

Macroeconomic Variables and NEPSE Index

Asst.Prof. Netra Kumar Pandey
Bhairahawa Multiple Campus

Abstract

In the context of Nepal, this study investigates the long- and short-term factors that affect inflation with monthly time series data of fiscal year 2016/17 to 2021/22 (70 observations) employing the ARDL bounds test and error correction technique of econometric analysis. In order to identify the order of integration, the stationarity of all variables were investigated by running PP test. Variables are found to be stationary at level I (0) and first I (1) difference. In this study NEPSE Index (NI) is the dependent variable and Interest Rate (IR), Broad Money Supply (MS), Exchange Rate (ER) and Inflation (INF) are the independent variables. The study shown that Exchange rate (ER), Interest Rate (IR) Broad Money Supply (MS) and is must significant with NEPSE Index (NI). Where as there is insignificant relationship between NEPSE Index (NI) and Inflation (INF) in short run. These results imply that the short-term success of Nepal's Stock market strategy depends on managing interest rate, exchange rate and reducing imports from India, increasing foreign reserve and consistent political scenario as well.

Key Words: *NEPSE Index, Inflation, Interest Rate, Broad Money Supply, Exchange Rate*

I. INTRODUCTION

Normally, the stock market index is taken as a barometer of an economy because it indicates the overall economic status of the nation. The concept of stock market is wide because it is not only market that transacted securities only but also play significant role in the creation of capital for investment. The stock market refers to the collection of markets and exchanges where the regular activities of buying, selling and issuance of shares of publicly held companies take place. An index is an indicator or measure of something that indicates or represents the changes in the values between two distinct time periods. A stock market index tracks the movement of a market as whole (Thapa & Rana, 2017).

The stock market is seen as a gauge of economic expansion worldwide. The ability to obtain funds through the sale of shares to investors is provided by the stock exchange for

businesses. The capital market, which serves as an alternate source of funding for businesses, is one measure of the stability of macroeconomic conditions in the context of economic growth. It is crucial in directing scarce resources toward their most advantageous usage. As a result, it acts as a channel for the movement of money from financially strong industries to weaker ones. In addition, a stock market is crucial for supplying the financial system with liquidity because it serves as a marketplace for the trading of assets. Therefore, the stock market is regarded a crucial component of the financial system. A number Systemic and idiosyncratic elements have been found to have an effect on how the stock market operates. According to the Arbitrage Pricing Theory (APT), an expansion of the Capital Asset Pricing Model created by Ross in 1976, the stock market is primarily influenced by a number of macroeconomic factors, such as unexpected shifts in risk premiums, changes in the expected level of industrial production, unexpected inflation, and unexpected changes in the term structure of interest rates. Nepal Stock Exchange (NEPSE) is the only one capital market in Nepal. The history of stock market is not long in Nepal. In order to facilitate and encourage the expansion of the capital market, the Securities Exchange Center (SEC) was founded in 1976 (Gurung, 2004). However, it opened its floor for secondary trading of shares only in 1981, which was only for government bonds. The Securities Exchange Act of 1983 allowed for the opening of the SEC's trading floor to corporate share trading, though it was severely restricted. The Securities Exchange Center was transformed into Nepal Stock Exchange (NEPSE) Limited in 1993, launching the country's first organized and comprehensive stock market. Early in 1994, the NEPSE inaugurated its trading floor. It is now Nepal's only one stock market. Nepalese economy is in a developing phase. Financial sector has a crucial role to pool scattered savings for capital formation. Most business organization collect long term funds from financial market. Stock exchange is the market for long term capital where both new capitals can be raised by companies and where existing share can also trade (bought and sold) by providing secondary market for investors to sell their shares.

