"Effect of Macroeconomic Variables on Stock Market Performance in Nepal"

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Abstract

This study is conducted to measure the effect of macroeconomic variables on stock market performance in Nepal where dependent variable is NEPSE index return and independent variables are base rate, inflation rate, exchange rate, broad money, foreign direct investment and gross domestic product of each years starting from FY BS 1994 to FY BS 2023 of 30 years of macroeconomic variables were taken as confined as time series data. The descriptive and casual research design has been used. The secondary sources of data were obtained from annual report of the Nepal Stock Exchange, ministry of finance and economic bulletin of Nepal Rastra Bank. The study explores the Pearson correlation coefficients for NEPSE with various economic variables, revealing a range of significant relationships. NEPSE shows a strong positive correlation with USD, M2, and FDI, all statistically significant at the 0.01 level, indicating a robust association with the stock market. However, BR shows a weak, marginally significant negative correlation with NEPSE at the 0.10 levels, while the correlation with CPI and GDP is weak and statistically insignificant, suggesting minimal impact from inflation and overall economic growth. The regression analysis further supports these findings, showing that BR and M2 are significantly influence NEPSE, with BR having a negative but M2 is positive. Other variables such as CPI, USD, FDI and GDP lack significant relationships with NEPSE, highlighting that currency strength, money supply, and foreign investment are the most influential factors, while domestic indicators like inflation and GDP have minimal relevance in explaining NEPSE's movements.

Keywords: *Index return, base rate, exchange rate, broad money, FDI and GDP*

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I. Introduction

The Nepal Stock Exchange (NEPSE) is the only formal stock exchange (secondary market) in Nepal, operating under the Securities Act, 2006. It transitioned from a non-profit organization to a profit-driven entity in May 2008. Recent developments at NEPSE include the provision of real-time information (live trading activity) to investors, which began on November 2, 2008, and the introduction of the over-the-counter (OTC) market on June 4, 2008. The OTC market allows for the trading of shares that have been delisted or do not meet the listing requirements of NEPSE. Over the period from mid-July 1994 to mid-July 2015, NEPSE's performance showed significant growth, with the number of listed companies and listed securities (in terms of paid-up value) increasing from 66 in 1994 to 232 in 2015. During the same period, the market capitalization ratio (market capitalization to nominal GDP at market price) also saw a substantial rise, from NPR 13,872 million to NPR 989,404 million (NRB, 2017).

The stock market is a critical component of a nation's financial system, offering a platform for efficient resource allocation and enabling both governments and businesses to secure long-term capital for new ventures. In developing countries, macroeconomic factors like GDP, money supply, interest rates, and inflation can significantly influence equity markets. As the demand for financial products grows, the stock market becomes an increasingly important part of the broader financial landscape. Macroeconomic variables are vital in shaping investor expectations of potential returns, which in turn affect stock market volatility. Given this, important questions arise: What is the nature of the relationship between economic indicators such as GDP growth, inflation, interest rates, and money supply, and stock returns in Nepal's financial market? Additionally, how can these relationships are analyzed to provide valuable insights for both investors and policymakers (Thapa, 2023).

The macroeconomic indicator on the stock market remains a topic of debate. Some argue that financial development positively influences economic growth. A well-developed financial sector can stimulate economic growth, leading to increased demand for financial products. As the economy expands, economic activities rise, fostering industry

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growth. This uptick in economic activity can affect inflation, investment, GDP, imports, exports, exchange rates, and more. High demand for financial products, as part of the broader financial market, ultimately drives the development of the stock market, suggesting that macroeconomic variables significantly influence it. However, empirical research has presented conflicting views on the relationship between macroeconomic variables and stock market development over the decades. While some studies have established a positive correlation and that the relationship is weak (Devkota & Dhungana, 2019).

