (2018) found no such effect. On the other hand, in contrast to mergers between smaller financial institutions, positive effects of mergers are found if bigger and stable parties including commercial banks are bidders (Shrestha, et al, 2017).

There are ample evidences for a comprehensive account of banks mergers in developed countries and a few of the emerging ones, but less of Nepal (Acharya, 2020; Chhetri & Baral, 2018; Dwa & Shah, 2017; Gurung, 2013; Pathak, 2013; Sharma, 2018; Shrestha, et al., 2017), signifying the requirement for further research in the Nepali context.

## DATA AND METHODS

The study used descriptive and causal research designs. The event analysis approach is used, which is based on a market model to determine if there were any abnormal returns associated with the merger announcement date. Three datasets are used for the determination of abnormal returns and the analysis of the impact of cross-sectional variables on cumulative abnormal returns. Datasets contain details and records of M&As, the regular stock prices of both bidder and target financial institutions as well as the sub-indices of stock markets namely, banking, development banks and finance sub-indices. The data of M&A events were obtained from the Nepal Rastra Bank. The daily stock prices of individual firms and sub-indices were extracted from the website of the Nepal Stock Exchange (NEPSE). The stock prices of some of the merged financial institutions are missing from the website of NEPSE. Such data were obtained visiting the office of the Security Board of Nepal (SEBON).

The study covers the M&A cases that occurred from 2004 to 2013. The following filters have been applied to a preliminary sample: (1) the M&A transaction is completed; (2) the acquirer and target are listed in the NEPSE; and (3) the acquirer is active and has stock price data either on the NEPSE website or available in the SEBON office. A total of 22 M&A deals met the above selection criteria; therefore, the sample of this study includes all these 22 M&A cases. A total of 48 financial institutions were involved in these 22 M&A deals, and after the successful mergers, they were confined to 20 financial institutions.

The announcement date of M&A is considered as the event date. The date on which the merging partners jointly apply for the merger in Nepal Rastra Bank has been considered as the announcement date for this study. The event window, the period over which abnormal returns are calculated, varies widely. Baradwaj et al. (1990) analyze the abnormal returns and CARs of acquiring and acquired firms for using an event window period of 11 days, from five days before to five days after the announcement. Kaen and Tehranian (1989) and Padmavathy and Ashok (2012) analyze abnormal returns on the stock of the acquiring firms using the event window periods for 10 days before and for 10 days after the announcement. Based on this evidence, it is considered that the statistic power of the event study methodology is maintained through the 21 days after the announcement date [-10 to +10 trading day].

The estimation period is the duration of time that the stock prices of the companies involved in the M&A announcement are examined. The literature indicates that the estimates vary considerably from 41 days to 239 days (Wall & Gup, 1989; Desai & Stover, 1985). James and Wier (1987) used 80 days to 11 days before the announcement as an estimation period. Hannan and Wolken (1989) analyze by using

Market Model, over the 90-15 days' period preceding the merger declaration. Padmavathy and Ashok (2012) used the estimation period of -70 to -10 days and the event period of -10 to +10 days in their study. Considering the above discussion, this study has used an estimation period of -90 to -11 trading days (from 90 trading days before the merger announcement date to 11 trading days before the announcement date). This gives a total of 80 observations for an estimation purpose. The estimation period of the current study could not be extended beyond -90 days because of lacking trading data of some sampled financial institutions. Mackinlay (1997) excludes event window from estimation time to prevent the event itself from affecting parameter estimation. Following Mackinlay's (1997) estimation, this study also omitted the event window from the estimation time-span.

The expected or normal return is the return predicted if an event like a merger did not occur. The expected returns are modeled in various ways. The single-index model, the market model, and the CAPM model are the most common. Due to the problem of obtaining an accurate risk-free rate, the CAPM model is not used for this study. The market model is superior to the single-index model (Campbell et al., 1997). Therefore, this paper used the market model. The market price ( $P_m$ ) is proxied using the NEPSE respective sub-indices data. The market model takes as its principle the linear relationship between security return and market portfolio return as follows:

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (1)$$

Where,  $E(R_{it})$  is the expected return on stock  $i$  at time  $t$ ;  $\alpha_i$  is a stable component of security returns and is constant over time,  $\beta_i$  is the market risk coefficient for stock  $i$  systematic risk measurements and is considered to be stable over time,  $R_{mt}$  represents the market return on day  $t$  proxied by the return on the respective NEPSE sub-indices, and  $\varepsilon_{it}$  is the residual term. The abnormal return is calculated as follows:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}) \quad (2)$$

Where,  $AR_{it}$  is the abnormal return for stock  $i$  at time  $t$ ,  $R_{it}$  is the actual return on stock  $i$  at time  $t$ , and  $(\alpha_i + \beta_i R_{mt})$  stands for theoretical or expected returns for stock  $i$  at time  $t$ .

