DOI: https://doi.org/10.3126/ejon.v47i1-2.80810

Stock Market Performance and Monetary Policy Response: Empirical Evidence from Nepal

Tanuja Baral[1], Khagendra Katuwal[2]

Abstract

This paper assesses the monetary policy responses to the stock market performance of Nepal. This study employs the augmented Taylor rule using the quarterly time series data for the period 2004-2022 to estimate the monetary policy response for the stock market performance where the interest variables are the NEPSE index and the short-term interest rate while the output gap and inflation are the control variables. The output gap has been estimated using Hodric-Perscott filter. The consumer price index has been used as a measure of inflation and the 91-day T-bill rate and interbank rate are taken as the proxy for the short-term interest rate set by Central Bank of Nepal. The ARDL Bounds Test results show that the computed F-statistics for T-bill rate (2.410678) and interbank rate (2.605799), with logNEPSE as the explanatory variable, fall below the lower bound critical value I(0) at both 1% and 5% significance levels. This fails to reject the null hypothesis, indicating no cointegration and suggesting no long-run relationship between the variables. Consequently, a VAR model was employed to explore the short-run dynamics. The Block Exogeneity Wald test was conducted to assess Granger causality between monetary policy instruments (interbank rate and 90-day T-bill rate) and stock prices (NEPSE index). The results indicate that logNEPSE does not Granger cause either the T-bill rate or the interbank rate. However, both interest rates are found to Granger cause NEPSE, demonstrating a unidirectional causal relationship from monetary policy instruments to stock prices. This indicates that the central bank of Nepal does not respond to NEPSE. However, NEPSE reacts to the changes in the monetary policy of the Central Bank.

Keywords: Monetary policy, Stock market, Output gap, Inflation, NEPSE index

JEL Classification: E44; E52; E58; G12; C32

1 **Ms. Baral** is an Economics Graduate at the Central Department of Economics, Tribhuvan University, Nepal. Email: baraltanuja@gmail.com. ORCID: https://orcid.org/0009-0007-0851-6852.

2 **Mr. Katuwal** (Corresponding Author) is a Lecturer at the Central Department of Economics, Tribhuvan University, Nepal. Email: khagendra.katuwal@cdec.tu.edu.np. ORCID: https://orcid.org/0009-0006-0784-7927.

Introduction

After the comprehensive market-oriented reforms of the early 1990s, Nepal's capital market is expanding though slowly and the Nepal Stock Exchange (NEPSE) has emerged as a critical component to gauge the performance of the economy especially the financial sector. While small in scale, the NEPSE index's volatility has far-reaching implications for the country's financial stability. This is particularly pronounced given Nepal's structural characteristics of the capital market where the banking and financial institutions hold 64.7 percent of the total market capitalization (SEBON, 2023) and narrow base, only 19.4 percent of the population involved in share transactions (MoF,2023).

The NEPSE index has shown significant ups and downs, reflecting the instability of Nepal's capital market. On August 31, 2008, the index reached a record high of 1175 points but fell sharply to 609 points by January 22, 2009 (NRB, 2009). A more severe crash happened in 2011, when the index dropped to an all-time low of 292 points on June 15 before recovering slightly to 362.5 points by mid-July (NRB, 2011). The NEPSE index crash of 2011 was a result of speculative trading fueled by margin loans and weak market fundamentals (NRB, 2011). As the Nepal Rastra Bank (NRB) tightened liquidity to address rising credit risks, the stock market declined sharply, exposing vulnerabilities in the banking sector. Defaults on margin loans pressured banks' balance sheets, leading to a liquidity crisis that constrained credit availability for other sectors of the economy. In response, the NRB intervened by tightening regulations on margin lending and injecting liquidity into the banking system, stabilizing financial conditions over time (Shrestha and Subedi, 2014).