The Nepal Stock Exchange (NEPSE) has experienced both growth and volatility. After a downturn during the COVID-19 pandemic, NEPSE has recovered with increased trading volumes and investor interest, though it is still influenced by domestic and global economic conditions. Efforts to maintain macroeconomic stability have positively affected market sentiment, but challenges such as political instability and infrastructure issues continue to impact investor confidence. The banking sector has remained resilient, while manufacturing and tourism are recovering more slowly. Increased participation from retail investors, driven by greater financial literacy and digital trading, has improved liquidity but also introduced some speculative behavior. Regulatory reforms by the Nepal Securities Board (SEBON) aim to enhance market transparency and efficiency (Nepal Securities Board, 2024).

Macroeconomic variables play a crucial role in influencing the performance of the stock market in Nepal. Key factors such as GDP growth, inflation, interest rates, and money supply directly impact market dynamics. In the fiscal year 2022/23, Nepal's GDP grew by 5.7%, indicating a moderate recovery from the effects of the COVID-19 pandemic. This growth has had a positive effect on investor confidence, leading to increased activity in the stock market. On the other hand, inflation in Nepal rose to 7.6% in 2023, up from 6.3% in 2022, indicating pressure on purchasing power and costs, which can contribute to stock market fluctuations. Interest rates, determined by the central bank, are another key factor affecting the cost of capital and investor decisions. In 2023, the Nepal Rastra Bank maintained the policy rate at 8%, aimed at controlling inflation while fostering economic growth. Additionally, the broad money supply (M2) grew by 13.2% in 2023, providing liquidity that influences stock prices. Together, these macroeconomic variables interact to shape stock market returns, with higher inflation and interest rates typically leading to more cautious investor behavior, while strong GDP growth and higher money supply generally create a favorable market environment (Nepal Rastra Bank, 2023).

Problem Statement

In Nepal, the Nepal Stock Exchange (NEPSE) serves as a vital component of the nation's financial infrastructure, reflecting investor sentiment and economic health. However, despite its significance, there remains a notable gap in research regarding the intricate relationship between macroeconomic variables and fluctuations in the NEPSE index (Shrestha & Subedi, 2014). This gap presents several pressing challenges for stakeholders in the Nepalese financial market. Firstly, investors lack comprehensive insights into how macroeconomic indicators influence the NEPSE index, hindering their ability to make informed investment decisions (Bhandari, 2017). Secondly, policymakers face difficulties in formulating effective economic policies without a nuanced understanding of the drivers behind stock market volatility and stability (Paudel, 2020). Thirdly, regulators encounter challenges in developing appropriate regulatory frameworks to safeguard market integrity and investor interests in the absence of empirical evidence on the impact of macroeconomic variables on the NEPSE index (Adhikari & Gaire, 2018). Therefore, addressing this gap through rigorous empirical research is imperative to provide actionable insights for investors and regulators alike. By systematically analyzing the relationship between macroeconomic variables and the NEPSE index, this study aims to contribute to the development of a more resilient and efficient financial market ecosystem in Nepal, thereby fostering sustainable economic growth and stability (Poudel, 2020).

The Nepal Stock Exchange (NEPSE) stands as a crucial barometer of economic health and investor sentiment in Nepal's financial landscape (Shrestha & Subedi, 2014). However, despite its pivotal role, a notable research gap persists concerning the difficult interplay between macroeconomic variables and the NEPSE index (Sapkota & Jha, 2016). This gap presents multifaceted challenges for stakeholders navigating Nepal's financial realism. Firstly, investors are left grappling with uncertainty due to a lack of comprehensive understanding regarding how macroeconomic indicators influence the NEPSE index, thereby

impeding their ability to make well-informed investment decisions (Sharma, 2019). Secondly, policymakers find themselves at a crossroads, unable to devise effective economic strategies without a short understanding of the factors driving stock market volatility and stability (Adhikari & Gaire, 2018). Thirdly, regulators face an uphill task in formulating appropriate regulatory measures to uphold market integrity and safeguard investor interests, lacking empirical insights into the impact of macroeconomic variables on the NEPSE index (Sharma & Rathi, 2015). Addressing this research gap is paramount to provide actionable insights for stakeholders and foster a more robust and resilient financial ecosystem in Nepal (Bhandari, 2017). This study analyzes the relationship between macroeconomic variables and NEPSE index fluctuations to provide insights that can guide informed decision-making and promote sustainable economic growth in Nepal (Gaire, 2017). The research questions of the study are as follows:

- What is the relationship between base rate, inflation rate, exchange rate, broad money, foreign direct investment, gross domestic product, and stock market return?
- What is the effect of base rate, inflation rate, exchange rate, broad money, foreign direct investment, gross domestic product on stock market return?