Average aggregate abnormal return (AAR) on day  $t$  is the mean value of summed abnormal returns of sample firms ( $N = 50$ ), which is calculated as follows:

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_{it} \quad (3)$$

Cumulative abnormal return (CAR) over the event window was calculated by summing up the abnormal returns for each day in the event window.

$$CAR_i(T_1, T_2) = \sum_{t=T_1}^{T_2} AR_{it} \quad (4)$$

Where  $CAR_i(T_1, T_2)$  is the cumulative abnormal return for firm  $i$  over the specified event window  $(t_1, t_2)$ . Average aggregate cumulative abnormal return (ACAR) is derived as:

$$ACAR_i(T_1, T_2) = \frac{1}{N} \sum_{i=1}^N CAR_i(T_1, T_2) \quad (5)$$

The actual return on stock is calculated as:

$$R_{it} = (P_{it} - P_{it-1}) / P_{it-1} \quad (6)$$

Where  $R_{it}$  is the actual return of stock  $i$  on day  $t$ ,  $P_{it}$  is the share price of stock  $i$  on day  $t$  and  $P_{it-1}$  is the previous day share price of stock  $i$ , i.e. on day  $t-1$ .

The return of the market index is calculated as follows:

$$R_{mt} = (P_{mt} - P_{mt-1}) / P_{mt-1} \quad (7)$$

Where  $R_{mt}$  is the return of the market portfolio on day  $t$ ,  $P_{mt}$  is the market price (replaced by NEPSE sub-index value) on day  $t$ , and  $P_{mt-1}$  is the market price (replaced by NEPSE sub-index value) on day  $t-1$ .

The market's response to the announcement of a financial institution merger could be influenced by several factors. The CARs on merger announcement were

regressed on factors that the literature indicates are essential to monitoring for influences. These variables include the pre-merger performance of each partner, relative market size, activity, and geographic focus (DeLong, 2001). Two models were run. The first and second models used CARs for the acquirers and CARs for the combined partners respectively as dependent variables.

Literature shows that the success of partners before a merger may impact the abnormal returns on the announcement. Palepu (1986) revealed that companies with poor stock performance are more likely to takeover by other companies, and Cybo-Ottone and Murgia (2000) stated that both partners underperform the market in the year leading up to the merger announcement. This paper calculates pre-merger performance using the return of financial institutions for 90 to 11 days before the merger announcement minus the return on the respective NEPSE Sub-Index over the same period.

James and Wier (1987) observed that the relative size of the target to acquirer has a positive relationship with the acquirer's returns. The log of the relative size of the target to acquire was measured by market equity values ten days before the merger announcement. Market equity = (price on -10 day) x (number of shares outstanding). The relative size is defined as the natural logarithm of the ratio of target firms' market value of equity 10 days before an announcement to that of an acquirer firm.

Morck et al. (1990) found that divergent mergers deteriorate value in manufacturing firms, and DeLong (2001) revealed that diversifying financial institutions mergers drop value on the announcement. Following the outcome of Morck et al., this paper incorporates a correlation coefficient on the partners' stock returns taking data from 90 to 11 days before the merger announcement.

Houston and Ryngaert (1994) and DeLong (2001) found that when both parties are located in the same town, the market responds more favorably to bank mergers than when they are from different towns. To see the influence of geographic diversification, a dummy variable has been included in the model. If the merger partners' head offices are in the same town, the dummy variable in the model equals 1; otherwise, it equals 0.

