Impact of Stock Market Volatility on Bank Performance in Nepal: A Case of Nepalese Commercial Banks

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Abstract

This study examines the impact of stock market volatility on the performance of Nepalese commercial banks. Return on equity and return on assets are selected as the dependent variables. The selected independent variables are dividend per share, earnings per share, loan to deposit ratio, leverage, market price per share, and P/E ratio. The study is based on secondary data with 105 observations for the period of 2015/16 to 2021/22. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank and annual reports of respective commercial banks. The correlation coefficients and regression models are estimated to test the significance and importance of stock market volatility on the performance of Nepalese commercial banks.

The study showed that market price per share has a positive impact on return on equity and return on assets. It indicates that increase in market price per share leads to increase in return on equity and return on assets. Similarly, loan to deposit ratio has a negative impact on return on equity and return on assets. It indicates that increase in loan to deposit ratio leads to decrease in return on equity and return on assets. Likewise, earnings per share have a positive impact on return on equity and return on assets. It indicates that increase in earnings per share leads to increase in return on equity and return on assets. Further, dividend per share has a positive impact on return on equity and return on assets. It indicates that increase in dividend per share leads to increase in return on equity and return on assets. In addition, leverage has a negative impact on return on equity and return on assets. It indicates that increase in leverage leads to decrease in return on equity and return on assets. Likewise, P/E ratio has a positive impact on return on equity and return on assets. It indicates that increase in P/E ratio leads to increase in return on equity and return on assets.

Keywords: Market price per share, earning per share, dividend per share, loan to deposit ratio, price earnings ratio, leverage, return on equity, return on assets

1. Introduction

Stock market volatility is a measure of how much the stock market's overall value fluctuates up and down. The banking sector plays a crucial role in the economic development of a country, and the performance of commercial

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banks is often used as an indicator of the overall health of the economy (Yadav and Sharma, 2018). The banking sector is critical to the country's economic development. Stock market refers to several exchanges in which shares of publicly held companies are bought and sold. Such financial activities are conducted through formal exchanges and via over-the-counter (OTC) marketplaces that operate under a defined set of regulations. The stock market is a component of a free-market economy. It allows companies to raise money by offering stock shares and corporate bonds and allows investors to participate in the financial achievements of the companies, make profits through capital gains, and earn income through dividends. The stock market works as a platform through which savings and investments of individuals are efficiently channeled into productive investment opportunities and add to the capital formation and economic growth of the country.

Wagle (2021) investigated the equity share investment as one of the key investment paths that provide significant returns for investors; however, unusual stock price volatility causes confusion for investors as well as problems for policymakers and government authorities. The findings revealed that the market to book, price-earnings, and earning yield ratios all have significant and positive relationship with the stock market price. In contrast, the dividend yield ratio has a positive but minor impact on stock market price. Similarly, Singh (2018) investigated the stock price as one of the primary indicators of firm performance and the sole factor determining shareholder wealth. The study revealed that stock price changes are influenced by information about the company and the market as a whole. Likewise, Prayogo and Lestari (2018) examined the impact of the stock price on return on assets, earnings per share, and price to earnings ratio at companies in the banking subsector listed on the Indonesian Stock Exchange. The study found that Earnings per Share (EPS), and Price to Earnings Ratio (PER) have positive impact on return on assets. Further, Figeac (2017) investigated the determinants of selected European bank stock prices. The findings of the study showed that gross domestic product, household disposal income, labor productivity, and industry productivity have positive and significant impact on financial performance of the banks. In addition, Staikouras and Wood (2003) examined the determinants of bank profitability in the EU for the period 1994-1998. The study showed that profitability of European banks influenced by factors related to changes in the external macroeconomic environment. The study also revealed that higher capitalization fosters bank's Return on Average Assets, while the efficient expense management is one of the most significant factors in explaining low bank's return on average assets. Similarly, Shen and

Lu (2008) investigated the effect of ownership on Chinese bank profitability and risk. The result showed the profitability of joint-stock commercial banks and city commercial banks are higher than state-owned and policy banks.