Objectives of the Study

The general objective of the study is to find the effect of macroeconomics variables on stock market performance in Nepal. Here are some specific objectives of the study:

- To examine the relationship between base rate, inflation rate, exchange rate, broad money, foreign direct investment, gross domestic product and stock market return.
- To evaluate the effect of base rate, inflation rate, exchange rate, broad money, foreign direct investment, gross domestic product on stock market return.

Hypothesis

H_1: There is significant effect of base rate on stock market return.
H_2: There is significant effect of inflation rate on stock market return.
H_3: There is significant effect of exchange rate on stock market return.
H_4: There is significant effect of broad money on stock market return.
H_5: There is significant effect of foreign direct investment on stock market return.
H_6: There is significant effect of gross domestic product on stock market return.

Rationale of the Study

In recent years, Nepal has experienced fluctuations in stock market performance, and the role of economic factors in driving these changes remains an area of significant interest. Macroeconomic variables such as GDP growth, inflation, interest rates, exchange rates, and government policies have been widely recognized for their impact on financial markets globally. However, the dynamics of how these variables interact with the stock market in the context of Nepal, with its unique economic structure and developmental challenges, have not been sufficiently explored. This study aims to fill this gap by analyzing the relationship between key macroeconomic indicators and stock market performance, providing insights that can assist investors, policymakers, researchers, and financial analysts in making informed decisions. Understanding these connections is crucial for the stability and growth of Nepal's capital markets, especially as the country continues to integrate into the global economy.

II. Literature Review

Empirical Review

Maysami et al. (2004) and Adam and Tweneboah (2008) found that macroeconomic factors like exchange rates, interest rates, and money supply play a significant role in influencing stock market movements, especially in emerging economies. Their studies highlight how changes in these factors can lead to fluctuations in stock prices, as they affect investor expectations and overall market conditions. Patel (2012) expanded on this by examining the impact of inflation, GDP growth, and fiscal deficits on stock markets in BRICS nations. His research revealed that these macroeconomic variables demonstrate long-term cointegration with stock market indices, meaning that sustained changes in these factors tend to have a lasting impact on stock market performance. Building on this, Ahmad et al. (2021) explored the influence of global oil prices and geopolitical risks on stock market volatility, particularly in oil-importing economies. They found that external shocks, such as fluctuations in oil prices or political instability, tend to have a disproportionately large

effect on markets in these countries, causing increased volatility and uncertainty. These studies collectively underscore the essential role that macroeconomic variables play in shaping stock market dynamics. The findings suggest that investors and policymakers must carefully consider these factors when making decisions, as they provide valuable insights into potential risks and opportunities in the market.

Paudel and Koirala (2006) highlight the significant connection between macroeconomic variables and stock market performance, particularly in the context of Nepal. Their research emphasizes that factors such as GDP growth, inflation, interest rates, and remittance inflows play a key role in the performance of the Nepal Stock Exchange (NEPSE). They found that strong GDP growth boosts investor confidence and corporate earnings, leading to better stock market performance. Additionally, higher remittance inflows enhance market liquidity and foster investor optimism, contributing to a more stable market. Bhusal (2019) further supports this by noting that positive remittance trends can stimulate domestic consumption and investment, further boosting market activity. On the other hand, rising inflation and interest rates tend to suppress stock market performance by increasing capital costs and reducing purchasing power, with investors often seeking safer assets. Political stability and a robust regulatory framework are also crucial in shaping market trends, as disruptions in these areas can negatively impact stock market growth. Overall, Paudel and Koirala (2006) argue that sound fiscal and monetary policies, along with a stable macroeconomic and political environment, are essential for the sustainable growth of Nepal's stock market, providing valuable insights for policymakers and investors seeking to navigate the complexities of the NEPSE.