Based on the above discussion, the following model has been developed to analyze the influence of cross-sectional variables on CARs:

$$CAR = \alpha + \beta_1 ACQ\_PERF + \beta_2 TARG\_PERF + \beta_3 REL\_MV + \beta_4 CORREL\_COEF + \beta_5 IN\_CITY \quad (8)$$

Where,

ACQ\_PERF = pre-merger performance of the acquirer

TARG\_PERF = pre-merger performance of the target

REL\_MV = (ln) relative market value

CORREL\_COEF = correlation coefficient of partners' stock returns

IN\_CITY = dummy to indicate partners with headquarters in the same city.

### Research Hypotheses

The study attempts to analyze whether merger announcements of Nepali financial institutions have a significant impact on the stock returns. Following null hypotheses have been framed to examine whether the cross-sectional variables significantly impact the stock returns. The t-test is used to test the hypothesis.

H<sub>1</sub>: There is no significant influence of the pre-merger performance of acquirer on cumulative abnormal returns of acquirers.

H<sub>2</sub>: There is no significant influence of the pre-merger performance of target on cumulative abnormal return of the acquirer.

H<sub>3</sub>: There is no significant influence of relative market value on the cumulative abnormal return of acquirer.



H<sub>4</sub>: There is no significant influence of correlation coefficient on partners' stock returns on the cumulative abnormal return of the acquirer.

H<sub>5</sub>: There is no significant influence of geographic focus on the cumulative abnormal return of the acquirer.

**RESULTS AND DISCUSSION**

**Stock Market Reaction to Announcements of Mergers**

This section analyzes the stock market reaction to the announcement of financial institutions' mergers by using the event study method. Table 1 summarizes the significant test results of individual cases' accumulated abnormal returns (CARs) for various event window spans.

Laxmi Bank, Pashupati, Development Bank, Prudential Finance, National Finance, Nepal Bangladesh Bank (2<sup>nd</sup>), Himchuli Bikas Bank and Diyalo Bikas Bank had significant negative CARs in different event window periods. Among them, Laxmi Bank and Pashupati Development Bank had the highest number of significant cases. Both of them had five cases of significant negative CARs during the event window period. Laxmi Bank had its CARs significantly negative for five window periods of (-5,+5), (-10,+10), (-10,-1), (+1,+10) and (-10,+1). Pashupati Development Bank had also its CARs significantly negative for four event window periods of (-5,+5), (-10,+10), (-10,-1) and (-10,+1).

**Table 1**  
*Individual Firm's Cumulative Abnormal Returns (CARs) over Different Window Periods*

Name of acquirer financial institutions	CAR (-2,+2) [t-value]	CAR (-5,+5) [t-value]	CAR (-10,+10) [t-value]	CAR (-10,-1) [t-value]	CAR (+1,+10) [t-value]	CAR (-10,+1) [t-value]
Degree of freedom	3	9	19	9	9	10
Table value (two-tails)	3.182	2.262	2.093	2.262	2.262	2.228
Laxmi Bank Ltd.	-5.57 (-1.70)	-14.70* (-3.83)	-40.32* (-4.75)	-28.41* (-3.68)	-11.91* (-10.18)	-29.56* (-3.76)
Nepal Bangladesh Bank (1 <sup>st</sup> ) <sup>a</sup>	0.63 (0.17)	9.80 (0.91)	14.19 (0.90)	-6.48 (-0.90)	20.67 (1.58)	-3.68 (-0.46)
National Finance Ltd.	-26.43 (-3.17)	71.72 (0.58)	49.01 (0.40)	104.67 (0.88)	-55.65* (-5.83)	93.79 (0.78)
Nepal Bangladesh Bank (2 <sup>nd</sup> ) <sup>a</sup>	1.83 (0.55)	-9.88 (-1.10)	-29.51* (-2.15)	3.86 (0.81)	-33.37* (-3.36)	4.11 (0.87)
Himchuli Dev Bank Ltd.	15.91 (1.64)	10.01 (0.72)	-16.44 (-0.89)	8.72 (0.60)	-25.16* (-2.77)	11.94 (0.81)
Business Dev Bank	3.02 (0.51)	-9.35 (-0.75)	19.87 (1.16)	15.02 (0.90)	4.86 (0.98)	17.96 (1.07)
Kasthamandap Dev Bank	-3.37 (-0.41)	-9.82 (-1.13)	-9.64 (-0.90)	0.36 (0.06)	-10.00 (-1.12)	4.92 (0.65)

