

Relationship between Stock Return, Trading Volume, and Trading Price of Agriculture Development Bank

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Abstract:

The main objective of the study is to measure the causal relationship between stock return, trading volume, and the trading price of Agriculture Development bank. Descriptive research and casual comparative research designs have been used to analyze the study. The 11 years panel data has been used. The 2104 observations are analyzed to draw a valid conclusion about the study. The descriptive model provides evidence of average stock return, trading volume, and price volatility. The investors of ADB faced high risk in stock investment during the 11 years. There is a significant positive relationship between them. Similarly, there is a positive and significant impact of trading volume and trading price on stock return.

Keywords: ADB, stock return, trading volume, trading price

Introduction

In numerous financial markets, the dynamic link between stock returns, trading volume, and price volatility has been investigated. This link has been a significant concern in recent financial research as insights into the microstructure of the financial market. It aids in understanding the function of information in stock price development, with volume and volatility offering gauges of the importance of information represented in the market. The link between stock returns and trading volume can arise as a result of effective trading methods, and it has market efficiency consequences.

Stock price and trading volume are two indicators that are often issued in the media to report on the state of the financial markets and are highly watched by investors. Participants in the market assume that intrinsic knowledge of price movements and trading volume will improve their grasp of market dynamics and, as a result, their financial success. The link between two variables is the result of a single market process, and no examination of one of these variables can be complete until another variable is also discussed.

Crouch (1970), Epps and Epps (1976), Harris and Gural (1986), Tauchen and Pitts (1983), Gallant, Rossi, and Tauchen (1992), Chen, Firth, and Rui (2001), and Ciner (2002) all show a positive contemporaneous association between volatility and volume in the equity and futures markets. Extensive empirical research supports the positive association between trading volume and price volatility in stocks and derivatives.

Most studies on the relationship between volatility and trading volume applied to developed financial markets, but there are very few studies in emerging financial markets, like Nepal. This study aims to contribute to the literature by investigating the relationship between trading volume and stock

return volatility in the Nepal Stock Exchange (NEPSE) utilizing a relatively more recent database including individual stocks instead of a general stock index.

Review of Literature

A literature review is a detailed description of past research on a certain issue. The literature review examines academic papers, books, and other materials that are pertinent to a certain field of study. This past study should be enumerated, described, summarized, objectively evaluated, and clarified in the review.

Review of Previous Studies

Godfrey, Granger, and Morgenstern (1964) offered fresh evidence from a variety of data series, including daily stock transaction data. However, they were unable to detect an association between prices or the absolute values of price discrepancies and volume. Another observation is that the difference between the daily high and low prices corresponds favorably with daily volume.

The stock market revolves around two key pillars: return and volume. While the return may be regarded as the appraisal of fresh information, volume is a sign of how much disagreement there is among investors regarding this information. Furthermore, earlier research (Karpoff, 1987; Mestel et al., 2005; Gallant et al., 1992; Lee and Rui, 2002) has shown that stock prices are noisy and cannot express all available information on the market dynamics of stock prices and trading volume. As a result, examining the simultaneous dynamics of volume and volatility is critical for improving knowledge of stock market microstructure (Mestel et al., 2005). Many scholars have looked at the relationships between stock return volatility and trading volume.

Pant (2011) examined the festival and auspicious day effect or not in the Nepalese stock market. This study used the NEPSE return data during mid-July 1997 to mid-July 2010. The descriptive statistics and linear regression models had been used to explore the daily stock return variations due to the lunar calendar effect. This study found that there is evidence of the lunar calendar effect especially lower returns, low price, and low volume during Aswin Krishna Pakchha.

Achieng (2013) used a regression model given by Lee and Rui to conduct a comparable analysis for all 58 businesses listed on the NSE by December 31, 2012, spanning the period January 2008 to December 2012. (2002). the findings revealed that significant changes in stock prices and trading volume were explained by factors other than the link between the two variables.

Boonvorachote and Lakmas (2016) investigated the link between trading volume, price volatility, and stock return. Trading volume, volatility, and return all have a positive association. For the period 2006–2016, Narayan and Reddy (2017) investigated the causal link between stock returns, trading volume, and price volatility across 10 sectoral indexes of the National Stock Exchange (NSE). The study also discovered that trading volume and price volatility had a substantial influence on stock returns. Choudhary, Singh, and Soni (2019) investigated the association between foreign institutional investments (FIIs) and stock market returns, trading volume, and volatility in India. From January 1999 to May 2017, the Nifty 50 index delivered surrogated market returns, while volatility was represented by conditional volatility derived from the Nifty 50. The findings show a positive relationship between trading volume, FII price variance, and lagged market returns, whereas information asymmetry has no effect on trading volume or price volatility.