Fadzlan and Khazanah (2009) examined the determinants of profitability of four stateowned and twelve joint-stock commercial banks during the period 2000-2007. The study found that size, credit risk and capitalization are positively related to profitability, while liquidity, overhead cost and network embeddedness have negative impact on performance of the banks. The results also showed that there is a positive impact of economic growth and inflation on bank profitability. Furthermore, the empirical findings indicated that state-owned commercial banks are the main drag of bank profitability in China whereas joint-stock commercial banks tend to be more profitable. Further, Heffernan and Fu (2008) examined the determinants of performance for four different types of banks (state-owned, joint-stock, city commercial and rural commercial banks). The empirical findings revealed that bank listing and efficiency exert significant and positive influence on bank performance. Likewise, Albertazzi and Gambacorta (2009) investigated the influence of stock market volatility on bank performance. The study showed that net interest income, non-interest income, provision and return on equity are positively related to stock market volatility, while the stock market volatility is negatively related to profit before Tax. Similarly, Floros and Tan (2012) concluded that price variation in stock market create risk and every rationale investor tries to save himself from that risk. Thus, in presence of high volatility, investors would hesitate to invest in stock exchange; rather, they would try to find other investment opportunities with some return, e.g., term deposits and fixed deposits. According to Floros and Tan (2012), stock market volatility affects positively, the performance of banks in China. Likewise, Albertazzi and Gambacorta (2010) revealed that non-interest income, profit after taxes and provisions are directly related to stock market volatility and, net interest income is inversely related to stock market volatility. Further, Floros and Tan (2012) examined the impact of stock market volatility on banks' performance. The study found that there is a positive relationship between stock market volatility and banks' profitability.

In the context of Nepal, Saud and Shakya (2020) investigated the stock market prediction. The study found that earning per share, dividend per share, and loan to deposit ratio have positive and significant impact on performance of banks proxies by return on assets and return on equity. Similarly, Bajracharya (2020) investigated the factors influenced Nepalese

commercial bank share prices. The study found that internal factors such as earnings per share, dividend per share, and price earnings ratio have positive and significant relationship with market price per share. However, the external factor 'inflation rate' has a negative but significant relationship with the market price per share. Nepalese commercial banks have traditionally been focused on deposit-taking and lending activities, but in recent years they have been expanding their operations to include other financial services such as insurance, foreign exchange, and investment banking. The Nepalese commercial banking sector is relatively concentrated, with a few large banks dominating the market (Yadav and Sharma, 2018).

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

The major objective of the study is to examine the impact of stock market volatility and bank performance in Nepal: A case of Nepalese commercial banks. Specifically, it examines the relationship of dividend per share, earnings per share, loan to deposit ratio, leverage, market price per share, and P/E ratio with performance of Nepalese commercial banks.

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

2. Methodological aspects

The study is based on the secondary data which were gathered from 15 commercial banks for the period of 2015/16 to 2021/22, leading to a total of 105 respondents. The study employed stratified sampling method. The main sources of data include Banking and Financial Statistics published by Nepal Rastra Bank and annual report of respective banks. Table 1 shows the list of commercial banks for the study along with the study period and number of observations.

Table 1

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

S. N.	Name of Commercial Banks	Study time Period	Observations
1	Nabil Bank Limited	2015/16-2021/22	7
2	Himalayan Bank Limited	2015/16-2021/22	7
3	Everest Bank Limited	2015/16-2021/22	7
4	Global IME Bank Limited	2015/16-2021/22	7
5	Prabhu Bank Limited	2015/16-2021/22	7
6	NIC Asia Bank Limited	2015/16-2021/22	7
7	Machhapuchchhre Bank Limited	2015/16-2021/22	7
8	Sanima Bank Limited	2015/16-2021/22	7
9	Nepal Investment Bank Limited	2015/16-2021/22	7
10	Kumari Bank Limited	2015/16-2021/22	7
11	Prime Bank Limited	2015/16-2021/22	7
12	Standard Chartered Bank Nepal Limited	2015/16-2021/22	7
13	Nepal Bank Limited	2015/16-2021/22	7
14	Nepal SBI Bank Limited	2015/16-2021/22	7
15	Laxmi Bank Limited	2015/16-2021/22	7
Total number of observations			**105**

Thus, the study is based on 105 observations.