Humpe and Macmillan (2007) examined whether macroeconomic variables influence stock prices in the USA and Japan using a standard discounted value model and employed cointegration analysis to study long-term relationships between industrial production, the consumer price index (CPI), money supply, long-term interest rates, and stock prices. The study found that for the USA, stock prices are positively related to industrial production and inversely associated with both the CPI and long-term interest rates, while the relationship between stock prices and money supply was insignificant. Similarly, Gay (2008) explored the relationship between stock market index prices and macroeconomic variables such as exchange rates and oil prices for BRIC countries (Brazil, Russia, India, and China) using the Box-Jenkins ARIMA model. The findings revealed no significant relationship between exchange rates, oil prices, and stock market indices in these countries, suggesting that domestic and international macroeconomic factors may explain the lack of correlation. Moreover, the study found no significant relationship between present and past stock market returns, indicating weak-form market efficiency in these markets.

Likewise, Somoye et al. (2009) analyzed the factors influencing equity prices in the Nigerian stock market from 2005 to 2007, focusing on variables such as earnings per share, GDP, interest rates, dividend per share, and oil prices. While the study found positive correlations between stock prices and variables like GDP, dividend per share, and earnings per share, these were not significant determinants of stock returns, indicating that other factors or market conditions may play a critical role in shaping stock returns in Nigeria. In addition, Aryal (2020) examined the impact of macroeconomic variables on Nepal's stock market using data from January 2016 to December 2019. The research found that exchange rates and short-term interest rates negatively correlate with stock prices and significantly affect them, while inflation positively correlates but has no significant impact. These studies collectively emphasize the diverse and complex relationships between macroeconomic variables and stock market performance across different regions.

Bilal et al. (2013) investigated the long-run relationship between gold prices and the stock indices of the Karachi Stock Exchange (KSE) and the Bombay Stock Exchange (BSE) using monthly data from July 2005 to June 2011. The study employed Unit Root Augmented Dickey-Fuller tests, Phillips-Perron, Johansen Cointegration, and Granger’s Causality tests to analyze the data. The findings from the cointegration tests indicated no long-run relationship between monthly average gold prices and the KSE stock index, whereas a significant long-run relationship was observed between the BSE stock index and average gold prices. Moreover, the Granger causality test revealed no causal relationship between average gold prices and the KSE or BSE stock indices. Similarly, Gaire (2017) examined the long-run relationship between the NEPSE index, short-term

interest rates, and gold prices in Nepal using data from January 2006 to January 2016. The study employed unit root and cointegration tests, identifying unilateral causality between the NEPSE index and short-term interest rates. It concluded that stock prices in Nepal are highly sensitive to changes in short-term interest rates. In addition, while macroeconomic variables could not fully explain stock price variations in the long run, the research found a positive and significant relationship between stock market prices and GDP, inflation, and money supply, along with a negative correlation with interest rates. These studies highlight the varying relationships between gold prices, stock indices, and macroeconomic variables across different markets.

Shrestha and Subedi (2014) analyzed NEPSE data from August 2000 to July 2014, incorporating dummy variables to account for political changes and shifts in the Nepal Rastra Bank's policies. Their correlation analysis revealed significant connections between the Consumer Price Index, Broad Money, Treasury Bill Rate, and the NEPSE index. The results indicated that NEPSE responded positively to inflation and broad money, while it was negatively affected by Treasury bills. In a similar context, Fan et al. (2018) examined the causal relationship between stock markets and housing in China, using wavelet analysis. Their findings showed that both housing prices and stock prices positively influenced each other. Thapa (2019) investigated the factors influencing stock prices in Nepalese commercial banks from 2008 to 2018, using both financial data and surveys. A linear regression model revealed that dividends, earnings per share, regulations, company profiles, market rumors, and investor sentiment had a positive impact on stock prices, whereas price-to-earnings ratios and interest rates negatively affected them. Additionally, liquidity accessibility was found to enhance market performance.