Abnormal Returns around Mergers and Acquisitions in the Nepali Stock Market

Machhapuchchhre Bank Ltd.	13.96 (1.02)	14.46 (0.98)	14.63 (0.91)	-6.63 (-0.95)	21.26 (1.58)	3.28 (0.26)
Global Bank Ltd.	19.19 (1.50)	41.35* (2.44)	35.18 (1.63)	-2.82 (-0.53)	38.00 (1.97)	6.98 (0.61)
Infrastructure Dev Bank	4.65 (0.40)	-30.82 (-1.65)	-22.75 (-0.87)	-3.94 (-0.26)	-18.81 (-0.86)	-5.95 (-0.39)
Annapurna Bikas Bank	-7.56 (-0.48)	-18.81 (-1.00)	-17.50 (-0.80)	-1.59 (-0.09)	-15.90 (-1.15)	-3.33 (-0.19)
Pashupati Dev Bank	-20.40 (-2.49)	-42.51* (-3.55)	-48.21* (-2.65)	-34.15* (-4.25)	-14.05 (-0.87)	-43.13* (-4.43)
Butwal Finance	5.02 (1.49)	24.27* (3.29)	40.76* (4.11)	19.59* (2.47)	21.18* (3.32)	19.01* (2.29)
Vibor Bikash Bank	-14.06 (-1.37)	-18.26 (-1.17)	-29.41 (-1.78)	-6.93 (-1.17)	-22.48 (-1.45)	-17.47 (-1.52)
Prudential Finance Co.	-6.23 (-0.55)	-23.59 (-1.79)	-34.43* (-2.16)	-6.24 (-0.60)	-28.19* (-2.46)	-6.83 (-0.66)
NIC Bank Ltd	16.89 (1.34)	35.92 (2.25)	32.78 (1.75)	0.19 (0.05)	32.59 (1.90)	9.61 (0.94)
Diyalo Bikas Bank	-10.18* (-4.29)	15.69 (1.10)	8.03 (0.49)	-3.99 (-0.46)	12.02 (0.87)	-6.08 (-0.70)
Araniko Dev Bank	26.40* (4.86)	42.51* (3.03)	36.68 (1.49)	-1.43 (-0.12)	38.11 (1.88)	3.23 (0.25)
Royal Merch Banking and Finance	29.60* (3.26)	35.75 (1.72)	51.96 (2.01)	19.73 (1.62)	32.23 (1.38)	32.64 (2.00)
Global IME Bank	-2.52 (-0.29)	-9.67 (-1.10)	-17.29 (-1.55)	-10.00 (-1.34)	-7.29 (-0.85)	-4.20 (-0.42)
Prabhu Finance	-0.48 (-0.04)	-1.92 (-0.18)	44.07* (2.16)	5.22 (0.59)	38.85* (2.26)	12.69 (1.13)
Manakamana Devt Bank	21.13 (2.21)	52.10* (3.55)	67.35* (3.06)	14.19 (1.25)	53.15* (3.08)	23.06 (1.70)

Note. The figures in parentheses are *t*-statistics. For the given degree of freedom, *t*-values greater than the respective table values are significant at a 5% level. Rows 2 and 3 show the degree of freedom and table value (two-tails) for each CAR, respectively. The CAR values are all expressed in percent.

<sup>a</sup> Nepal Bangladesh Bank merged twice. The first merger (with Nepal Bangladesh Finance) is denoted by "1<sup>st</sup>," while the second merger (with Nepal Srilanka Merchant Finance) is denoted by "2<sup>nd</sup>".

\**p* < .05.

Butwal Finance, Manakamana Development Bank, Araniko Development Bank, Prabhu Finance, Global IME and Royal Merchant Banking and Finance had significant positive CARs during the different window periods. Butwal Finance had significant positive CARs on the event period of (-5,+5), (-10,+10), (-10,-1), (+1,+10) and (-10,+1).

Similarly, Manakamana Development Bank had significant positive CARs on (-5,+5), (-10,+10) and (+1,+10) window periods.

The CARs were negative for the majority of the event window times. However, they were significant only in a few instances. Among 22 financial institutions, seven had significant negative CARs and six had significant positive CARs in different event window periods. The remaining nine financial institutions did not earn significant CARs in any of the event window periods.