Pan and Misra (2020) investigated the profit implications of price fluctuation, trading volume, and return volatility. The study's findings have important consequences for share price, traded volume, and return volatility. Emenike and Enock (2020) investigated the impact of equities market returns and volatility on established and emerging stock markets. Volatility and trade volume has an impact on market return. Ghimire (2021) investigated that in Nepalese stock market, the socio-economic characteristics, risk profile, and investment awareness have positive influence on stock market investment decision. The study's overall findings indicate that price volatility has a positive influence on market returns and trading volume hurts market returns.

Conceptual Review

Baral and Shrestha (2006) studied the stock price behavior of a commercial bank in Nepalese markets using daily stock prices during the fiscal year 2005/06. This study employed descriptive statistical tools: mean, standard deviation (SD), and coefficient of variation (CV) to analyze the volatility of the daily stock prices, indices of commercial banks, and NEPSE index. In addition to this, inferential statistical tools: serial correlation, and runs tests were employed to measure the independence and the randomness in daily successive stock prices. This study concluded that the proposition of the Random Walk Hypothesis (RWH) in Nepalese markets does not hold.

Pradhan and KC (2010) on the efficient market hypothesis and behavior of share prices revealed that the time series of changes in the Index are independent of each other. The study was based on secondary sources and included 26 actively traded listed securities from Mid-July 2005 to Mid July 2008 among the 147 enterprises listed in Nepal Stock Exchange Limited. Autocorrelation tests and run tests were used to test the random walk hypothesis and the results clearly showed that the random walk hypothesis does not hold good is not true for frequently traded companies and is only good for less frequently traded companies.

Horn, Reinhart, and Trebesch (2019) investigated the stock market and its movements. According to the Efficient Market Hypothesis (EMH), asset prices completely reflect all available information. The day-of-the-week effect is characterized as a trend in which a specific day of the week consistently exhibits anomalous returns. It is an oddity that contradicts the random walk theory, implying that the market is not Weak Form efficient.

Conceptual Framework

Boonvorachote and Lakmas (2016) examined the relationship between the stock return, trading volume, trading frequency, trading quantity, and trading price volatility of the stock market. The dynamic relationship between them can be presented as:

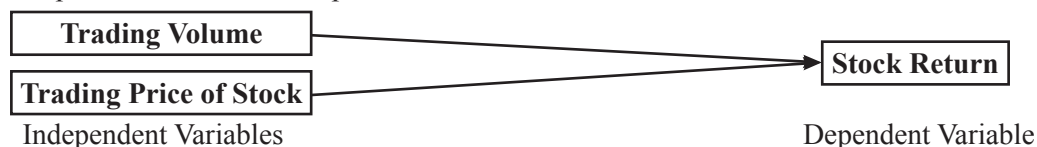


Figure 1. The relationship between dependent and independent variables

Statement of Problem

Stock market movements are difficult to understand and forecasting is even more difficult. This creates the need for empirical analysis. Studies conducted in this area have examined the volume-price/return relationship in a variety of contexts and by employing a range of analytical techniques. (Godfrey, Granger & Morgenstern, 1964, Godfrey et al., 1964, Crouch 1970).

The Nepalese stock market, like other emerging stock markets, is distinguished by a small number of listed businesses, a low market capitalization ratio, a low value traded ratio, a low turnover ratio, high volatility, high concentration, an illiquid and dangerous market, and a low turnover ratio (Mainali, 2011). According to the study, there is a positive volatility-volume link that has been verified by multiple studies, which demonstrates the positive association between volatility and the number of transactions. According to Bajracharya (2020), EPS, profitability, and business size are the determinants of bank and non-bank stock prices in Nepal. The major influence on the market price per share was established by EPS, profitability, investment prospects, business size, and liquidity. Similarly, investment possibilities, liquidity, and leverage are the most important elements influencing Nepalese commercial banks' price-earnings ratio.

It is commonly assumed that markets in emerging and less developed nations are inefficient. The concept of a developing market emphasizes the market's development potential as well as its quick rise in size. It is a well-studied topic in developed markets. There is virtually little literature on the Nepalese stock market to investigate the relationship between trading volume and stock return. Recognizing this reality,

the study intends to investigate the link between trading volume, stock price change, and returns in the Nepalese stock market. As a result, the study addresses the following issues:

- i. What is the position of stock return, trading frequency, trading quantity, trading volume, and trading price volatility of Nepalese commercial banks listed in NEPSE?
- ii. Do there any relationship exists between stock returns, trading volume, and trading price volatility of Nepalese commercial banks as consistent with developed capital markets?
- iii. What is the impact of trading volume and trading price on stock returns of Nepalese commercial banks?

