"The impact of liquidity on common stocks returns: Empirical insights from commercial banks in Nepal"

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BUSINESS PERSPECTIVES

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THE IMPACT OF LIQUIDITY ON COMMON STOCKS RETURNS: EMPIRICAL INSIGHTS FROM COMMERCIAL BANKS IN NEPAL

Abstract

Most developed and emerging economies pay substantial attention to liquidity to understand stock return behavior. However, there is a need for more focus on understanding the impact of such factors on stock returns in developing countries such as Nepal. This study aims to examine the effect of liquidity, size, financial and asset risk, growth potential, and profitability on stock returns in Nepalese commercial banks. A pooled ordinary least squares regression model is utilized, employing data from the Central Bank of Nepal and the Nepal Stock Exchange. There are 249 observations in the data set, which covers the period from 2009/10 to 2019/20. The model considers the impact of trading volume, market capitalization, book-to-market ratio, asset growth, and return on asset on stock returns in Nepalese commercial banks. The results indicate that trading volume, a proxy of liquidity, positively affects stock returns in Nepalese commercial banks. The finding reveals that when other variables are held constant, a 0.288 percent increase in stock returns is expected for a one percent rise in trading volume. However, asset growth and return on assets show a weakly favorable link with stock returns in Nepal. Conversely, the research findings suggest an insignificant inverse correlation between book-to-market and stock returns. A decrease in stock returns of 0.307 percent is expected for a one percent increase in the book-to-market ratio. Similarly, market capitalization has a negligible effect on stock returns in Nepal.

Keywords	trading volume, size, leverage, growth, profitability
JEL Classification	G00, G12, G21

INTRODUCTION

The stock market facilitates the fund's transfer from lenders to borrowers, reinforces investment, and fosters economic growth (Rose & Marquis, 2008). On the one hand, the stock market allows a company to raise funds to expand and enhance its operations. On the other hand, it will enable investors to share a portion of the company's profits. The fluctuation of stock prices directly influences the confidence of individual and corporate investors and affects the overall economy. When stock prices increase, public trust in the economy also rises, leading to an increased number of investors in the market. It results in higher investment and spending on consumer goods, leading to economic growth (Hasbrouck, 2007).

Liquidity, as measured by trading volume, is influenced by various factors, including positive or negative news about the company, which is reflected in the stock price, financial status, and changes in ownership. As a result, volume is a significant indicator for technical analysis. Additionally, volume is used as a measure of liquidity. When the trading volume is high, its stocks are assumed to be more liquid than when it is low. Compared to illiquid stocks, more liquid stocks offer a

lower liquidity premium and lower rates of return. However, at least two significant reasons stress the importance of the price-volume relationship. First, it sheds light on the structure of the financial market (Karpoff, 1987). For instance, the positive correlation between stock returns and trading volume implies that bull markets are accompanied by rising volume, while bear markets are accompanied by falling volume. Additionally, volume movements indicate the rate of information flow into markets. Second, price-volume analysis based on technical analysis is critical because it uses historical data, which may or may not draw the most accurate conclusions.

Theoretically and in practice, many debates remain about the relationship between stock returns and trading volume. Previous studies have shown mixed results. Some findings showed a linear positive impact of trading volume on stock returns, while others found nonlinear positive or negative results. As a result, additional studies based on current data in the context of Nepal must still be investigated.

1. LITERATURE REVIEW

Studying the impact of liquidity, size, book-to-market ratio, investment growth, and profitability on stock returns is crucial for investors and corporations to make sound investment and financing decisions. The link between stock returns and liquidity varied from negative to positive. The empirical evidence suggests that stock liquidity benefits stock returns. Accordingly, firms with more liquid assets have higher operating income and more equity capital. Company performance is shown in the price of its stock, which is traded very often. If performance is low, this feedback effect makes performance better. Similarly, large equity capital is a hedge against financing and operating losses (Rose, 2002). In contrast, numerous empirical studies have revealed a negative correlation between liquidity and stock performance. The findings suggest that illiquid assets require high transaction costs, must be sold at a discount since they are less desirable, and have greater maturity risk (Datar et al., 1998). For example, Shrestha (2018) and Poudel and Shrestha (2019) found a positive correlation between trading volume and stock returns. Chen (2012) showed that stock returns could accurately predict trading volume in bull and bear markets. Gebka and Wohar (2013) discovered a strong nonlinear relationship between high and low quintiles: a positive relationship for the high quintile and a negative association for the low quintile. Kao et al. (2020) found that when trading volume was above the threshold, it led to higher returns, but when it was below the threshold, it led to lower returns.