Similarly, during the COVID-19 pandemic, the NEPSE index saw rapid growth, reaching its highest level ever at 3198 points on August 18, 2021. By mid-July 2021, it stood at 2883.4 points, which was more than double the 1362.4 points recorded the year before. This growth, driven by excess liquidity and speculative trading, created systemic risks as banks increased their exposure to margin loans. However, this growth was short-lived, as the index fell again to 2009.46 points by mid-July 2022. When the NRB subsequently tightened monetary policy in 2022, the stock market corrected sharply, leading to investor losses, rising non-performing assets (NPAs), and broader financial stress. The NRB's interventions, including capping margin lending and managing liquidity, were critical in containing the spillover effects on the financial system (NRB, 2023).

These trends show that Nepal's stock market is highly volatile and vulnerable to risks, especially when excess liquidity and loose credit conditions lead to speculative bubbles. These episodes highlight the dual role of Nepal's stock market as a driver of economic growth and as a potential amplifier of systemic risks. The NRB's role in regulating margin lending, maintaining liquidity, and ensuring financial stability has been vital in mitigating the impact of market volatility. Understanding the interplay between monetary policy and stock market dynamics in Nepal is essential for designing effective policy frameworks. This study empirically investigates whether and how Nepal's monetary policy responds to fluctuations in the NEPSE index, contributing to the broader discourse on financial stability and monetary policy in developing economies. Given NRB's crucial role in maintaining the overall stability, it is imperative to assess NRB's reaction to the financial sector through the lens of the stock market. The empirical study on the same has a broader implication in the policy making including an addition to the stock of knowledge in this area.

The prime aim of this paper is to investigate the extent to which Nepal's monetary policy responds to NEPSE index volatility, and vice versa, and whether monetary policy shifts have any impact on the stock market of Nepal. To this end, this work uses the Autoregressive Distributed Lag (ARDL) Bounds Test approach to analyze long-term relationships between the NEPSE index and the key monetary policy tool, i.e., the interbank rate and T-bill rate. As there is no co-integration, a Vector Autoregression (VAR) is employed in analyzing short-run dynamic relations. The Block Exogeneity Wald Test is also employed to check for Granger causality between monetary policy tools and stock market prices. Results indicate the existence of one-way causality from monetary policy tools to the NEPSE index, but the contrary relation assuming causality from the NEPSE index to monetary policy tools does not find any empirical support. These findings imply that monetary policy influences stock prices in Nepal but does not react to the movements in the stock market.

This paper is divided into five sections. Section 1 introduces the background, research issues, and objectives of the study. Section 2 provides a brief review of both theoretical and empirical literature relevant to the study. Section 3 discusses the methods and data used in this study, while Section 4 presents the results and discussion, and the final section concludes the study.

Review of literature

The relationship between monetary policy and the stock market has been extensively studied in macroeconomic and financial literature. While the impact of monetary policy instruments like interest rates, reserve requirements, and open market operations on stock markets is well-documented (e.g. Galí, & Gambetti,2015; Sellin, 2001; Okpara, 2010), the reverse influence of stock market indicators on monetary policy decisions have received less attention. This gap in the literature is particularly evident in the context of developing economies, where stock markets are emerging and gaining significance in economic dynamics.

There is a debate on whether the monetary authority should react to stock prices or not. This debate has erupted since the speech of the Federal Reserve's Chairman

Greenspan in 1996 addressing his concern about the 'irrational exuberance' in the stock market (Hafner and Lauwers, 2017) and gaining prominence following the Great Financial Crisis. As an empirical matter, the early contributors like (Bernanke and Gertler, 2000) found statistically insignificant and sometimes even negative responses of central banks to stock market fluctuations while the more recent contributors argue that central banks respond positively and significantly to stock market movements like in Rigobon and Sack (2003), in Chadha, Sarno, and Valente (2004), in Bjørnland and Leitemo (2009) and in Castelnuovo and Nisticò (2010). This policy debate reflects the lack of consensus in the theoretical literature about the monetary authority's reaction to stock price movements.