Lingaraja et al. (2020) explored stock market movements in Asian emerging markets, identifying short-term relationships with developed markets. Naik and Reddy (2021) analyzed the effect of macroeconomic factors on the liquidity of the Indian stock market, finding significant influences. Together, these studies offer valuable insights into the complex relationship between stock markets and macroeconomic factors, contributing to a deeper understanding of different methodologies, theoretical frameworks, and empirical findings. Bhattarai et al. (2021) used an ARDL model with bound testing to explore the relationship between stock market development and economic growth in Nepal from 1994 to 2019. The findings revealed a one-way causality from stock market development to economic growth, with liquidity playing a significant role in capital market mobilization. Inflation, however, did not significantly impact the capital market.

Barakat et al. (2016) investigated the influence of macroeconomic variables on the stock markets of two emerging economies, Egypt and Tunisia, using data from January 1998 to January 2014. Their findings revealed that all macroeconomic factors, including interest rate, exchange rate, CPI, and money supply, exhibited either a long-term relationship or a causal connection with the stock market in both countries. They concluded that these macroeconomic factors play a significant role in driving stock market fluctuations and can be used to explain market movements. Additionally, Geete (2016) analyzed the effect of gold and dollar prices on stock market indices (Sensex and Nifty) from 2011 to 2014, employing multiple regression analysis. Geete found that both dollar and gold prices positively impacted the stock market indices.

Aanchal (2017) investigated the relationship between macroeconomic variables and the Indian stock market, focusing on GDP, inflation, exports, imports, and investments, using the CNX Nifty 50 index from 2004 to 2015. Employing the Augmented Dickey-Fuller Test for unit roots and correlation and Granger causality tests, the study found that all macroeconomic variables exhibited a unit root, indicating no direct causal relationship with the stock market. However, a positive correlation was observed, suggesting an association between these variables and the stock index, highlighting the complexity of interactions in India’s emerging economy. Similarly, Gopinathan and Durai (2019) explored the long-run relationship between macroeconomic variables and the Indian stock market from April 1994 to July 2018. While standard cointegration tests revealed no significant relationships, the application of the alternating conditional expectations algorithm identified a robust nonlinear functional relationship, supported by evidence from the continuous partial wavelet coherency model at lower frequencies. These findings confirm that the long-run relationship between stock prices and macroeconomic variables in India is nonlinear and time-varying, emphasizing the intricate dynamics between stock market performance and macroeconomic indicators,

offering critical insights for investors and policymakers navigating the Indian financial landscape.

Devkota and Dhungana (2019) investigated the impact of macroeconomic variables on the Nepal Stock Exchange (NEPSE) index using an ARDL approach with time series data spanning 1994 to 2017. The study examined broad money supply, gold price, the interest rate of 91-day treasury bills, and real exchange rate, finding a long-term relationship between the stock market index and these variables. Among them, the interest rate emerged as the most significant determinant of stock market performance in Nepal, while gold price and real exchange rate had insignificant effects. Similarly, Shrestha (2019) analyzed the effect of macroeconomic variables on the NEPSE index from January 2002 to December 2016, revealing that interest rates and wholesale price index were statistically significant predictors of the NEPSE index, whereas exchange rate and gold price had negligible influence. The study underscored the dominant role of interest rates and wholesale prices in explaining stock market fluctuations.

Likewise, Sharma et al. (2020) extended the analysis by examining a broader set of macroeconomic indicators, including GDP growth rate, inflation rate, interest rates, exchange rates, unemployment rate, government budget deficit/surplus, trade balance, and foreign direct investment, to evaluate their influence on the NEPSE index. The study highlighted the significance of macroeconomic factors in shaping stock market performance, offering insights for investors, policymakers, and regulators in Nepal's financial sector. Collectively, these studies emphasize the critical role of interest rates and select macroeconomic variables in determining stock market dynamics in Nepal, while highlighting areas for policy intervention to enhance market efficiency and development.