The model

The model used in this study assumes that bank performance depends upon stock market volatility. The dependent variables selected for the study are return on equity and return on assets. Similarly, the selected independent variables are dividend per share, earnings per share, loan to deposit ratio, leverage, market price per share, and price earnings ratio. Therefore, the model takes the following form:

$$ROE = \beta_0 + \beta_1 LDR + \beta_2 LEV + \beta_3 EPS + \beta_4 DPS + \beta_5 MPS + \beta_6 PE + e_{it}$$

$$ROA = \beta_0 + \beta_1 LDR + \beta_2 LEV + \beta_3 EPS + \beta_4 DPS + \beta_5 MPS + \beta_6 PE + e_{it}$$

Where,

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

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

LDR = Loan to deposit ratio as measured by the ratio of company's total loan to total deposits, in percentage.

MPS = Market price per share is the average price of share in the market, in

Rupees.

LEV = Leverage refers to the use of debt (borrowed funds) to amplify returns from an investment, in percentage.

EPS = Earning price per share is the difference between net income and preferred dividend, divided by the average number of outstanding common stock, in Rupees.

DPS = Dividend per share is the sum of declared divided issued by the company, in Rupees.

P/E = Price to earnings ratio is the ratio of share price to earnings per share, in percentage.

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

Market price per share

Stock price is the reflection of company performance. Companies with good performance supposedly have good demand on its stock, hence boost the price and vice versa. Shamsudin *et al.* (2013) mentioned that the performance of a bank can be represented by performance of the bank share prices, as they often are good indicators of how well the banks are doing. Similarly, Fernandez (2001) found that MPS is positively correlated to return on equity. Similarly, Elliot (2006) found that market price per share is positively correlated to bank performance. Based on it, this study develops the following hypothesis:

H_1: There is a positive relationship between market price per share and bank performance.

Loan to deposit ratio

Yigermal (2017) analyzed the impact of bank specific and macro-economic factors on the financial performance of selected Ethiopian private commercial banks. The study concluded that credit to deposit ratio is negatively related to the financial performance. Similarly, Vellanita *et al.* (2019) revealed a negative relationship between credit to deposit ratio and return on equity. Likewise, Golubeva *et al.* (2019) showed that credit to deposit ratio has a negative relationship with return on equity. Further, Mohanty and Krishnankutty (2018) showed that credit to deposit ratio has a negative and significant relationship with return on asset. However, Steven and Toni (2020) found that credit to deposit ratio has a positive relationship with the financial performance. Similarly, Kowoon *et al.* (2022) showed that

there is a negative relationship between loan-to-deposit ratio and firm value. Based on it, this study develops the following hypothesis:

H_2: There is a negative relationship between loan to deposit ratio and bank performance.

Earnings per share

Earnings per share referred as the ratio of the profit after tax of the company for any financial year after the payment of preference. Setyowati *et al.* (2020) found that there is a positive relationship between earning per share and financial performance of banks. Similarly, Siauwijaya (2020) examined the effect of banking efficiency, earnings per share and price-earnings ratio towards the stock return of banking companies. The study found that earning per share has a positive impact on return on assets. Likewise, Ariana *et al.* (2023) revealed that earning per share has a positive impact on return on equity. Further, Rusdiyanto *et al.* (2020) showed that there is a positive relationship between earning per share and financial performance of banks. Based on it, this study develops the following hypothesis:

H_3: There is a positive relationship between earning price per share and bank performance.