Hafner and Lauwers (2017) investigated whether the US Federal Reserve has reacted to asset price developments over the period 1979–2011 using the augmented Taylor rule and revealed that the monetary policymakers did not target stock prices systematically, but rather reacted on a few occasions during the full sample period, when misalignments in stock prices were relatively large. Ravn (2012) investigated the potential asymmetry in the response of monetary policy to stock prices in the US, applying the identification procedure through heteroskedasticity to a daily dataset covering the period 1998-2008. The result confirmed that while monetary policy reacted significantly to stock price drops, no significant reaction to stock price increase was found. The interactions between stock market fluctuations and monetary policy within a DSGE model for the U.S. economy by Castelnuovo and Nisticò (2010) identified a significant and counteractive response of the Fed to stock-price fluctuations. On the contrary, Fuhrer and Tootell (2008), using Generalized Method of Moments (GMM), estimated a forward-looking Taylor rule and could not find much evidence to support the theory that the Federal Open Market Committee reacts to stock prices. D'Agostino et al. (2005) discovered that during times of high stock market volatility, the Fed's response is noticeably greater than during times of low volatility.

Bjørnland and Leitemo (2005) estimated the interdependence between US monetary policy and the S&P 500 using structural VAR methodology and discovered that when a monetary policy shock elevates the federal funds rate by ten basis points, stock prices instantly drop by 1.5 percent, and, a one percent gain in stock prices causes a five-basis point increase in the interest rate. A forward-looking Taylor rule model has been applied by Hayford and Malliaris (2004) to examine if monetary policy since the 1987 stock market crash has been influenced by the valuation of the stock market and they found no empirical evidence that the Federal Reserve policy attempted to moderate stock market valuations during the late 1990s despite the ''irrational exuberance'' comments by Chairman Greenspan. Rigobon and Sack (2003) used an identification technique based on the heteroskedasticity of stock market returns to measure the reaction of monetary policy to the stock market in US and found that the rise or fall in the S&P 500 index by 5 percent leads to a significant policy response i.e. it increases the chances of a 25-basis point tightening or easing by about a half by the Federal reserve.

The existing studies primarily focus on the impact of the monetary policy on the stock market but there is a dearth of literature on whether the Nepal Rastra Bank (NRB) responds to the stock market changes through its policy framework or not. Given Nepal's evolving capital market and NRB's role in economic stabilization, understanding this interaction is crucial for assessing the broader implications of monetary policy on financial stability and investor confidence. This study aims to fill this gap by empirically analyzing whether NRB's policy stance is influenced by changes in the NEPSE index.

Methods and data

This paper uses the monetary policy reaction function approach to examine whether NRB reacts to the performance of the Nepal stock market through its policy framework. For this purpose, the basic Taylor rule has been extended by incorporating the stock market index of Nepal. The interest rate has been considered as the policy choice of NRB and NEPSE index is the explanatory variable, while inflation and the output gap are considered as the control variables.

In order to accomplish this task, this study uses quarterly data on interest rates, NEPSE index, GDP, and inflation for the period ranging from 2004 to 2022, and the data have been retrieved from NRB database on Nepalese economy, official websites of Securities Board of Nepal (SEBON) and NEPSE for the empirical analysis. In order to examine the monetary policy response to stock price fluctuations in Nepal, Taylor's rule has been estimated.

Taylor (1993) developed the following form of rule to be used in determining monetary policy making which relates the setting of short-term nominal interest rate to the evolution of the lagged price inflation and output gap as shown in the following equation.

$$i_t = r^* + \pi_t + \alpha(\pi_t - \pi_t^*) + \beta(y_t - y_t^*) \quad (1)$$

Where,

i_t is the short-term nominal interest rate, r^* is the long-run equilibrium real interest rate, π_t is the annual inflation rate, π_t^* is the central bank's targeted inflation rate, $(\pi_t - \pi_t^*)$ is the inflation gap, y_t is the real GDP in log form, y_t^* is the potential GDP in log form, $(y_t - y_t^*)$ is the output gap. The output gap is the difference between actual and potential output that is calculated as $\frac{\text{Yactual} - \text{Ypotential}}{\text{Ypotential}}$ *100. α and β are the inflation and output response parameters to be estimated.