The empirical literature (Banz, 1981; Chan et al., 1991; Dangol & Acharya, 2020; Dodonova, 2016; Fama & French, 1992; Gautam, 2017; Khatri Chhetri, 2019; Taussig, 2021; Vasishth et al., 2021) shows that small businesses have better risk-adjusted returns than large businesses. Small businesses have less access to capital markets than large ones, exposing them to significantly greater risk in a credit crisis. Due to the increased risk, investors would require a higher expected rate of return to invest in small businesses (Brigham & Daves, 2018). Another argument for these findings is that small companies have unique, specialized knowledge and more significant growth potential, resulting in higher profit, dividends, and expected stock returns.

However, the size effect is beneficial to stock returns (Al-Malkawi et al., 2018; Cox & Willows, 2017; Gautam, 2017; Lamichhane, 2018; Poudel & Shrestha, 2019; Pradhan, 2014; Shrestha, 2018; Tahir et al., 2013). Large firms benefit from economies of scale, resulting in lower operating costs than small firms, higher profit, and higher expected rate of return. Additionally, large firms benefit from geographical diversification, which results in increased profit and an expected rate of return. Empirically, correlations between stock returns and market capitalization have been observed, ranging from negative to positive. Fama and French (1992) found a negative correlation between market capitalization and stock returns. It indicates that small businesses have a higher expected rate of returns than larger businesses.

Book-to-market has a positive effect on stock returns (Chan et al., 1991; Cooper et al., 2008; Davis, 1994; Kim, 1997; Dichev, 1998; George & Hwang, 2010; Nguyen et al., 2019; Ye & Li, 2013).

Similarly, Fama and French (1992) suggest that book-to-market is related to risk. If the company's prospects are good, its market value will be high relative to its book value, resulting in a low book-to-market ratio. In addition, because lenders are hesitant to extend loans to a firm with bad prospects, a downturn in the economy might put such a company in financial trouble. In other words, a stock with a high book-to-market ratio may be vulnerable to financial distress, necessitating a greater expected return to attract investors to invest in it (Brigham & Daves, 2018). Book-to-market captures information about both expected cash flow and discount rates. Furthermore, a higher book-to-market ratio indicates lower profitability and a higher level of risk. Thus, investors ultimately demand a higher return rate for the high book-to-market stocks (Aharoni et al., 2013). However, Chiah et al. (2016) found an unfavorable link between book-to-market and stock returns.

Asset growth can hurt stock returns (Aharoni et al., 2013; Ma et al., 2021). Low-asset growth firms are considered riskier than high-asset growth firms, as the latter can mitigate high risk through diversification. Generally, low-risk assets tend to yield lower returns compared to high-risk assets. When a firm invests in new opportunities, low-risk investments often replace aggressive growth alternatives. There are three interpretations for the link between asset growth and stock returns. First, the acquisition hypothesis suggests that when firms acquire other companies to expand their assets, it can negatively affect shareholders' wealth due to poor management practices. Second, the agency cost hypothesis suggests that agents and owners have diverse interests, with managers often prioritizing their interests and empire-building. If empire-building motives drive high asset growth, this can lead to unfavorable future stock returns. Third, the extrapolation hypothesis suggests that investors depend on a firm's past outcome to predict future earnings. However, if the firm's earnings performance declines unexpectedly, investors dispose of their investment, resulting in detrimental future stock returns (Constantinou et al., 2017). Some studies, on the other hand, have found a favorable link between asset growth and stock returns (Barrow, 1990; Chiah et al., 2016; Nichol & Dowling, 2014).