II. REVIEW OF LITERATURE

Review of International Studies

Liu, Y. (2004) analyzed the responses of stock prices to monetary policy shocks for the sample period of January 1988 to December 2002 in Canada and the United States based on VAR models with both recursive and non-recursive limitations. The data demonstrates that a contractionary monetary policy shock results in an immediate and enduring

reduction in stock values. All models with various identifying procedures yield reliable results. According to variance decomposition analysis, monetary policy innovations only contribute a small portion—roughly 1-3% at a six-month horizon and 5-10% at longer horizons—of the forecast error variance of stock prices. The evidence presented in this study generally supports the claim that stock market participants anticipate higher interest rates, lower real profits, and hence lower stock prices following a contractionary monetary policy shock.

Buyuksalvarci and Abdioglu (2010) use the techniques of the long-run Granger non-causality test to investigate the causal links between stock prices and macroeconomic variables in Turkey. Using monthly data for the period March 2001 to June 2010, researchers examine the causal relationships between the ISE-100 Index (Istanbul Stock Exchange-100) and the five macroeconomic variables: foreign exchange rate, gold price, broad money supply, industrial production index, and consumer price index. The findings imply that for Turkey, there is a long-run, unidirectional causal relationship between stock price and macro variables. This suggests that future changes in the foreign exchange rate, gold price, money supply, index of industrial production, and rate of inflation in Turkey may be predicted using the stock market as a leading indicator.

Kuwornu (2012) investigates the effect of macroeconomic variables on the Ghanaian stock market returns using monthly data over period January 1992 to December, 2008. Consumer Price Index (as a proxy for inflation), Crude Oil Price, Exchange Rate, and 91 Day Treasury Bill Rate (as a proxy for interest rate) are macroeconomic variables considered in this study. The Johansen Multivariate Co-integration Procedure is used in the investigation. The empirical findings show that the four macroeconomic factors and stock returns in Ghana co-integrate, implying a long-run equilibrium relationship. The results also show that, in the short run, Treasury Bill Rate strongly affects stock returns. With an elasticity of 0.005, this relationship indicates that a 1% increase in the Treasury Bill Rate will result in a 0.005% increase in stock returns. With an elasticity of -0.135744, the inflation rate, which is significant at 1%, indicates that a 1% increase in the inflation rate will result in a 0.14% decline in stock returns.

Barnor (2014) examine the relationships between selected macroeconomic variables and their effect on the stock market returns on the Ghana stock market. To ascertain whether there was a statistically significant correlation between stock market returns and the inflation rate, exchange rate, interest rate, and money supply, time-series data analysis was used. The results showed that exchange rates had a strong positive impact on stock market returns while interest rates and money supply had a big negative impact. Furthermore,

Ghana's stock market results were not considerably impacted by inflation rates. A better understanding of how macroeconomic factors affect stock returns has implications for positive social change since it may help policymakers and household agents make better investment choices, boosting their own financial standing.

Kotha and Sahu (2016) explored the long-term and short-run nexus between Indian stock market and selected macroeconomic indicators employing monthly data from July 2001 to July 2015. When Granger-causality tests and Johansen's co-integration analysis were used, the study found that three of the four factors—the WPI, the money supply, and the T-bill rate—was relatively more important in the long term. Regarding short-term relationships, the study found that the exchange rate and the Sensex were causally related in both directions. While interest rates exhibited a negative and insignificant relationship with stock returns, inflation and the money supply did show a positive and significant relationship.

Aggarwal and Saqib (2017) Investigate the effects of changes in specific macroeconomic variables on the Indian Stock Market is the primary goal of the current study (NIFTY 50 INDEX). Multivariate Regression Models computed using the Ordinary Linear Square (OLS) approaches have been used to estimate the relationship. All tests are performed using monthly data, and the time frame under consideration is 2001–2016. According to estimated regression coefficients and t-statistics, the US GDP, S&P index, gold prices, Indian WPI, its fiscal deficit, IPI, and exchange rate all have a considerable impact on the Nifty 50 index.

Amtiran, et al. (2017) conducted a study to examine the relationship between macroeconomic factors and stock returns in the Indonesian capital market. For this investigation, secondary data were used from 2007 to 2014. Data were examined using the OLS regression technique, and the purposive sampling technique was applied to a sample of 80 companies that were listed on the Indonesian stock exchange. The findings demonstrated a positive association between inflation and stock returns whereas a negative correlation existed between exchange rate and interest rate.