Now, the augmented Taylor rule after adding the stock price index for this study is given as:

$$i_t = r^* + \pi_t + \beta_1 (\pi_t - \pi_t^*) + \beta_2 (y_t - y_t^*) + \gamma \, NEPSE_t + \varepsilon_t \text{ …………… } (2)$$

Here, i_t has been used to denote the weighted average of the interest rate from 91 day T-bill as well as the interbank rate among the commercial banks as the short-term interest rate or monetary policy instrument as the bank rate of Nepal Rastra Bank is revised only in three months and most of the time, it remains unchanged. However, the T-bill rate and interbank rate adjust daily according to changes in expectations of monetary policy over the coming three months. r^* is the long run equilibrium real interest rate, which is assumed to be 6.5 percent as per the monetary policy of 2023/24. The consumer price index was used to measure inflation which is denoted by π_t. For inflation gap $(\pi_t - \pi_t^*)$, the data on targeted inflation i.e. π_t^*, however, is not available so only π_t has been used for the analysis.

Similarly, the output gap $(y_t - y_t^*)$ consists of actual output (y_t) and potential output (y_t^*). Only the data on actual output is available, hence, to find out the output gap, Hodrick-Prescott (HP) filter has been employed which is the most commonly used statistical method because of its flexibility in tracking the fluctuations of trend output (Konuki, 2010). The HP filter minimizes the sum of the square of the gap between the actual and potential output subject to variation of potential output over the sample period. It can be written as:

$$\text{Min} \sum_{t=1}^{T} (y_t - y_t^*)^2 + \lambda \sum_{t=1}^{T} [(y_{t+1} - y_t^*) - (y_t - y_{t-1}^*)]^2$$

The value of the restriction parameter λ which captures the degree of smoothness of the trend has been set to 1600 since the study uses quarterly data by following Raven and Uhlig (2002). β_1 and β_2 are the inflation and output response parameters respectively. $NEPSE_t$ is the quarterly stock market index and γ is the stock price response parameter. ε_t is the error term. Therefore, the above equation 2 can be converted into estimable form as:

$$i_t = \beta_1 (\pi_t) + \beta_2 (y_t - y_t^*) + \gamma \, NEPSE_t + \varepsilon_t \text{ ……………..… } (3)$$

The most commonly used standard procedure of unit root i.e. Augmented Dicky-Fuller (ADF) test has been employed to test that the process is stationary. To identify the short-run and long-run co-integrating relationship between the variables, the ARDL approach to co-integration has been applied. Finally, equation (3) has been estimated using the VAR model.

Results and discussion

As discussed before, the researcher has followed the standard procedure by employing the ADF test. Table 1 shows the result of ADF test.

Table 1: Augmented Dickey Fuller (ADF) test

Variables	ADF test t-stat	p-value	Order of Integration
T-bill rate	-1.784162	0.3634	
dT-bill rate	-9.565896***	0.0000	I (1)
Interbank rate	-1.784162	0.3854	I (1)
dInterbank rate	-9.565896***	0.0000	
Inflation	-3.203041**	0.0238	I (0)
logNEPSE	-2.142444	0.5136	
dlogNEPSE	-6.203962***	0.0000	I (1)
Output gap	-6.640140***	0.0000	I (0)

Note: *** implies significance at 1% level and ** indicates significance at 5% level.

Source: Author's calculation

As depicted in the table, inflation and output gap are stationary at level whereas interest rate on 91 day T-bill rate, interbank rate and log NEPSE are stationary at first difference. Since all the variables are not in same order, ARDL model has been applied to determine the co-integrating relationship between the variables. Appropriate lag length was selected based on Schwarz information Criteria (SIC) for ARDL analysis. The result of ARDL bounds test is presented in Table 2.

Table 2: ARDL bound test result

	T-bill rate	Interbank rate
Computed F-statistic	2.410678	2.605799
1% critical bound value		
I (0)	3.65	4.048
I (1)	4.66	5.092
5% critical bound value		
I (0)	2.79	2.946
I (1)	3.67	3.862
10% critical bound value		
I (0)	2.37	2.482
I (1)	3.2	3.334

Note: I(0) indicates the lower bound and I(1) indicates the upper bound

Source: Authors' calculation.