The dividend-discount model of equity valuation contends that the equity value is directly related to a future expected dividend of firms. Similarly, the value of equity is directly associated with a firm's profitability because a higher level of profitability translates into a higher dividend to stockholders. Thus, Chiah et al. (2016), Ma et al. (2021), Nguyen et al. (2019), and Nichol and Dowling (2014) found a favorable link between return on asset (ROA) and stock returns. However, Blazenko and Fu (2013) found an inverse association between profitability measures – ROA and stock returns. Hence, the study examines how liquidity, market capitalization, book-to-market, asset growth, and profitability affect stock returns. The paper tests the following hypotheses:

H_1: A positive link is expected between trading volume and stock returns.

H_2: A negative link is expected between market capitalization and stock returns.

H_3: A positive link is expected between book-to-market and stock returns.

H_4: A negative link is expected between asset growth and stock returns.

H_5: A positive link is expected between ROA and stock returns.

2. METHODS

This study adopts a positivist research philosophy and employs a purely quantitative approach. The research design includes descriptive, correlational, and casual-comparative methods to investigate the impact of fundamental variables on stock returns. The descriptive research design is utilized to gather factual information and comprehensively understand the effect of study variables on stock returns in Nepalese commercial banks. It aids in accurately describing the results and characteristics of the sample. A correlation research design determines the relationship between predictor and response variables. Correlation coefficients, particularly Pearson's, are calculated to assess multicollinearity. If the correlation coefficient exceeds 0.7 (Titko et al., 2015), the study avoids

including these variables simultaneously in multiple regression models. The correlation coefficient reveals the direction, magnitude, and type of observed relationship between variables but does not imply causation. Furthermore, it helps determine the significance of the connections. The study also incorporates a causal-comparative research design to analyze potential cause-and-effect relationships among various response and predictor variables. Specifically, it examines the links between stock returns, trading volume, market capitalization, book-to-market, asset growth, and ROA in Nepalese commercial banks.

To measure stock returns, the natural logarithm of the current stock price divided by the previous period's stock price is used as per Chen (2012) and Narayan and Reddy (2017). The first predictor variable, trading volume, is estimated as the natural logarithm of the current period's trading volume divided by the previous period's trading volume, as Chen (2012) outlined. The second independent variable, market capitalization, is also derived by taking the natural logarithm of market capitalization, which provides insights into the amount of capital invested in firms by owners, following Fama and French (1992). The third independent variable, book-to-market, is the ratio of the book value of equity to the market capitalization, as per Constantinou et al. (2017). The fourth predictor variable, asset growth, captures the annual change in a firm's total assets, drawing from Constantinou et al. (2017). Finally, the last independent variable, ROA, is estimated as the net income after taxes divided by total assets, following Chiah et al. (2016).

This study analyzes the link between fundamental variables and stock returns of Nepalese commercial banks operating in Nepal. The concerned data were collected from 2009/10 to 2019/20, leading to 249 observations. The study employed a pooled OLS regression model to examine the effect of trading volume, market capitalization, book-to-market, asset growth, and ROA on stock returns in Nepalese commercial banks. The following regression model examines the effect of predictor variables on response variables.

$$SR = f\left(TV, MC, BM, AG \text{ and } ROA\right). \quad (1)$$

More specifically,

$$SR_{it} = \beta_0 + \beta_1 TV_{it} + \beta_2 MC_{it} + \beta_3 BM_{it} + \beta_4 AG_{it} + \beta_5 ROA_{it} + e_{it}, \quad (2)$$

where *SR*, *TV*, *MC*, *BM*, *AG*, and *ROA* represent stock returns, trading volume, market capitalization, book-to-market, asset growth, and return on assets, respectively.