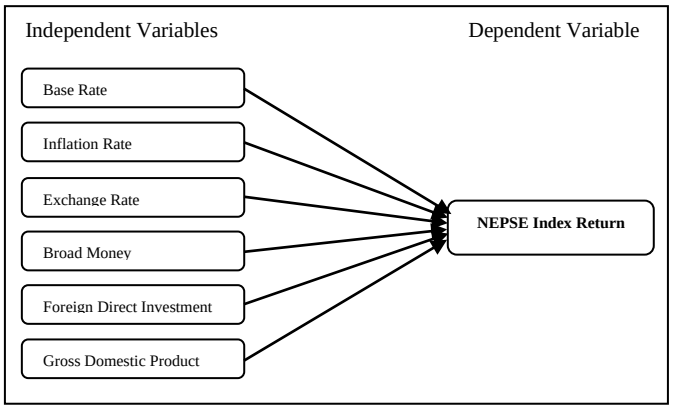
Thapa (2023) explored the co-integration and causality between the stock market and macroeconomic factors, using indicators like the consumer price index (CPI), exchange rates (EXR), money supply (MS), and remittances (REMIT) with data from June 2005 to November 2023. Advanced econometric models, including co-integration and Vector Autoregression (VAR), revealed that the stock market index (INDEX) was primarily influenced by its own lagged values, with CPI and MS showing insignificant effects. However, exchange rates and remittances significantly impacted the stock market. Granger causality tests indicated no causal relationship between CPI, MS, and REMIT on the INDEX but a significant causal link from EXR to INDEX, highlighting the predictive power of exchange rates on stock market performance.

Theoretical Framework and Definition of Variables

In this study, the dependent and independent variables are identified, serving as the foundation for the entire work. It is assumed that the variables related to the NEPSE index include the dependent variable and the independent variables: base rate, inflation rate, exchange rate, broad money, foreign direct investment, and gross domestic product. Based on the literature reviewed, the following conceptual framework is derived.

Figure 1

Theoretical Framework



Note. Thapa (2023)

a. Base Rate (BR)

The base rate is the lowest interest rate that commercial banks set for lending, serving as a critical benchmark for various types of loans, including personal loans, mortgages, and business loans. It reflects not only the banks' necessary profit margins, but also their operating costs, financing expenses, and the risks associated with lending. This rate is designed to ensure that banks can cover all costs involved in the lending process while making a reasonable return on their investments. As such, the base rate plays a pivotal role in the economy, influencing a wide range of financial activities, including loan issuance and investment decisions. It is of significant importance to investors, policymakers, and analysts, as it provides a standardized and transparent measure for assessing prevailing market trends, evaluating stock performance, and making informed decisions.

These fluctuations are often influenced by factors such as corporate performance, inflation, and government policies. By tracking the base rate, stakeholders can gain valuable insights into the state of Nepal's financial market, which, in turn, helps foster greater transparency, efficiency, and stability within the market (Shrestha & Subedi, 2014).

b. Inflation Rate (CPI)

Inflation rate refers to the percentage change in the average price level of goods and services in an economy over a specific period of time, commonly measured annually or quarterly, and are a key indicator of how fast prices are rising, leading to the erosion of purchasing power of a unit of currency. As inflation increases, each unit of currency buys fewer goods and services, affecting consumer purchasing power, investment decisions, savings, wages, and overall economic growth. It also has significant implications for policy decisions by central banks and governments regarding interest rates, taxation, and welfare programs (Lucas, 2016). Several factors, such as supply and demand imbalances, external shocks, and government policies, influence inflation. In Nepal, factors like the price level, budget deficits, money supply, and real GDP have been rising over the years, but this correlation does not necessarily imply causation. This study focuses on the fluctuations of inflation in Nepal, the structure-weighted components of the Consumer Price Index (CPI), and the key determinants of inflation, providing insights into the complex dynamics that affect inflation rates and their management in the country (Baniya, 2021).

c. Exchange Rate (USD)

The exchange rate is the value of one currency expressed in terms of another currency. It represents the rate at which one currency can be exchanged for another in the foreign exchange market. Exchange rates play a crucial role in international trade, investment, and finance, influencing the cost of imports and exports, the competitiveness of domestic industries, and the profitability of cross-border investments. Fluctuations in exchange rates can impact the prices of goods and services. Governments and central banks often intervene in the foreign exchange market to manage exchange rate volatility and achieve various economic objectives. The exchange rate is determined by various factors including supply and demand dynamics, interest rates, inflation rates, economic growth prospects, geopolitical developments, and market sentiment (Fisher, 1930).