Table 2 shows the computed F-statistic for T-bill rate and interbank rate as the dependent variables and the logNEPSE as explanatory variables which are 2.410678 and 2.605799 respectively. These computed values of the F-statistics are below the lower bound I(0) critical values at 1%, 5% or 10% level of significance. It fails to reject the null hypothesis and concludes that the variables are not co-integrated. As there is no long-run relationship between the variables, this study, therefore, estimates the short-run relationship between the variables through vector autoregressive (VAR) model.

The estimation of a VAR model requires selecting the appropriate lag order, estimating the VAR model and checking the stability of VAR. The VAR lag selection criteria model was used to find the optimal lag length. There are multiple criteria like LR, FPE, AIC, SC and HQ for the selection of the lag length. This study has taken into account all of these criteria and the chosen lag length was 1 based on the SIC criteria which is suitable for the small sample as shown in Table 3.

Table 3: VAR lag length selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-241.7015	NA	0.016164	7.226515	7.357074	7.278247
1	-41.30393	371.3249*	7.14e-05*	1.803057*	2.455853*	2.061715*
2	-30.31048	19.07688	8.31e-05	1.950308	3.125342	2.415892

Source: Authors' calculation

Block Exogenity Wald test was conducted to test Granger causality between monetary policy and stock price. The results are presented in Table 4 for the T-bill rate as a dependent variable and Table 5 for the interbank rate as the dependent variable.

Table 4: Granger Causality Test (T-bill rate)

Dependent variable: T-bill rate			
Excluded	Chi-square	df	Probabilty
Inflation	0.265735	1	0.6062
Output gap	2.637601	1	0.1044
Log NEPSE	3.550196	1	0.0595
Dependent variable: Log NEPSE			
T-bill rate	20.76136	1	0.0000

Source: Authors' calculation.

As reported in Table 4, log NEPSE is not found to Granger cause T-bill rate. It means, past value of NEPSE does not provide useful information in predicting future values of T-bill rate. However, T-bill rate has been found to Granger cause NEPSE, indicating unidirectional causality from T-bill rate to NEPSE.

Table 5: Granger Causality Test (Interbank rate)

Dependent variable: Interbank rate			
Excluded	Chi-square	df	Probabilty
Inflation	0.153192	1	0.6955
Output gap	4.515174	1	0.0336
Log NEPSE	1.704039	1	0.1918
Dependent variable: Log NEPSE			
Interbank rate	18.95176	1	0.0000

Source: Authors' calculation.

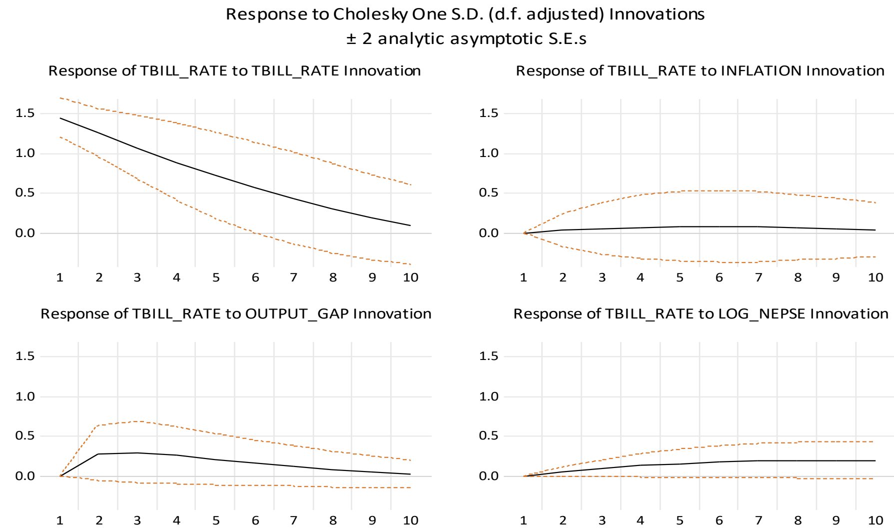
As shown in Table 5, logNEPSE is not found to Granger cause interbank rate. It means past value of NEPSE does not provide useful information in predicting future values of interbank rate. However, the interbank rate has been found to Granger cause NEPSE, indicating unidirectional causality from interbank rate to NEPSE. This result is similar to the results with the T-bill rate.