3. RESULTS

The study formed portfolios based on stock returns. The breakpoints are measured by taking each variable's 20th, 40th, 60th, and 80th percentiles. Table 1 reveals the outcomes of portfolio sorting based on stock returns. The portfolio is partitioned into five groups, from smallest to largest. The smallest group of banks is the low-stock returns firms, and the largest group is the high-stock returns banks. The results reveal that the smallest quintile banks have lower trading volumes than the largest ones, with a mean of –0.530 versus 1.214, respectively. It means that low-yielding stocks have less demand than those with higher yields. Furthermore, it shows that the trading volume increases when stock returns decrease. On the other hand, the results show that the smallest quintile banks have lower market capitalization than the largest quintile firms, with 9.535 versus 9.825, respectively. It shows that when stock returns decrease, market capitalization increases. In addition, the study found that the largest quintile firms have a lower book-to-market ratio than the smallest quintile firms, with 0.292 versus 0.499, respectively. It indicates that the book-to-market ratio goes down when stock returns go up.

Table 1. Portfolio sorting based on stock returns

Portfolio	SR	TV	MC	BM	AG	ROA
Smallest	0.650	−0.530	9.535	0.499	0.148	0.014
2	0.345	−0.385	9.677	0.465	0.193	0.016
3	0.102	−0.018	9.724	0.549	0.244	0.015
4	0.119	0.448	9.787	0.462	0.248	0.016
Largest	0.557	1.214	9.825	0.292	0.223	0.016

Note: SR = stock returns, TV = trading volume, MC = market capitalization, BM = book-to-market, AG = asset growth, and ROA = return on assets.

In addition, the results show that the smallest quintile banks have lower asset growth than the largest quintile banks, with 0.148 versus 0.223, re-

spectively. Similarly, the smallest quintile firms have a lower ROA than 0.014 versus 0.016. It shows that when stock returns decrease, ROA increases.

The study employed descriptive statistics, encompassing the observations, the maximum and minimum values, the mean, and the standard deviation (SD). Descriptive statistics allow data to be presented more meaningfully, offering a more straightforward data interpretation. Table 2 shows the descriptive statistics for several response and predictor variables from 2009/10 to 2019/20. Stock returns range from –1.243 to a high of 1.271, with an average of –0.079.

Table 2. Descriptive statistics

Variables	N	Minimum	Maximum	Mean	SD
SR	249	–1.243	1.271	–0.079	0.442
TV	249	–2.400	10.765	0.213	1.291
MC	249	6.528	11.621	9.660	0.984
BM	249	–0.253	3.023	0.480	0.339
AG	249	–0.177	1.163	0.217	0.177
ROA	249	–0.099	0.082	0.016	0.010

Note: SR = stock returns, *TV* = trading volume, *MC* = market capitalization, *BM* = book-to-market, *AG* = asset growth, and *ROA* = return on assets.

The trading volume is between –2.40 and 10.765, with an average value of 0.213. Similarly, the market capitalization ranges from a minimum of 6.528 to a maximum of 11.621, with an average of 9.660. The book-to-market ratio ranges from –0.253 to 3.023, averaging 0.480. The asset growth rate also ranges from –0.177 to 1.163, averaging 0.217. Finally, the ROA varies from –0.099 to 0.082, with an average of 0.016.

The computation of Pearson's correlation coefficients occurs after reporting descriptive statistics; the outcomes are displayed in Table 3. Table 3 reveals that trading volume positively correlates with stock returns. It indicates that higher trading volume leads to higher stock returns. Likewise, the study also shows that market capitalization is positively linked with stock returns. The book-to-market ratio negatively correlates with stock returns, trading volume, and market capitalization. A higher book-to-market value indicates lower stock returns, trading volume, and market capitalization. On the other hand, the asset growth rate is positively correlated with stock returns, trading volume, market capitalization, and book-to-mar-

ket ratio, indicating that a higher value of the asset growth rate precedes a higher value of stock returns, trading volume, market capitalization, and book-to-market ratio. Similarly, ROA is positively correlated with stock returns, trading volume, and market capitalization, indicating that a higher value of ROA leads to a higher value of stock returns, trading volume, and market capitalization. In contrast, ROA is negatively correlated with the book-to-market ratio and asset growth rate, which reveals that a higher value of ROA leads to a lower book-to-market ratio and asset growth rate value.