The study shows that, with just a few exceptions, none of the merger announcements resulted in a substantial CAR, regardless of the event duration. The findings are consistent with those of Padmavathy and Ashok (2012), who found that the announcement of a merger has no substantial effect on share price movements and that the acquiring companies' shareholders receive no significant abnormal return over the event window of 21 days (i.e., -10 to +10). However, the findings do not match with those of Desai and Stover (1985) and James and Weir (1987), who found significant positive abnormal returns to bidding firms in banking acquisitions.

### **Effect on Abnormal Returns from Cross-Sectional Variables**

The abnormal returns on the announcement of mergers could be influenced by several factors. In light of this, the regressions model was run considering the cumulative abnormal returns (CARs) during the announcement period as the dependent variable and different cross-sectional variables namely, the acquirer's pre-merger performance, the target's pre-merger performance, relative market size, correlation coefficient on partners' stock returns, and geographic emphasis as independent variables. The cross-sectional model is specified and presented in Equation 8 in the methodology section. The NEPSE Sub-Indices are used as proxies to compute abnormal returns. CARs for acquirers and CARs for combined partners have been regressed on cross-sectional factors separately.

### **Test of Key Assumptions of Linear Regression for Model 1**

The several key assumptions of linear regression have been tested before running a regression model. Pearson's Bivariate Correlation, run to test the linearity assumptions for Model 1, found that only one variable has a significant correlation coefficient with the dependent variable ( $r = .491$ ;  $p = .043$ ). This result indicated there might be a problem with this assumption. To be confirmed, scatter plots were checked next. The scatter plots exhibited random patterns which indicated no correlations, which could be considered acceptable, to run a linear regression.

The histogram with a fitted normal curve showed that the residuals are normally distributed; scatter plots of residuals against predicted values showed random pattern; Normal P-P Plot of regression standardized residual did not scatter or deviate; Kolmogorov-Smirnov test resulted to have  $p = .783$ . All these results support that the normality has been met. As the scatter plots of residuals against predicted values did not show any pattern, it also fulfilled the assumption of homoscedasticity.

The DW statistic was found to be near 2, and scatter plots also exhibited random patterns, which indicate that there is no problem regarding autocorrelation. The variance Inflation Factor (VIF) of explanatory variables were found to be less than 2, Tolerance level found to be more than 0.1 for all predictors, and Pearson's Bivariate Correlation among independent variables found to be quite smaller than 1, which indicate the absence of multicollinearity.

### Test of Key Assumptions of Linear Regression for Model 2

The linear relationship between the dependent variable and each of the independent variables, multivariate normality, autocorrelation, multicollinearity and heteroscedasticity assumptions of Model 2 has also been tested and found the results similar to that of Model 1, therefore, the results are not repeated here. As the models fulfilled the assumptions, CAR (Y) has been regressed on the above-mentioned five cross-sectional variables.

### Analysis of the Models

The regression results are summarized in Table 2. It shows the results of the cross-sectional regressions estimated with two dependent variables - CARs for the acquirers and CARs for the combined partners. The t-statistics are in the parentheses. The intercept represents the portion of returns that is not explained by the other independent variables.

**Table 2**

*Impact of Cross-Sectional Variables on the CARs of Acquirers and Combined Partners*

Independent Variables	Acquirers (Model 1)	Combined (Model 2)
(Constant)	24.85** [3.74]	8.49 [1.62]
Pre-merger performance of acquirer	-9.98 [-1.22]	-3.58 [-.55]
Pre-merger performance of target	14.65* [2.2]	2.06 [.39]
(ln)Relative market value (MV of target/MV of acquirer)	6.8* [2.33]	2.77 [1.20]
Correlation coefficient of partners' stock returns	-34.41 [-1.34]	-3.22 [-.16]
Head office of merger partners in the same city (dummy)	-11.04 [-1.19]	-1.81 [-.25]
R <sup>2</sup>	.623	.313
F-statistic	2.79*	.477

*Note. The t-value of each variable is given in parenthesis.*

*\*\*p < .01. \*p < .05.*

The model for acquirers is shown in the second column of Table 2. Three of the five independent variables tested in Model 1 - acquirer pre-merger performance, correlation coefficient on partners' stock returns, and merger partners' head offices in the same city - have negative impacts on acquirer CARs, while two variables, target pre-merger performance and relative market value, have a positive impact. Two of the five variables, the target's pre-merger performance and relative market value, are significant at a 5 percent level. As a result, the findings show that the target's pre-merger performance and relative market value have a positive impact on acquirers' CARs. The significantly positive beta coefficient for target pre-merger performance suggests that the acquirers'