The finding of this study is not consistent with the findings of contributors like Rigobon and Sack (2003), who argue that central banks respond positively and significantly to stock market movements. The result agrees with the findings of researchers like Bernanke and Gertler (2000), who found statistically insignificant and sometimes even negative responses of central banks to stock market fluctuations, and also with Hafner and Lauwers (2017) who found that the monetary policymakers did not target stock prices.

The impulse response function for VAR is calculated with the following ordering: T-bill rate, inflation, output gap, and logNEPSE. Figure 1 plots the response of the T-bill rate to a first-period shock to each in turn. Similarly, Figure 2 shows the impulse response function of VAR calculated with the following ordering: interbank rate, inflation output gap, and log NEPSE, i.e. it plots the response of interbank rate to a first-period shock to each in turn.

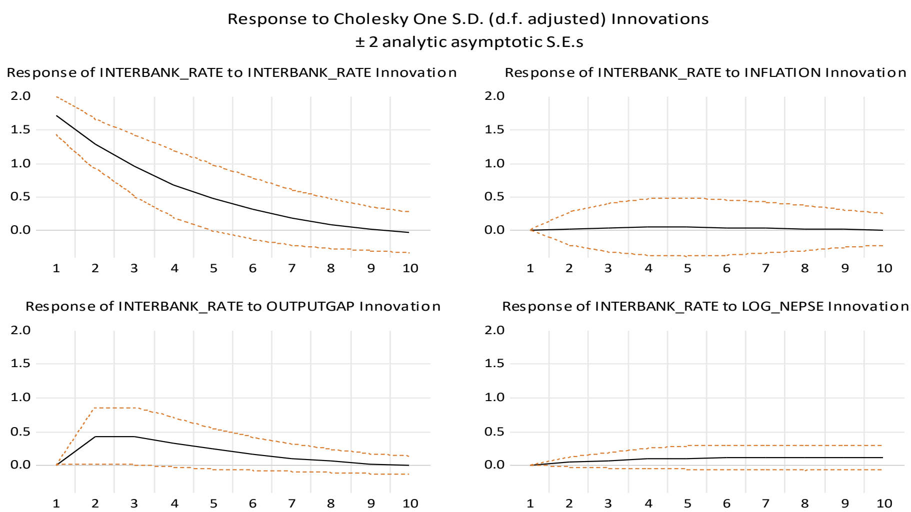
In the fourth part of the figure 2, it can be seen that T-bill rate does not respond to NEPSE shock in the first time period. However, one standard deviation upward shock to NEPSE tend to result in 0.1 standard deviation increase in T-bill rate in the second period and it stabilizes around 0.2 from the sixth quarter. The upper and lower bound confidence intervals show a range within which the impulse response may vary. Since the lower bound is not above zero, the effects of the shock are insignificant.

Figure 2: Response of T-bill rate to a first-period shock of each



Source: Authors' estimation.

Figure 3: Response of interbank rate to a first-period shock of each



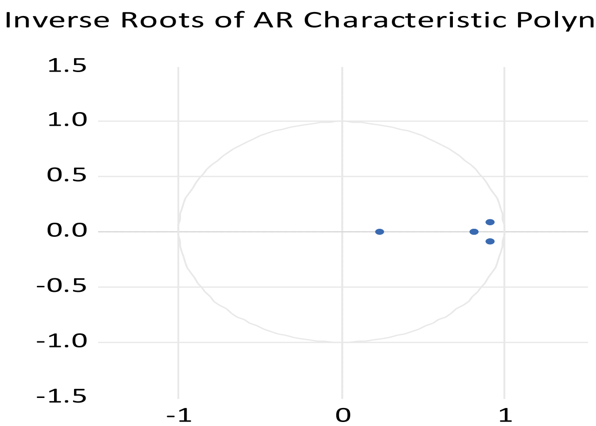
Source: Authors' estimation.