Price earnings ratio

Price-to-earnings ratio (P/E ratio) is the ratio for valuing a company that measures its current share price relative to its per-share earnings (EPS). Mudzakar (2021) found that price to earnings ratio has a positive influence on firm performance. Similarly, Balan and Srinivasan (2017) found that there is a positive relationship between price to earnings ratio and firm performance. Likewise, Tandon and Malhotra (2013) found that price-earnings ratio has a positive and significant impact on firm performance. Further, Arslan *et al.* (2014) analyzed the impact of dividend yield and price earnings ratio on stock returns of non-financial listed firms of Pakistan. The study revealed that price earnings ratio has a significant positive impact on stock prices. In addition, Srinivasan (2012) revealed that price earnings ratio is the crucial determinant of share prices. Based on it, this study develops the following hypothesis:

H_4: There is a positive relationship between price to earnings ratio and bank performance.

Dividend per share

Arsal (2021) examined the impact of earnings per share and dividend

per share on firm value. The study found that there is a positive and significant relationship between dividend per share and firm value measured by return on assets and return on equity. Similarly, Nwamaka (2017) analyzed the effect of dividend policies on firm value. The study revealed that there is a positive and significant relationship between dividend per share and firm value measured by return on assets. Likewise, Santosa *et al.* (2020) revealed that there is a positive relationship between dividend policy (dividend per share) and firm value. Further, Umam and Halimah (2021) examined the effect of institutional ownership, independent commissioner, dividend policy, debt policy, and firm size on firm value. The study found that there is a positive relationship between dividend per share and return on equity. Moreover, Indriawati (2018) revealed that dividend per share has a partially positive relationship with firm value. Based on it, this study develops the following hypothesis:

H_5: There is a positive relationship between dividend per share and bank performance.

Leverage

Leverage is measured by the ratio of short-term debt to total assets ratio (SDAR) and assets to equity ratio (Kasmir, 2016). Shubita and Alsawalhah (2012) examined the relationship between leverage ratio and firm value. The study showed that there is a negative and significant relationship between leverage and firm value. Likewise, Khan (2012) found that there is a significant and negative relationship of leverage ratio with the firm value. Moreover, Fajaria and Isnalita (2018) found that leverage ratio has a negative impact on bank performance. Further, Muhammad *et al.* (2016) found that there is a negative relationship between leverage ratio and return on assets. In addition, Cheryta *et al.* (2017) found that there is a negative relationship between leverage ratio and firm value measured by return on equity. Based on it, this study develops the following hypothesis:

H_6: There is a negative relationship between leverage and bank performance.

3. Results and discussions

Descriptive statistics

Table 2 represents the descriptive statistics of selected dependent and independent variables during the period 2015/16 to 2021/22.

Table 2

Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 15 Nepalese commercial banks for the study period of 2015/16 to 2021/22. The dependent variables are ROE (Return on equity as measured by the ratio of net income to shareholders equity, in percentage) and ROA (Return on assets as measured by the ratio of net income to total assets, in percentage). The independent variables are LDR (Loan to deposit ratio as measured by the ratio of company's total loan to total deposits, in percentage), MPS (Market price per share is the average price of share in the market, in Rupees), LEV (Leverage refers to the use of debt (borrowed funds) to amplify returns from an investment, in percentage), EPS (Earning price per share is the difference between net income and preferred dividend, divided by the average number of outstanding common stock, in Rupees), DPS (Dividend per share is the sum of declared divided issued by the company, in Rupees) and P/E ratio (Price to earnings ratio is the ratio of share price to earnings per share, in percentage).

Variables	Minimum	Maximum	Mean	S.D
ROE	6.26	22.17	13.45	3.51
ROA	0.7	2.61	1.52	0.46
LDR	56.75	95.58	83.69	8.04
LEV	0.83	0.96	0.90	0.02
EPS	9.25	68.99	25.09	10.97
DPS	0	70	14.01	13.23
MPS	186	7743	657.50	884.57
PE	3.42	353.16	24.55	34.12