Ullah, et al. (2017) investigate the impact of macroeconomic factors in influencing the stock market performance of SAARC countries using the OLS multiple regression Model. Authors used annual data for the years 2005 through 2015. According to the study's conclusions, the exchange rate, foreign currency reserves, and interest rate are all statistically significant in influencing the performance of the stock markets in SAARC nations. In contrast, there is little correlation between inflation and money in terms of how the stock market performs.

Amith and Sampagnaro (2018) examine the long-term and short-term relationships between the stock markets of India, China, and Japan, as well as important macroeconomic factors including exchange rates and inflation (measured by the consumer price index) of ASIAN 3 economies (India, China and Japan). There have been used monthly time series data from January 2008 to November 2016. The long-run and short-run statistical dynamics have been derived using the unit root test, the cointegration test, the Granger causality test, and the pooled mean group estimator. In contrast to inflation, which has a negative and insignificant long-run impact on stock markets, the findings of the pooled estimated results of the ASIAN 3 countries reveal that exchange rates have a positive and considerable long-run impact. The short-term association between macroeconomic factors and stock markets is not statistically significant. In this study, the effects of macroeconomic factors on the stock market performance of developed and developing economies (China and India) are highlighted (Japan).

Liu, et al. (2021) uses the dynamic Bayesian network method to study the dynamic relationship between the Chinese macroeconomic system and the stock market. According to the analysis, there is no consistent association between the macroeconomic system and the stock market throughout time. The macroeconomic system and the stock market are often rather independent of one another. However, a number of macroeconomic variables, including the Purchase Management Index, may have an impact on the stock market via certain industries. It is concluded that the stock market's "barometer" function is fragile and easily harmed by elements like the unreasonable sentiment of investors.

Bisharat, et al. (2021) examines the short- and long-term effects of macroeconomic factors on the KSE 100 index and sectoral stock indices under bearish, bullish, and normal stock market price states from 2005 to 2009. These variables include the industrial production index, inflation, exchange rate, interest rate, foreign direct investment, and trade balance. In this study, the standard autoregressive distributed lag (ARDL) model is compared to the quantile autoregressive distributed lag (QARDL) model for analyzing the short- and long-run effects across different quantiles of the dependent variables. According to ARDL calculations, the industrial output index, trade balance, and foreign direct investment have a strong long-term impact on stock values. The short-run effects of the exchange rate, interest rate, consumer price index, and foreign direct investment differ between the bearish, bullish, and normal stages of the total stock prices, according to estimations from the QARDL model. Additionally, the short-run results for the sectors of auto assembler, cement, and commercial banks are consistent with overall stock indices, although all macroeconomic variables have an asymmetrical impact on other sectors, such as oil and

gas and power generation and distribution. With the exception of the industrial output index for the Auto Assembler sector, the Oil and Gas sector, and the composite index of the KSE 100 index, all macro-variables have differing long-term effects on different stock market situations.

Antonio, et al. (2021) studied using Autoregression Distributed Lag (ARDL) at the Islamic capital market, the relationship between macroeconomic variables and JII and IHSG price. The findings demonstrate that the movement of the JII and IHSG price index is highly influenced by the Consumer Price Index (CPI) and exchange rate (EXC). This suggests that domestic output and the currency rate have an impact on the short-term fluctuation of the JII and IHSG index. The study's findings also highlight the crude oil price (COP) variable and the problem of projected increases in energy usage.

Bhama (2022) study the behavior of the Indian stock market is examined in relation to a number of macroeconomic factors and the COVID-19 epidemic. The results on the NIFTY 100 enterprises using co-integration and the vector error correction model reveal co-integration and long-term relationship among variables. The volatility of the exchange rate had an inverse relationship with the Indian stock market; the coefficient value was 57.582. With the emergence of COVID-19 cases, exchange rates sharply increased, with the Indian rupee's value versus the US dollar reaching 76.95. Additionally, these cases do negatively affect stock market mood, but the association is less strong (the value is 0.22 compared to the exchange rate) because of this. The stock market was only marginally affected by COVID-19's cumulatively significant negative impact on the economy.