In a similar manner, the fourth part of Figure 3 shows that the interbank rate does not respond to NEPSE shock in the first time period. However, one standard deviation upward shock to NEPSE tends to result in a 0.05 standard deviation increase in the interbank rate in the second period and it stabilizes around 0.1 from the fifth quarter. Since the lower bound is not above zero, the effects of the shock are insignificant.

VAR stability conditions and residual diagnostics

Stability of the VAR system implies stationarity. If all inverse roots of AR characteristic polynomial lie inside the unit root circle, the estimated VAR is stable. Similarly, there should be no serial autocorrelation and heteroskedasticity. Hence, residual diagnostics were performed for the study. Figure 4 and Figure 5 show the inverse roots for T-bill rate and interbank rate respectively whereas Table 6 shows the serial correlation test and Table 8 shows the result for the heteroskedasticity test.

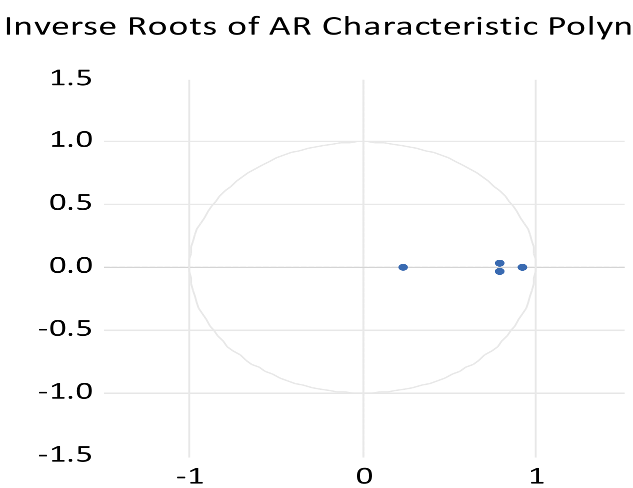
Figure 4: Inverse roots of AR characteristic polynomial (T-bill rate)



Source: Authors' estimation

Since all inverse roots of the AR characteristic polynomial for the T-bill rate lie inside the unit root circle as shown in Figure 4, the estimated VAR is stable.

Figure 5: Inverse roots of AR characteristic polynomial (Interbank rate)



Source: Authors' estimation.

Similarly, for interbank rate, all inverse roots of AR characteristic polynomial lie inside the unit root circle as shown in Figure 5, the estimated VAR is stable.

Table 6: VAR residual serial correlation test

Panel A (T-bill rate)			
F-stat	0.759293	Prob. F	0.3867
Obs*R-squared	0.818019	Prob. Chi-square	0.3658
Panel B (Interbank rate)			
F-stat	1.2575	Prob. F	0.2288
Obs*R-squared	0.1177	Prob. Chi-square	0.3777

Source: Authors' calculation

As shown in Table 6, the probability value of F-statistic and the probability value of Chi-square statistic are greater than 0.05 in both panel A and panel B which suggests that there is no problem of serial correlation in the estimated VAR model.

Table 7: VAR residual heteroskedasticity test

Panel A (T-bill rate)			
Chi-square	82.59231	Probability	0.3992
Panel B (Interbank rate)			
Chi-square	80.17779	Probability	0.4734

Source: Authors' calculation.

As shown in Table 7, the probability values are greater than 0.05 in both panel A and panel B which suggests that no problem of heteroskedasticity was found in the estimated VAR model.

Conclusion

This study analyzed the monetary policy reaction function of NRB to stock price fluctuations in the context of Nepal. The findings reveal that monetary policy does not react with the fluctuations in stock price movements in the context of Nepal. NEPSE is not found to Granger cause T-bill rate as well as interbank rate, which means, the past value of NEPSE does not provide useful information in predicting future values of T-bill rate and interbank rate. However, both the T-bill rate and the interbank rate have been found to Granger cause NEPSE, indicating unidirectional causality from interest rate to NEPSE.