Objectives of the Study:

The main objective of the study is to measure the relationship between stock return, trading volume, and the trading price of Nepalese commercial banks. The specific objectives of the study are:

- i. To examine the relationship between trading volume, stock price, and stock return of ADB.
- ii. To look at the impact of trading volume and stock price on the stock return of ADB.

Hypothesis of the Study

Based on the previous study, the following research questions are observed. The following alternative hypotheses have been set to test them.

- H1: There is a significant relationship between stock return and trading volume.
H2: There is a significant relationship between stock return and the trading price of the stock.
H3: There is a significant impact of trading volume on stock return.
H4: There is a significant impact of the trading price of the stock on stock return.

Research Methodology

Research methodology is the overall plan associated with a study. It provides a basic framework on which the study is based. This study is designed to obtain the answer to the research question. The research design employed in this study consists of correlation research and casual cooperative research designs have been used to deal with the issue of the study. This study is mainly based on secondary data from the Agriculture development bank. The daily closing stock prices and trading volume is collected from a trading report published by the Securities Board of Nepal (SEBON) and Nepal Stock Exchange Limited. The population of the study is 27 commercial banks. Out of 27 commercial banks, one bank is selected as a sample for the study. The sample bank is Agriculture Development Bank (ADB) for the study. The panel data set has been used to comprise the daily closing prices and trading volume from 2010 January to 2021 december (11 years period). The study examined the 2104 observations of the NEPSE panel data set.

Results

The descriptive statistics

Descriptive statistics is a type of summary statistics that quantitatively explains or summarizes the characteristics of a set of data, whereas descriptive statistics is the process of applying and evaluating such statistics. It also explains the data's qualities.

Table 1

Descriptive Statistics of stock return, trading volume and stock price

	N	Minimum	Maximum	Mean	Std. Deviation	Coefficient of Variation
Trading Volume	2104	2520.00	114366783.00	4694398.69	8731174.18	1.861
Trading Price	2104	137.00	1082.00	361.59	191.68	0.529
Stock Return	2104	-39.00	738.00	26.08	112.12	4.301

The Agriculture Development Bank's trade volume panel data set is described in Table 1. During the research period, the smallest trading volume is Rs. 2520 and the largest trading volume is Rs. 114366783.00. The average trading volume is 4694398.69 rupees. The standard deviation is Rs. 8731174.18, and the trading volume's coefficient of variation (CV) is 1.861. This demonstrates that the minimum and maximum trading volumes differ significantly from the average trading volume.

Table 1 describes the trading price panel data set of the Agriculture Development Bank. The minimum trading price is Rs. 137.00 and the maximum trading price is Rs. 1082 during the study period. The average trading price is Rs 361.59. The standard deviation is Rs. 191.68 and the coefficient of variation (CV) of the trading price is 0.529. This shows that there is less deviation between the minimum and maximum trading price as compared to the average trading price.

Table 1 also describes the absolute stock return panel data set of the Agriculture Development Bank. The minimum stock return is Rs. (39.00) and the maximum stock return is Rs. 738.00 during the study period. The average stock return is Rs. 26.08. The standard deviation is Rs. 112.12 and the coefficient of variation (CV) of the trading price is 4.301. This shows that there is too deviation between the minimum and maximum stock return as compared to the average stock return.

Correlation Research Design

This research design can be used to measure the relationship between the variables. This research design used a correlation coefficient to measure the degree of relationship among the variables.

Table 2

Pearson Correlation Analysis table of stock return, trading volume and stock price

	Stock Return	Trading Volume	Trading Price
Stock Return	1	0.671**	0.795**
Trading Volume		1	449*
Trading Price			1

***. Correlation is significant at the 0.01 level (2-tailed).*

**. Correlation is significant at the 0.05 level (2-tailed).*

Table 2 describes the Pearson correlation matrix between absolute stock returns, trading volume, and trading price. An ** and * denotes statistical significance at the 1 percent level and 5 percent level respectively. The correlation result of the sample shows that there is a positive relation between stock returns, trading volume, and trading price at a 1 percent significant level. This describes that the independent variable may influence the dependent variable at a significant level.