Review of Nepalese Studies

Baskota (2007) considered the NEPSE data during 1994 to 2006 and analyzed the effect of trading days, trading volumes, base money supply, interest rate, inflation and industrial production by means of regression analysis. The study came to the conclusion that stock price changes are not explained by macroeconomic factors and that there is no persistent volatility in the Nepalese Stock Market. The study also conducted event analyses for a few political situations, coming to the conclusion that politics is not the only element explaining Nepal's stock market movement.

Bhattarai and Jhosi (2009) studied the dynamic relationship among the market indexes and macroeconomic factors the context of Nepalese stock market. The study demonstrated the interconnectedness between some macroeconomic variables and stock indexes over both the short and long terms. The estimated results support the widely-held belief that stock returns serve as a hedge against inflation by pointing to a unidirectional short-run

(positive) causal relationship between the consumer price index (CPI) and stock index but a long-run reverse causal relationship (from stock index to CPI). The results of the multivariate analysis revealed the absence of long-term causation but validated the short-term positive and unidirectional association between money supply and stock index. However, the multivariate results showed no short-run correlation but long-run causality extending from stock index to Treasury bill rate. The findings of the variance decompositions demonstrated the stock index's substantial relative erogeneity, whilst the impulse response graphs demonstrated the stock index's reaction.

Karki (2017) investigated Nepal's stock market performance empirically by looking at macroeconomic issues. It takes into account the annual data of four macroeconomic factors real GDP, inflation, interest rate, and broad money supply from 1994 to 2016 and aims to show how these variables affect stock prices as measured by the "NEPSE Index" of the Nepalese capital market. According to empirical findings, the stock market's performance is observed to respond favorably to real GDP, inflation, and money supply and unfavorably to interest rates. More crucially, there is no evidence of cointegration between macroeconomic variables and the stock market index, suggesting that these factors are not responsible for stock price changes in Nepal. In the Nepalese stock market, it supports the random walk theory.

Rakhal (2018) studied the effect of remittances, money supply, exchange rate, and interest rate on stock market performance. With the use of a literature study, the main goal of this work is to identify a new subject of research from a Nepalese perspective. The analysis shows that money supply and remittances have a positive impact on the stock market whereas interest rates and currency rates have a negative impact.

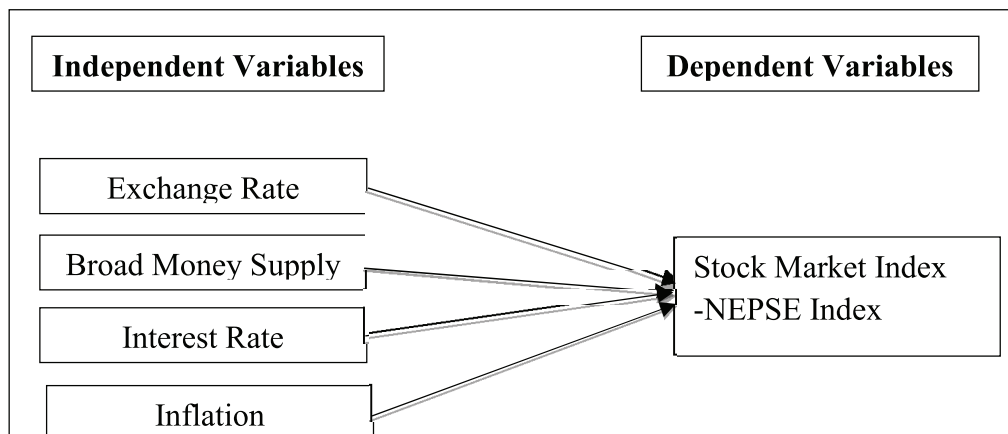
Ojha (2021) attempted to identify the relationship between major determinants and its impact of stock market of Nepal for the period of 1994-2020. It is discovered that there is a significant relationship between stock market factors and stock price. The results suggest that, over time, changes in the broad money supply, interest rates, inflation, and exchange rates are closely related to changes in stock market prices. When compared to interest rates, stock market price fluctuations go in the opposite way. GDP, the money supply, and the exchange rate all have positive connections in the short term, but only the money supply does so in the long run. As the money supply increases, stock market prices increase. This suggests that an expansionary monetary policy would boost stock values and that an increase in the money supply causes economic growth by increasing cash flows.