Such findings in the Nepalese context could be attributed to the small size of the Nepalese capital market which is captured and controlled by big investors. Trading is usually guided by rumors for small investors with poor financial literacy and they make purchases in an ad-hoc basis. Moreover, concerning the boom and burst of 2020, a significant portion of liquidity entered into the stock market with most businesses closing and a low interest rate. The bearish trend that followed could be attributed to the pandemic-induced market disruptions, liquidity crunch faced by the financial institutions, inflation, and increasing interest rates which introduced significant market corrections. Hence, the fluctuations could be explained by these factors rather than the central bank influencing them.

Due to annual time series data, this study has not captured the seasonality in the stock market and interest rate which are more commonly observed in Nepal. Further, the other structural fractures of the stock market performance such as narrow concentration, bank dominations, poor financial literacy among others, and NRB's interest rate volatility due to other factors such as remittance inflow, seasonal nature of the economic activities, and government expenditure influence the interest rate. Further research incorporating these factors in the monetary policy reaction function may show NRB's response to the stock market performance.

References

Adhikary, N. (2005). Securities markets development in Nepal. *SEBON Journal, 2*, 40-54.

Bernanke, B., & Gertler, M. (2000). Monetary Policy and Asset Price Volatility. NBER Working Paper No. 7559.

Bjørnland, H., & Leitemo, K. (2009). Identifying the interdependence between US monetary policy and the stock market. *Journal of Monetary Economics, 56*(2), 275–82.

Castelnuovo, E., & Nistico, S. (2010). Stock market conditions and monetary policy in a DSGE model for the U.S. *Journal of Economic Dynamics and Control, 34*(9), 1700–1731.

Chadha, J. S., Sarno, L., & Valente, G. (2004). Monetary Policy Rules, Asset Prices, and Exchange Rates. *IMF Staff Papers, 51*(3), 529–52.

DíAgostino, A., Sala, L., & Surico, P. (2005). The Fed and the Stock Market. Computing in Economics and Finance. 2005, Conference Paper 293. *Society for Computational Economics*.

Fuhrer, J., & Tootell, G. (2008). Eyes on the prize: How did the Fed respond to the stock market? *Journal of Monetary Economics, 55*, 796-805.

Hafner, C. M., & Lauwers, A. R. (2017). An augmented Taylor rule for the Federal Reserve's response to asset prices. *International Journal of Computational Economics and Econometrics, 7*(1/2), 115.

Hayford, A. G., & Malliaris, M. D. (2005). Monetary Policy And The U.S. Stock Market. *World Scientific Book Chapters, in: Economic Uncertainty,* *Instabilities And Asset Bubbles Selected Essays*, 233-247. World Scientific Publishing Co. Pte.

Konuki, T. (2010). Estimating potential output and the output gap in Slovakia. *Eastern European Economics, 48(2)*, 39-55.

Ministry of Finance. (2023). *The Economic Survey 2022/23.* Ministry of Finance, Government of Nepal, Singhadarbar, Kathmandu.

Nepal Rastra Bank. (2011). *Monetary Policy 2011/12.* Nepal Rastra Bank, Baluwatar, Kathmandu.

Nepal Rastra Bank. (2023). *Monetary Policy 2023/24.* Nepal Rastra Bank, Baluwatar, Kathmandu.

Raven, M. O., & Uhlig, H. (2002). On adjusting the Hodrick-Prescott filter for the frequency of observations. *The Review of Economics and Statistics, 84(2)*, 371-376.

Ravn, S. H. (2012). Has the Fed reacted asymmetrically to stock prices? *B.E. Journal of Macroeconomics, 12*(1).

Rigobon, R., & Sack, B. (2003). Measuring the reaction of monetary policy to the stock market. *Quarterly Journal of Economics, 118*(2), 639–69.

Securities Board of Nepal. (2023). *Annual Report 2022/23.* Securities Board of Nepal, Khumaltar, Lalitpur, Nepal.

Shrestha, P. K., & Subedi, B. R. (2014). Determinants of stock market performance in Nepal. *NRB Economic Review*, *26*(2), pp 25-40.

Taylor, J. B. (1993). 'Discretion versus policy rules in practice'. *Carnegie-Rochester Conference Series on Public Policy*, *39(1)*, pp. 195–214.