Source: SPSS Output

Correlation analysis

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

Table 3

Pearson's correlation coefficients matrix

This table shows the correlation coefficients of dependent and independent variables of 15 Nepalese commercial banks for the study period of 2015/16 to 2021/22. The dependent variables are ROE (Return on equity as measured by the ratio of net income to shareholders equity, in percentage) and ROA (Return on assets as measured by the ratio of net income to total assets, in percentage). The independent variables are LDR (Loan to deposit ratio as measured by the ratio of company's total loan to total deposits, in percentage), MPS (Market price per share is the average price of share in the market, in Rupees), LEV (Leverage refers to the use of debt (borrowed funds) to amplify returns from an investment, in percentage), EPS (Earning price per share is the difference between net income and preferred dividend, divided by the average number of outstanding common stock, in Rupees), DPS (Dividend per share is the sum of declared divided issued by the company, in Rupees) and P/E ratio (Price to earnings ratio is the ratio of share price to earnings per share, in percentage).

Variables	ROE	ROA	LDR	LEV	EPS	DPS	MPS	PE
ROE	1							
ROA	0.702**	1						
LDR	-0.166	-0.323**	1					
LEV	-0.038	-0.083	-0.202*	1				
EPS	0.685**	0.671**	0.401**	0.175	1			
DPS	0.409**	0.206*	0.007	0.034	0.535**	1		
MPS	0.290**	0.234*	0.340**	0.195*	0.436**	0.126	1	
PE	0.081	0.029	0.144	0.082	0.04	0.118	0.883**	1

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

Table 3 shows that loan to deposit ratio has a negative relationship with return on equity. It indicates that increase in loan to deposit ratio leads to decrease in return on equity. Similarly, leverage ratio has a negative relationship with return on equity. It indicates that increase in leverage ratio leads to decrease in return on equity. Further, earning per share has a positive relationship with return on equity. It indicates that increase in earnings per share leads to increase in return on equity. Likewise, dividend per share has a positive relationship with return on equity. It indicates that increase in dividend per share leads to increase in return on equity. In addition, market price per share has a positive relationship with return on equity. It indicates that increase in market price per share leads to increase in return on equity. Likewise, P/E ratio has a positive relationship with return on equity. It indicates that higher the P/E ratio, higher would be return on equity.

Similarly, loan to deposit ratio has a negative relationship with return on assets. It indicates that increase in loan to deposit ratio leads to decrease in return on assets. Similarly, leverage ratio has a negative relationship with return on assets. It indicates that increase in leverage ratio leads to decrease in return on assets. Further, earning per share has a positive relationship with return on assets. It indicates that increase in earnings per share leads to increase in return on assets. Likewise, dividend per share has a positive relationship with return on assets. It indicates that increase in dividend per share leads to increase in return on assets. In addition, market price per share has a positive relationship with return on assets. It indicates that increase in market price per share leads to increase in return on assets. Likewise, P/E ratio has a positive relationship with return on assets. It indicates that higher the P/E ratio, higher would be return on assets.

Regression analysis

Having analyzed the Pearson's correlation coefficients, the regression analysis has been carried out and the results are presented in Table 4 and Table 5. More specifically, Table 4 shows the regression results of dividend per share, earnings per share, loan to deposit ratio, leverage, market price per share, and P/E ratio on return on equity.

Table 4

Estimated regression results of dividend per share, earnings per share, loan to deposit ratio, leverage, market price per share, and P/E ratio on return on equity

The results are based on panel data of 15 Nepalese commercial banks with 105 observations for the period of 2015/16 to 2021/22 by using the linear regression model and the model is $ROE = \beta_0 + \beta_1 LDR + \beta_2 LEV + \beta_3 EPS + \beta_4 DPS + \beta_5 MPS + \beta_6 PE + e_{it}$ *where, the dependent variable is ROE (Return on equity as measured by the ratio of net income to shareholders equity, in percentage). The independent variables are LDR (Loan to deposit ratio as measured by the ratio of company's total loan to total deposits, in percentage), MPS (Market price per share is the average price of share in the market, in Rupees), LEV (Leverage refers to the use of debt (borrowed funds) to amplify returns from an investment, in percentage), EPS (Earning price per share is the difference between net income and preferred dividend, divided by the average number of outstanding common stock, in Rupees), DPS (Dividend per share is the sum of declared divided issued by the company, in Rupees) and P/E ratio (Price to earnings ratio is the ratio of share price to earnings per share, in percentage).*