Lamichhane and Kulshrestha (2022) investigates the effect of selected macroeconomic factors viz. remittances, money supply, exchange rate, and interest rate on stock market performance. The analysis shows that money supply and remittances have a positive impact on the stock market whereas interest rates and currency rates have a negative impact. There isn't agreement on the impact of each macroeconomic factor on stock market performance, though, as there is a variety of research that supports and refutes these findings. As a result, a similar study can be expanded using a different approach using this set of variables in the context of Nepal, which could assist to clarify the literature and provide a better description of the performance of the Nepalese stock market.

Research Framework

Many researchers have related several macroeconomic variables in existing literature affecting stock prices. The majorities of them basically focused on the several proxies of macro-economy like; exchange rate, Inflation, Interest rate and Broad money supply, whereas stock price is represented by the stock market index (NEPSE Index). Based of literature review the research framework of the study is presented as follows.

Figure 1: Research Framework



Source: Research Framework derived from Karki (2017)

III. RESEARCH METHODOLOGY

In this study NEPSE Index is the dependent variable and Interest Rate (IR), Broad Money Supply (LNMS), interest rate (IR) and inflation (INF) are the independent variables. The analysis used in this study cover monthly time series data of fiscal year 2016/17 to 2021/22 (71 observations) of Nepal. • Data have been taken from Ministry of Finance (MOF) website, Nepal Rasta Bank (NRB) website, Annual reports of NEPSE, The other sources are articles, past studies on related topics, published articles of different periodicals, economic journals and authors. To establish the relationship between independent and dependent variables inflation function is used which is like this:

$$\text{Model : } NI = \beta_0 + \beta_1 ER + \beta_2 LNMS + \beta_3 IR + \beta_4 INF + \varepsilon \dots\dots\dots$$

Whereas, NI = NEPSE Index,

ER= Exchange rate,

LNMS = Natural Logarithm of Broad Money Supply,

INF= Inflation,

β_0 = Constant Term,

$\beta_1, \beta_2, \beta_3, \beta_4$ = Intercept of respective independent variables

ε = Error term

IV. RESULTS AND ANALYSIS

The sequence of integration of the data is investigated using the Philips-Perron (PP) unit root test prior to calculating the long-run and dynamic error correction inflation models.

Unit Root Test

A time series data is considered to be stationary if its mean and variance are invariant. Stationary is a crucial criteria for time series data. With the help of this test, the issue of spurious regression will be solved by looking at the order in which the data are integrated. PP unit root test has been applied to test stationary of the data as suggested by Phillips & Perron (1988).

Table 1*Results of Unit Root Test*

Variables	Adj. t-Stat (At level)	Adj. t-Stat (At first difference)	Conclusion
NI	-0.9841 (0.7547)	-7.8572(0.0000)	I (1)
ER	-0.0321 (0.9519)	-6.1825 (0.0000)	I (1)
INF	-1.5538(0.5006)	-9.1784(0.0000)	I (1)
IR	-3.0709 (0.0336)	-4.0609 (0.0021)	I (0)
LNMS	-0.4180 (0.8994)	-3.8869 (0.0036)	I (1)

(Numbers in the parenthesis are probability values.)

Note: Author's calculations from E-views 12 SV, 2022

Table 1 clearly shows only interest rate is stationary at level because P-value is less than 5% at level. Other all variables are stationarity at first difference because their p-value is less than 5% at first difference. Thus, we have a case of a mixed order of integration of variables I(1) and I(0) and so this support using the ARDL co-integration approach.