Casual Comparative Research Design

The casual comparative research design seeks to find relationships between independent and dependent variables after an action or event has already occurred. It seeks to establish a cause-effect relationship between two or mere variables. It can be used to identify the specific model for the analysis of impact and cause of independent variables.

Table 3

Regression Analysis of stock return, trading volume and trading price

Model	R	Adj. R2	Constant	Coff. TP	Coff. TV	D-W Test	F-Stat	P-Value
1	0.593	0.3521	-60.463					
(-11.786)	3.534							
(9.133)	2.163							

Model	R	Adj. R2	Constant	Coff. TP	Coff. TV	D-W Test	F-Stat	P-Value
(7.684)	2.677	98.900	0.000					
	Eigen V.			0.565	0.096			

a. Dependent Variable: Stock Return

b. Predictors: (Constant), Trading Price, Trading Volume

Table 3 examined the effect of trading volume and trading price on the stock return of Agriculture Development bank. Adjusted R-squared is a measure of the proportion of variability explained by the regression. The coefficient of determinants is 0.352 is the variation of dependent variable return is the proportion explained by the independent variables trading volume and price volatility. The trading volume and trading price of 35.21 percent explained and predicted the stock returns. ANOVA table of regression showed F (2, 2102) 98.900, P<.001, indicating that the at-least one predictor’s slope coefficient is statistically significant and the model is fit. The t-value of the constant is significant. The coefficient of trading volume and trading price is statistically significant. The D-W test value =2.677<4, this shows that there is no auto-correlation. The Eigenvalue Coefficient of Trading Price and coefficient of Trading volume respectively. This indicates that there is no multicollinearity in trading volume and trading price. So, the trading volume and trading price may predict and impact positively on the dependent variable stock returns.

Discussion

The study measures the relationship between stock returns, trading volume, trading frequency, trading quantity, and trading price volatility of Agriculture Development Bank. This study adopted simple descriptive statistics to describe the characteristics of the data. Pearson’s correlation describes the relationship between the dependent and independent variables. The regression analysis describes the cause and effect of independent variables on the dependent variables. The mean, standard deviation, and coefficient of variation show that there is too much volatility in stock return. This means that the Nepalese investors faced high risk on stock investment in Agriculture Development bank during the eleven years. The study is inverse results with the study of Bouman and Jacobsen (2002). The hypothesis is based on the available information and the investigator’s belief about the population parameters. The correlation analysis and OLS regression analysis are used to test the alternative hypothesis.

Table 4

Alternative hypothesis test

S.N.	Statements	Accept/Reject
i	There is significant relation between stock return and trading volume.	Accept
ii	There is significant relation between stock return and trading price.	Accept
iii	There is significant impact of trading volume on stock return.	Accept
iv	There is significant impact of trading price on stock return.	Accept

Pearson’s correlation examines the relationship between stock return, trading volume, trading frequency, trading quantity, and trading price volatility of Nepalese commercial banks. The coefficients show that there is a positive and significant relation between stock return, trading volume, trading frequency, trading quantity, and trading price volatility. The positive and significant results of the correlation coefficient are the similar to the previous study of Yung et.al. (2014), Kumar and Padhi (2015), and Jayasree (2017), and contradict (inverse) results of the previous study of Godfrey, Granger, and Morgenstern (1964), Chebbi and Jebnoun (2016), Sahota and Singh (2016), Sinha and Agnihotri (2016), Satish and Madhavan (2019), Aalborg, Molnar and Vries (2019), Fousekis and Tzaferi (2020).

The impact of trading volume and trading price on stock return is statistically significant and the model is fit. The trading volume and trading price is a significant positive impact on stock returns. These

results are similar to the previous study of Markowski (2020), Bajaj and Vibha (2014), Boonvorachote and Lakmas (2016), Narayan and Reddy (2017), and inverse results to the previous study of Sinha and Agnihotri (2016), Bloom and Jackson (2016), Emenike and Enock (2020).

Conclusion

Descriptive statistics describe variable traits. The CV demonstrates that there is too much volatility in stock returns in Agriculture Development Bank over the course of eleven years. The high fluctuation indicates that investors may be exposed to a high risk of stock return. Until today, the investors have achieved a minimal rise in absolute value over the research period. The study's main finding is that there is a positive and substantial association between stock returns, trading volume, and trading price at a 1% level in the Agriculture Development Bank during an eleven-year period. The regression models indicated that trading volume and trade price had a substantial influence on stock return. This suggests that the predictor of trading volume and price may accurately anticipate the stock return.

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