Table 3. Correlation matrix

Variables	SR	TV	MC	BM	AG	ROA
SR	1 (.433)	–	–	–	–	–
TV	.540** (.000)	1	–	–	–	–
MC	.083 (.190)	.102 (.109)	1	–	–	–
BM	–.150* (.017)	–.156* (.014)	–.472** (.000)	1	–	–
AG	.057 (.367)	.194** (.002)	.022 (.727)	.087 (.173)	1	–
ROA	.097 (.127)	.010 (.874)	.265** (.000)	–.115 (.069)	–.097 (.127)	1

Note: * indicates significance at the 5% level, ** indicates significance at the 1% level. SR = stock returns, TV = trading volume, MC = market capitalization, BM = book-to-market, AG = asset growth, and ROA = return on assets.

The regression analysis was carried out after the correlation matrix was reported. Table 4 shows trading volume, market capitalization, book-to-market ratio, asset growth, and ROA regression outcomes on stock returns.

Table 4 reports the effect of trading volume, market capitalization, book-to-market, asset growth, and ROA on stock returns. The regression models demonstrate a good fit, as evidenced by the clear indication of satisfactory *F*-statistics. In Table 4, the coefficients of trading volume are positive with stock returns and are consistent across all possible models, indicating that stock returns increase as trading volume increases. The study fails to reject H_1 at the .05 level. The finding of model 8 revealed that for a one percent increase in trading volume, stock returns are expected to increase by 0.288 percent, holding other variables constant. Conversely, the beta coefficient of market capitalization is nega-

Table 4. Estimated regression outcomes of trading volume, market capitalization, book-to-market ratio, asset growth, and ROA on stock returns

Model	Intercept	Regression coefficient of					Adj. R²	SEE	F-value
		TV	MC	BM	AG	ROA			
1	−0.124**	0.298**	–	–	–	–	0.447	0.323	190.434
	(−5.883)	(13.8)	–	–	–	–			
2	0.115*	–	–	−0.435**	–	–	0.057	0.420	15.367
	(2.013)	–	–	(3.920)	–	–			
3	0.172**	–	–	–	0.430*	–	0.020	0.428	5.940
	(−3.715)	–	–	–	(2.437)	–			
4	−0.148*	–	–	–	–	4.298	0.005	0.432	2.131
	(−2.772)	–	–	–	–	(1.460)			
5	−0.028	0.300**	−0.010	–	–	–	0.442	0.323	94.992
	(−0.128)	(13.685)	(−0.444)	–	–	–			
6	0.345	0.290**	−0.38	−0.211*	–	–	0.450	0.321	65.549
	(1.214)	(12.978)	(−1.459)	(−2.033)	–	–			
7	0.344	0.289**	−0.039	−0.212*	0.013	–	0.447	0.322	48.956
	(1.209)	(12.492)	(−1.458)	(−2.027)	(0.092)	–			
8	0.376	0.288**	−0.047	−0.207*	0.027	2.749	0.448	0.322	39.509
	(1.317)	(12.465)	(−1.713)	(−1.978)	(0.195)	(1.180)			

Note: * indicates significance at the 5% level, ** indicates significance at the 1% level. *t*-statistic is in parenthesis. *SR* = stock returns, *TV* = trading volume, *MC* = market capitalization, *BM* = book-to-market, *AG* = asset growth, and *ROA* = return on assets.

tive across four regression models. It indicates that market capitalization hurts stock returns. However, they are not statistically significant and fail to accept the H_2 at the .05 level. Likewise, the beta coefficients of the control variable, namely book-to-market, are unfavorable with stock returns. It suggests that the book-to-market ratio has a negative effect on stock returns. The study fails to accept H_3 at the .05 level. The finding of model 8 revealed that for a one percent increase in the book-to-market ratio, stock returns are expected to decrease by 0.307 percent, ceteris paribus. Another control variable is the asset growth beta coefficients, which revealed a favorable effect on stock returns. It is indicated that asset growth has a favorable but negligible impact on stock returns, which is deemed statistically insignificant, and the acceptance of H_4 at the .05 level is not achieved. Finally, the beta coefficient of another control variable, ROA, is positive concerning stock returns. Nevertheless, they are not statistically significant, and the acceptance of H_5 at the .05 level is not attained.