Bounds Test for Co-integration Relationship

Bounds testing strategy is employed suggested by Pesaran et al. (2001) within the ARDL framework to test for cointegration. One benefit of employing the ARDL bounds test is that it may be used independently of the stationarity characteristics, whether the regressors are exclusively I(0) or I(1), or whether they are mutually integrated.

Table 2*Bounds Test for Cointegration Relationship*

Critical value bounds of the F –statistic: intercept and no trend						
	99%		95%		90%	
K=4	I (0)	I (1)	I (0)	I (1)	I (0)	I (1)
	3.29	4.37	2.56	3.49	2.2	3.09
F Statistics	7.7404 (Co-integration)					

Note: Author's calculations from E-views 12 SV, 2022

Table 2 represents results from the bounds test for co-integration between NEPSE index and its determinants. Given that the calculated F-statistics exceed the upper bound critical values at either 1 or 5% significance levels, the results demonstrate the rejection of the null hypothesis that there is no co-integration when NEPSE index is normalized in each of the estimated models. As a result, there is strong evidence that NEPSE index and its covariates have a long-term steady state relationship. Therefore Interest Rate (IR), Broad Money Supply (MS), Exchange Rate(ER) and Inflation(INF).

Table 3*Estimated Long-Run Inflation Models*

Variables	Coefficients	t-Statistics	Probability
ER	-86.1592	-4.1487	0.0001
INF	-3.4592	-0.0622	0.9506
IR	-397.2598	-6.3991	0.0000
LNMS	8395.710	7.2110	0.0000

Note: Dependent variable = NI, ARDL (1,0,0,0,1) selected for Model

Note: Author's calculations from E-views 12 SV, 2022

Interest Rate(INF) is by far the most significant determinant of NEPSE Index(NI) in the long-run followed by Exchange Rate(ER). There is negative significant impact between exchange rate ,interest rate and NEPSE Index. A number of diagnostic tests were used to guarantee the accuracy of the predicted parameters in the error correction model. Our findings demonstrate the absence of serial correlation, heteroskedastic errors, and non-normality of residual.

Table 4*Results of Residual Diagnosis*

Particulars	F-stat	Observed R- square	P-value
BG serial correlation LM test	0.3736	0.8470	0.6547
Heteroscedasticity BPG test	0.8308	5.1330	0.5269
Normality JB test	-	-	0.1091

Note: Author's calculations from E-views 12 SV, 2022

In table 4, The BG serial LM test shows that there are no serial correlations in the residuals because the observed R-square has a p-value of 0.6547, which is greater than 5% level of significance. Similar to this, the BPG test demonstrates homoscedastic residuals where the observed R square's p-value of 0.5269 is greater than 5% level of significance. Finally, the JB test demonstrates that the residuals are normally distributed, with a p-value of 0.1091 being more significant than 5% threshold. Table 5 displays the short-run outcomes calculated using the ARDL framework and its related diagnostic tests.

Table 5*Error Correction Representation for the Selected Autoregressive Distributed Lag (ARDL) Model*

Variables	Probability
NI(-1)	0.0000
ΔER	0.0025
ΔINF	0.9500
ΔIR	0.0004
$\Delta LNMS(-1)$	0.0055
ECT_{t-1}	0.0005

Model Summary

R-Squared	0.9642
Adjusted R-Squared	0.9608
F-Stat.	283.52
P-Value	0.0000
DW-Stat.	2.1438
AIC	12.4289
SIC	12.6537

Note: Dependent variable = NI, ARDL (1,0,0,0,1) selected for Model

Note: Author's calculations from E-views 12 SV, 2022

The F-statistic demonstrates a very good fit of the model, demonstrating its capacity for prediction. The high R-Squared values show that 96.42% of the variations in NEPSE Index are explained by variations in the estimated determinants. The D-W test value exceeds R-square, indicating that there are no spurious variables in the regression model. NEPSE Index is negatively significant to Exchange rate, and Interest Rate. with highly significant whereas Broad Money Supply are positively highly significant with NEPSE Index in short run. Likewise there is no significant difference between inflation and NEPSE Index.