d. Broad Money (M2)

Broad money, or M2, refers to the total sum of money circulating in an economy that is readily accessible for spending, encompassing a wide range of financial assets. It includes physical currency, such as coins and banknotes, along with demand deposits, savings deposits, and other liquid assets held by individuals and businesses. Broad money serves as a crucial measure of overall liquidity and financial wealth within an economy, offering a comprehensive picture of the money supply. It is closely monitored by central banks and policymakers to assess various economic factors such as economic activity, inflationary pressures, and the effectiveness of monetary policy. Broad money is a broader concept compared to narrow money (M1), which includes only cash and demand deposits, thus providing a more inclusive view of the money supply and its potential impact on economic conditions (Mishkin, 2018).

e. Foreign Direct Investment (FDI)

Foreign Direct Investment (FDI) refers to investments made by a foreign individual, company, or government in assets or businesses within another country, with the primary goal of establishing a long-term interest and gaining substantial control or influence over the operations of the invested entity. Typically, FDI involves acquiring a significant equity stake (often 10% or more) in a foreign company or establishing new operations, such as subsidiaries, branches, or joint ventures. This type of investment plays a vital role in the transfer of capital, advanced technology, and managerial skills, which can significantly contribute to economic growth, job creation, and improved productivity in the host country. In addition, FDI can foster innovation, stimulate competition, and provide access to international markets, which can be crucial for the development of the local economy. However, despite its many advantages, FDI can also raise concerns related to foreign dominance in key sectors, potential environmental impacts, and the repatriation of profits to the foreign investor’s home country, which may limit the long-term benefits for the host country (IMF, 2005).

f. Gross Domestic Product (GDP)

Gross Domestic Product (GDP) is a broad measure that reflects the total value of goods and services

produced within a country's borders over a defined period, usually calculated annually or quarterly. It acts as a crucial indicator of a nation's economic health and the overall size of its economy. In Nepal, GDP growth has varied significantly, influenced by numerous factors such as political stability, natural disasters, economic reforms, and global economic trends. In recent years, Nepal has prioritized economic development by investing in key sectors, including infrastructure, tourism, agriculture, and remittances from Nepali workers abroad. These sectors are essential for the country's economic sustainability, with remittances playing a major role in boosting national income. Although Nepal has faced challenges like political shifts and the effects of natural disasters, it has made progress in improving its economic outlook through strategic reforms and investments (CBS, 2020).

g. NEPSE Index Return (NEPSE)

The Nepal Stock Exchange (NEPSE) index is a benchmark index that reflects the overall performance of the stock market in Nepal. It measures the collective value of listed companies traded on the Nepal Stock Exchange. The index provides investors and market participants with insights into the general trend and direction of the Nepalese stock market. NEPSE index is calculated using the market capitalization-weighted methodology, where the market capitalization of each listed company is multiplied by its respective share price. The total market capitalization of all listed companies is then divided by a divisor to arrive at the index value. The NEPSE index serves as a barometer for the performance of the Nepalese stock market, allowing investors to gauge the overall health and sentiment of the market. It is widely followed by investors, analysts, and policymakers for making investment decisions, conducting market analysis, and formulating economic policies (Kurihara, 2006).

III. Research Methodology

This study employs descriptive and causal research designs. The study follows a descriptive research design, which is generally used to describe current situations and events. Additionally, the study uses a causal research design to analyze the effect of macroeconomic variables on the NEPSE index return. For this research project, the macroeconomic variables like as base rate, inflation rate, exchange rate, broad money, foreign direct investment and gross domestic product and NEPSE index return of each fiscal years starting from FY BS 1994 to FY BS 2023 of 30 years of macroeconomic variables were taken are confined as time series secondary sources of data collected from annual report of the Nepal Stock Exchange, SEBON and Quarterly Economic Bulletin of NRB. The study includes quantitative data, which is analyzed through descriptive, correlation, and regression methods. SPSS 20 is used to analyze the data and obtain the required information and results.