Model	Intercept	Regression coefficients of						Adj. R_bar^2	SEE	F-value
		LDR	LEV	EPS	DPS	MPS	PE			
1	19.504 (5.471)**	-0.721 (1.707)						0.18	3.47	2.912
2	7.501 (0.491)		-6.644 (0.389)					0.008	3.52	1.52
3	7.959 (12.652)**			0.219 (9.542)**				0.464	2.56	91.059
4	11.928 (26.010)**				0.109 (4.552)**			0.159	3.217	20.724
5	12.691 (30.873)**					0.001 (3.079)**		0.075	3.374	9.482
6	13.245 (31.285)**						0.008 (0.824)	0.003	3.515	0.679
7	18.697 (1.126)	-0.720 (1.654)	-0.864 (0.051)					0.008	3.49	1.45
8	13.716 (1.132)	-0.521 (1.509)	-11.811 (0.932)	0.238 (9.542)**				0.066	3.391	3.46
9	13.635 (1.118)	-0.054 (1.413)	-11.562 (0.901)	0.235 (7.567)**	0.004 (0.162)			0.467	2.56	23.810
10	13.855 (1.131)	-0.521 (1.441)	-11.975 (0.924)	0.232 (7.030)**	0.004 (0.187)	0.010 (0.324)		0.463	2.57	18.899
11	6.606 (0.549)	-0.028 (0.790)	-4.233 (0.333)	0.327 (7.336)**	0.018 (0.773)	0.003 (2.838)**	0.084 (3.032)**	0.504	2.47	18.584

Notes:

i. Figures in parenthesis are t-values.
ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
iii. Return on equity is the dependent variable.

The table 4 shows that the beta coefficients for loan to deposit ratio are negative with return on equity. It indicates that loan to deposit ratio has a negative impact on return on equity. This finding is similar to the findings of Kowoon *et al.* (2022). Similarly, the beta coefficients for leverage are negative with return on equity. It indicates that leverage has a negative impact on return on equity. This finding is consistent with the findings of Khan (2012). Likewise, the beta coefficients for earning per share are positive with return on equity. It indicates that earning per share has a positive impact on return on equity. This finding is consistent with the findings of Ariana *et al.* (2023). Further, the beta coefficients for dividend per share are positive with return on equity. It indicates that dividend per share has a positive impact on return on equity. This finding is similar to the findings of Umam and Halimah (2021). In addition, the beta coefficients for market price per share are positive with return on equity. It indicates that market price per share has a positive impact on return on equity. This finding is similar to the findings of Shamsudin *et al.* (2013). Furthermore, the beta coefficients for P/E ratio are positive with return on equity. It indicating that P/E ratio has a positive impact on return on equity. This finding is consistent with the findings of Balan and Srinivasan (2017).

Table 5 shows the estimated regression results of dividend per share, earnings per share, loan to deposit ratio, leverage, market price per share, and P/E ratio on return on assets.

Table 5

Estimated regression results of dividend per share, earnings per share, loan to deposit ratio, leverage, market price per share, and P/E ratio on return on assets

The results are based on panel data of 15 Nepalese commercial banks with 105 observations for the period of 2015/16 to 2021/22 by using the linear regression model and the model is $ROA = \beta_0 + \beta_1 LDR + \beta_2 LEV + \beta_3 EPS + \beta_4 DPS + \beta_5 MPS + \beta_6 PE + e_{it}$ *where, the dependent variable is ROA (Return on assets as measured by the ratio of net income to total assets, in percentage). The independent variables are LDR (Loan to deposit ratio as measured by the ratio of company's total loan to total deposits, in percentage), MPS (Market price per share is the average price of share in the market, in Rupees), LEV (Leverage refers to the use of debt (borrowed funds) to amplify returns from an investment, in percentage), EPS (Earning price per share is the difference between net income and preferred dividend, divided by the average number of outstanding common stock, in Rupees), DPS (Dividend per share is the sum of declared divided issued by the company, in Rupees) and P/E ratio (Price to earnings ratio is the ratio of share price to earnings per share, in percentage).*