V. DISCUSSION

Exchange rate and interest rate are significant determinant of stock market in the short-run. NEPSE Index increase as the interest rate decreased and Nepalese currency get stronger as compared to other it results the increase in NEPSE Index. Where as in this study Inflation doesnot shows any impact in NEPSE Index. According to the Arbitrage Pricing Theory (APT), an expansion of the Capital Asset Pricing Model created by Ross in

1976, the stock market is primarily influenced by a number of macroeconomic factors. Interest rates which leads to increased is likely to lead to a decline NEPSE Index which is consistent with Liu (2004);Bornor (2014);Kotha & Sahu (2016);John (2019);Rakhal (2018);Ojha (2021) contradicts with Ullah et.al (2017).Exchange rate is is negative significant with stock index (NEPSE Index) in short run, this results is consistent with Ojha (2021); and inconsistent with John (2019).NEPSE Index is positively significant with broad money supply which is in-consistance with Karki (2017);Rakhal (2018).NEPSE Index doesnt have significant relation with inflation which was inconsistent with Rakhal(2018);Karki (2017);Kotha & Sahu (2016)

VI. CONCLUSION AND IMPLICATION

In this paper, co-integration and error correction methods were used to analyze the factors that influence NEPSE Index in Nepal. Results obtained using the ARDL method for co-integration it was proven that the negative significance of Interest Rate (IR), Exchange Rate(ER) and positively significant with Broad Money Supply (LNMS). Whereas there was no significant difference between inflation and NEPSE Index. The role of interest rate and exchange rate is very important in explaining Stock Market in both the long-run and short-run. These results suggest that controlling interest rate and exchange rate by means of different way like, monetary policy, fiscal policy, remittance policy as well diplomatic policies the Stock market(NEPSE Index raise up) success in Nepal . These findings imply that the short-term success of Nepal's Stock market strategy depends on managing interest rate, exchange rate and reducing imports from India, increasing foreign reserve and consistent political scenario as well.

REFERENCES

- Mukit, D. M. A., & Shafiullah, A. Z. M. (2012). Impact of monetary policy on post crashed stock market performance: Evidence from Dhaka stock exchange. *Journal of Business & Economics*, 4(1), 106-123. Retrieved from <https://www.proquest.com/scholarly-journals/impact-monetary-policy-on-post-crashed-stock/docview/1399693512/se-2>
- Amith, V. M., & Sampagnaro, G. (2018). Macroeconomic indicators and their impact on stock markets in ASIAN 3: A pooled mean group approach. *Cogent Economics & Finance*, 6(1) doi:<https://doi.org/10.1080/23322039.2018.1432450>
- Amtiran, P.Y, Indiatuti, R., Nidar, S.R, (2017). Macroeconomic factors and stock returns in APT framework. *International Journal of Economics and Management*, 11, 197-206.
- Antonio, M. S., Rusydiana, A. S., Soeparno, W. S. I., Rani, L. N., Pratomo, W. A., & Nasution, A. A. (2021). The Impact of oil price and other macroeconomic variables on the Islamic and Conventional stock index in Indonesia. *International Journal of Energy Economics and Policy*, 11(5), 418–424. <https://doi.org/10.32479/ijeep.10911>
- Barnor, C. (2014). The effect of macroeconomic variables on stock market returns in ghana (2000-2013) (Order No. 3669514). Available from ProQuest Dissertations & Theses Global. (1649237748). Retrieved from <https://www.proquest.com/dissertations-theses/effect-macroeconomic-variables-on-stock-market/docview/1649237748/se-2>
- Baskota, N. P. (2007). Stock price volatility in Nepal. Unpublished M.Phil. Dissertation. Office of the Dean, Faculty of Management, Tribhuvan University.
- Bhama, V. (2022). Macroeconomic variables, COVID-19 and the Indian stock market performance. *Investment Management & Financial Innovations*, 19(3), 28-37. doi:[https://doi.org/10.21511/imfi.19\(3\).2022.03](https://doi.org/10.21511/imfi.19(3).2022.03)