CARs are higher when the target performs well before the merger. As a result, the second null hypothesis, that 'the pre-merger performance of the target has no significant effect on the acquirer's CAR,' is rejected. Similarly, the significantly positive beta coefficient for relative market value indicates that the acquirers' CARs would be higher if the relative market value was higher. The third null hypothesis, that 'relative market value has no major impact on acquirer's CAR,' is rejected. According to the findings, the pre-merger performance of target, and relative market value are the most significant cross-sectional variables affecting acquirers' CARs. The pre-merger performance of acquirers is not significant at 0.05 level, so the first null hypothesis that 'there is no significant effect of acquirer pre-merger performance on cumulative abnormal returns of acquirers' could not be rejected. Similarly, the coefficient of partners' stock returns is also not significant at a 5 percent level leading to accept the fourth null hypothesis that 'there is no significant influence of correlation coefficient on partners' stock returns on CAR of the acquirer.' In the same way, the variable 'geographic focus' is also not significant at a five percent level leading to failure to reject the fifth null hypothesis that 'there is no significant influence of geographic focus on CAR of the acquirer.' The  $R^2$  of 0.623 indicates that the independent variables in the model describe 62.3 percent of the variance in the dependent variable. F-statistic is significant at a 5 percent level, indicating that the model is well fitted.

The model for combined partners is shown in the third column of Table 2. Three of the five independent variables tested in Model 2 have a negative relationship with the CARs of combined partners, namely the acquirer's pre-merger performance, the correlation coefficient on partners' stock returns, and the geographic location of the head offices of merger partners, while two variables, namely the target's pre-merger performance and relative market value, have a positive relationship with the CARs. But the regression coefficients of all the five independent variables are not significant to explain the dependent variable. The results imply that there is no influence of cross-sectional variables on the CARs of combined partners at the announcements of M&A. The  $R^2$  of Model 2 resulted in only 0.313. F-statistic is not significant even at a 10 percent level. As the model is not fitted well, the results should be taken cautiously.

## CONCLUSION

This paper assesses the abnormal returns of financial institutions around the merger announcements. Abnormal returns refer to the added effect of M&A on stock returns on top of normal market returns. The abnormal returns are then cumulated for different window periods to analyze the possible price effects during the merger announced period. It is found that the individual acquirers' CARs for various window periods are negative but not significant in most of the window periods. The negative CARs are significant in a very few cases only, meaning that with few exceptions, none of the merger announcements produce significant CARs regardless of the different window periods used. From this evidence, it is concluded that the stockholders do not receive substantial abnormal returns during the announcement period. This means the Nepali stock market is indifferent to the merger announcements.

Only two cross-sectional variables - pre-merger performance of target and relative market value - have a significant influence on the CARs of the acquirer at the announcement of the merger. However, no cross-sectional variables have a significant influence on the CARs of combined partners at the announcement of the merger.

The findings indicate the Nepali financial institution consolidations have resulted in only an increase in paid-up capital and no additional benefits. Management is,

therefore, suggested to develop strategic planning for selecting the strategic partner to attain benefits such as synergy, economies of scale, and cost savings from their M&A.

The reason the market is indifferent to merger announcements is either the event is an irrelevance or leakage of the information of mergers before publicly announced due to insider trading. In the latter case, only insiders and their relatives or close friends would be benefited from such information. This would be very injustice to general shareholders and investors. Therefore, policymakers are recommended to mandate financial institutions to disclose merger information in a timely fashion and simultaneously to all market participants, without giving room for inside trading. With the advancements in information technology, information may be communicated directly and in real-time to shareholders without the need for an intermediary. It is also advised that using press releases to communicate information is the best way to achieve timeliness and non-exclusivity.

Further research is recommended to look into the patterns of changes in trading volume, stock volatility, and bid-ask spreads after M&A announcements, as this has not been done in the Nepali context.

The event study method needs regular transactions of shares during the event window period. The trading of shares of some sampled financial institutions was found to be irregular. This is the major limitation of this study.

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