4. DISCUSSION

The study empirically tested five research hypotheses. The first predictor variable, trading volume, positively affects stock returns. This outcome is in line with Chen et al. (2001), Poudel and Shrestha (2019), and Shrestha (2018) but contradicts the outcome of Gebka and Wohar (2013). This outcome can be clarified by the fact that, by and large, a high trading volume indicates that a stock is more liquid than a low trading volume. Investors typically prefer more liquid assets to illiquid assets. When demand for more liquid assets increases, the stock price also increases. In contrast, the second predictor variable, market capitalization, negatively affects stock returns. The unfavorable effect of market capitalization on stock returns is consistent with Chan et al. (1991), Dangol and Acharya (2020), Dodonova (2016), Fama and French (1992), Gautam (2017), Khatri Chhetri (2019), Vasishth et al. (2021), and Taussig (2021). On the other hand, the favorable effect of market capitalization on stock returns is similar to the findings by Al-Malkawi et al. (2018), Cox and Willows (2017), Gautam (2017), Lamichhane (2018), Poudel and Shrestha (2019), Pradhan (2014), Shrestha (2018), and Tahir et al. (2013). These facts support the result of this regression coefficient: Smaller firms are easier to manage, have lower operating costs, and their managers can focus on fewer businesses – all of which result in higher returns.

Likewise, the third predictor variable, book-to-market, negatively affects stock returns. This outcome is consistent with Chiah et al. (2016) and in

contrast to Aharoni et al. (2013), Chan et al. (1991), Cooper et al. (2008), Davis (1994), Dichev (1998), George and Hwang (2010), Kim (1997), Nguyen et al. (2019), and Ye and Li (2013). The study's results can be explained by the fact that a high book-to-market firm earns fewer earnings, which results in a lower dividend to shareholders, which precedes lower stock prices and stock returns. In contrast, the fourth predictor variable, asset growth, positively affects stock returns. This outcome is in line with Barrow (1990), Chiah et al. (2016), and Nichol and Dowling (2014). However, it contrasts Aharoni et al. (2013), Constantinou et al. (2017), Cooper et al. (2008), and Ma et al. (2021). The findings can be clarified by the fact that asset expansion can boost a company's efficiency and profitability, which raises its dividend and stock price, resulting in higher stock returns. Finally, the predictor variable, ROA, positively affects stock returns. This finding is in line with Chiah et al. (2016), Ma et al. (2021), Nguyen et al. (2019), Nichol and Dowling (2014) and contrasts with Blazenko and Fu (2013). The result of the coefficient is supported by the evidence that greater profitability results in more enormous dividends for owners and increases both the stock price and stock returns.

CONCLUSION

The study examined the impact of trading volume, market capitalization, book-to-market ratio, asset growth, and return on asset on stock returns in the Nepalese stock market. The study covered a sample of 26 commercial banks in Nepal. The relevant data were collected from 2009/10 to 2019/20, leading to 249 observations. The study's outcomes showed that trading volume and book-to-market have a more extraordinary ability to predict stock returns in the Nepalese stock market. The three anomalies – trading volume, asset growth, and return on asset – positively affected the stock returns of commercial banks in Nepal. Thus, the higher the trading volume, asset growth, and return on asset, the higher the stock returns. On the other hand, the study disclosed that book-to-market has a negligible negative effect on stock returns. Similarly, market capitalization has an insignificant effect on stock returns in Nepal. These findings offer valuable insights for corporate and individual investors, enabling them to make informed investment decisions to enhance their wealth.

In the Nepalese stock market context, the study focuses primarily on five anomalies: trading volume, market capitalization, book-to-market, asset growth, and return on asset. Further research should include additional anomalies such as price-to-book, investment growth, and financial leverage in the context of Nepal. In the future, researchers should look at extending the literature to the South Asian Association for Regional Cooperation or Asian financial markets to see how they behave differently from the Nepalese stock market.

AUTHOR CONTRIBUTIONS

Conceptualization: Prem Bahadur Budhathoki, Ganesh Bhattarai, Arjun Kumar Dahal.
Data curation: Prem Bahadur Budhathoki, Ganesh Bhattarai, Arjun Kumar Dahal.
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