- Bhattacharai, R. C., & Jhosi, N. K. (2009). Dynamic relationship among the stock market and the macroeconomic factors: Evidence from Nepal. *South Asia Economic Journal*, 10(2), 451-469.
- Bisharat, H. C., Niaz, A. B., Jamshid, A. T., Shabir, M. H., & Gohar, R. (2021). Macroeconomic variables and stock indices: An asymmetric evidence from quantile ARDL model. *South Asian Journal of Business Studies*, 10(2), 242-264. doi:<https://doi.org/10.1108/SAJBS-09-2019-0161>
- Buyuksalvarci, A., & Abdioglu, H. (2010). The causal relationship between stock prices and macroeconomic variables: A case study for turkey. *International Journal of Economic Perspectives*, 4(4), 601-610. Retrieved from <https://www.proquest.com/scholarly-journals/causal-relationship-between-stock-prices/docview/859539371/se-2>
- Gujarati, D.N. (2007). *Basic Econometrics*. United States: McGraw-Hill
- Gurung, J.B. 2004. Growth and performance of securities market in Nepal. *The Journal of Nepalese Business Studies*, 1(1): 85-92
- Habib, M., & Islam, K. U. (2017). Impact of macroeconomic variables on Islamic stock market returns: Evidence from nifty 50 shariah index. *Journal of Commerce and Accounting Research*, 6(1), 37-44. Retrieved from <https://www.proquest.com/scholarly-journals/impact-macroeconomic-variables-on-islamic-stock/docview/1874239041/se-2>
- John, E. I. (2019). Effect of macroeconomic variables on stock market performance in Nigeria. *Journal of Economics, Management and Trade*, 22(6), 1-14.
- Karki, D. (2017). Stock Market Responses to Macro-Economic Dynamics: Testing for Long-Run Equilibrium in Nepal. *International Journal of Current Innovative Research*, 936-946.
- Kotha, K. K., & Sahu, B. (2016). Macroeconomic factors and the Indian stock market: exploring long and short run relationships. *International Journal of Economics and Financial Issues*, 6(3), 1081-1091.

- Kuwornu, J. K. M. (2012). Effect of macroeconomic variables on the Ghanaian stock market returns: A co-integration analysis. *AGRIS on-Line Papers in Economics and Informatics*, 4(2), 15-26. Retrieved from <https://www.proquest.com/scholarly-journals/effect-macroeconomic-variables-on-ghanaian-stock/docview/1027117939/se-2>
- Lamichhane, M., & Kulshrestha, S. (2022). Factors influencing the performance of Nepalese stock market. *Nepal Journal of Multidisciplinary Research*, 5(3), 37–46. <https://doi.org/10.3126/njmr.v5i3.47358>
- Li, Y. (2004). The impact of monetary policy on stock prices: Evidence from Canada and the unites states (Order No. MQ94091). Available from ProQuest Dissertations & Theses Global: Social Sciences. (305093205). Retrieved from <https://www.proquest.com/dissertations-theses/impact-monetary-policy-on-stock-prices-evidence/docview/305093205/se-2>
- Liu, Y., Feng, H., & Guo, K. (2021). The dynamic relationship between macroeconomy and stock market in china: Evidence from bayesian network. *Complexity*, 2021 doi:<https://doi.org/10.1155/2021/2574267>
- Ojha, B. R. (2021). Stock prices in Nepal: Macroeconomic Determinants. *Management Dynamics*, 24(1), 15–26. <https://doi.org/10.3126/md.v24i1.47539>
- Rakhal, R. (2018). Determinants of stock market performance. *NCC Journal*, 3(1), 134–142. <https://doi.org/10.3126/nccj.v3i1.20255>
- Thapa, K., & Rana, S. B. (2017). *Investment management* (3rd ed.). Kathmandu: Asmita Publication.
- Ullah, G. M. W., Islam, A., Alam, M. S., & Khan, M. K. (2017). Effect of macroeconomic variables on stock market performance of SAARC countries. *Asian Economic and Financial Review*, 7(8), 770-779.