Model	Intercept	Regression coefficients of						Adj. R_bar^2	SEE	F-value
		LDR	LEV	EPS	DPS	MPS	PE			
1	70.711 (84.908)**	-0.433 (0.734)						0.003	6.665	0.539
2	63.683 (18.697)**		0.582 (1.951)					0.018	6.595	3.805
3	56.327 (12.314)**			1.058 (3.063)**				0.052	6.479	9.382
4	69.726 (77.53)**				0.699 (0.721)			0.003	6.666	0.520
5	71.684 (31.939)**					-1.334 (0.660)		0.004	6.668	0.436
6	59.754 (6.239)**						0.926 (1.097)	0.001	6.651	1.204
7	64.203 (18.274)**	-0.366 (0.625)	0.571 (1.906)					0.014	6.608	2.090
8	56.888 (12.165)**	-0.361 (0.267)	0.097 (0.235)	1.128 (2.328)*				0.042	6.513	3.240
9	53.964 (11.093)**	-1.002 (1.524)	0.011 (0.028)	1.206 (2.504)*	2.186 (1.967)*			0.060	6.451	3.444
10	55.952 (10.672)**	-1.073 (1.622)	0.067 (0.161)	1.284 (2.633)**	2.062 (1.845)	-2.059 (1.017)		0.061	6.451	2.963
11	48.443 (4.437)**	-1.035 (1.560)	0.046 (0.104)	1.139 (2.183)*	2.212 (1.948)	-2.269 (1.109)	0.726 (0.784)	0.058	6.459	2.565

Notes:

i. Figures in parenthesis are t-values.
ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
iii. Return on assets is the dependent variable.

The table 5 shows that the beta coefficients for loan to deposit ratio are negative with return on assets. It indicates that loan to deposit ratio has a negative impact on return on assets. This finding is similar to the findings of Mohanty and Krishnankutty (2018). Similarly, the beta coefficients for leverage are negative with return on assets. It indicates that leverage has a negative impact on return on assets. This finding is consistent with the findings of Fajaria and Isnalita (2018). Likewise, the beta coefficients for earning per share are positive with return on assets. It indicates that earning per share has a positive impact on return on assets. This finding is consistent with the findings of Rusdiyanto *et al.* (2020). Further, the beta coefficients for dividend per share are positive with return on assets. It indicates that dividend per share has a positive impact on return on assets. This finding is similar to the findings of Indriawati (2018). In addition, the beta coefficients for market price per share are positive with return on assets. It indicates that market price per share has a positive impact on return on assets. This finding is similar to the findings of Elliot (2006). Furthermore, the beta coefficients for P/E ratio are positive with return on assets. It indicating that P/E ratio has a positive impact on return on assets. This finding is consistent with the findings of Tandon and Malhotra (2013).

4. Summary and conclusion

Stock market volatility is a measure of how much the stock market's overall value fluctuates up and down. Beyond the market as a whole, individual stocks can be considered volatile as well. The stock market works as a platform through which savings and investments of individuals are efficiently channeled into productive investment opportunities and add to the capital formation and economic growth of the country. Stock market investors attempt to forecast the stock's future price to make trading decisions that maximize profit. Deep learning models are the most accurate in predicting stock prices. Furthermore, the effect of the ongoing digitalization on the stock price variability of commercial banks in Nepal is also an area that requires further research.

The study attempts to examine the impact of stock market volatility on the performance of Nepalese commercial banks. The study is based on the secondary data of 15 commercial banks with 105 observations for the period 2015/16 to 2021/22.

The major conclusion of this study is that dividend per share, earnings per share, market price per share, and P/E ratio have positive impact on return on equity and return on assets. The study also showed that loan to deposit ratio, leverage have negative impact on return on equity and return on assets. The study concluded that earnings per share followed by dividend per share is the most influencing factor that determines the changes in return on equity. The study also concluded that earnings per share is the most influencing factor that determines the changes in return on assets of Nepalese commercial banks.

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