Model Specification

For regression model is designed as NEPSE index is dependent variable and base rate, inflation rate, exchange rate, broad money, foreign direct investment and gross domestic product are taken as independent variables. The regression is presented as follows:

$$NEPSE_t = \beta_0 + \beta_1 BR_t + \beta_2 CPI_t + \beta_3 USD_t + \beta_4 M2_t + \beta_5 FDI_t + \beta_6 GDP_t + \varepsilon.$$

Where, is

$NEPSE_t$ = Nepal Stock Exchange
BR_t = Base Rate
CPI_t = Inflation Rate
USD_t = Exchange Rate
$M2_t$ = Broad Money
FDI_t = Foreign Direct Investment
GDP_t = Gross Domestic Product
t = Years
ε = Error term

Descriptive Statistics

This table exhibits descriptive statistics (minimum, maximum, mean and standard deviation) of the variable being studied for the period of 1994 to 2023. The research variables are NEPSE index, base rate, inflation rate, exchange rate, broad money, foreign direct investment and gross domestic product has been explored in the following table.

Table 1 - *Descriptive Statistics of Research Variables*

	Indicator	N	Minimum	Maximum	Mean	Std. Deviation
NEPSE	Points	30	163.30	2883.41	782.25	703.44
BR	%	11	6.54	10.47	8.86	1.33
CPI	%	30	2.43	12.63	6.95	2.64

USD	NRs./USD	30	49.40	130.58	83.57	22.07
M2	Million	30	69777.10	6130483.38	1466927.23	1797250.49
FDI	Million	30	477.59	67455.04	14799.44	18352.68
GDP	%	30	-2.37	8.98	4.36	2.34

Table 1 shows the descriptive statistics of research variables of macroeconomic indicator while using 30 observations but BR is only 11 observations. The minimum value indicates the GDP is (2.37%) and maximum value indicates of M2 is Rs. 6130483.38 million. The average of NEPSE is 782.25 points, base rate is 9.22%, inflation rate is 6.95%, exchange rate is Rs. 83.57 NRs./USD, broad money is Rs. 1466927.23 million, foreign direct investment is Rs. 14799.44 million, and gross domestic product is 2.34%. The standard deviation is high in broad money which is greater variability and lowest in base rate which is lower variability nearest to the mean points of data set.

Inferential Statistics

This study is about effect of macroeconomic variables on stock market performance in Nepal for 30 year data i.e. 1994 to 2023 where as 30 observation. The data are analyzed by using SPSS 20. Correlation analysis is used to assess the direction of relationship between the dependent variable is NEPSE and independent variables are BR, CPI, USD, M2, FDI and GDP as well as regression analysis.

a. Pearson Correlation Coefficients

The Pearson correlation coefficient measures the strength and direction of the relationship between two variables, with values ranging from -1.0 (perfect negative correlation) to 1.0 (perfect positive correlation). A positive coefficient indicates that as one variable increases, the other also increases, while a negative coefficient suggests an inverse relationship. Table 10 presents the correlation coefficients between NEPSE and various economic factors, including BR, CPI, USD, M2, FDI and GDP.

Table 2 - *Pearson Correlation Coefficients*

	NEPSE	*BR*	*CPI*	*USD*	*M2*	*FDI*	*GDP*
NEPSE	1						
BR	-0.338	1					
CPI	-0.155	-0.215	1				
USD	0.879	0.018	-0.204	1			
M2	0.912	0.122	-0.161	0.932	1		
FDI	0.666	0.109	-0.115	0.763	0.754	1	
GDP	-0.019	0.429	-0.118	-0.153	-0.106	0.005	1

Table 2 presents the Pearson correlation coefficients between NEPSE and various economic indicators. BR shows a moderate negative correlation with NEPSE at -0.338, suggesting an inverse relationship. CPI also has a weak negative correlation at -0.155. In contrast, USD demonstrates a strong positive correlation with NEPSE at 0.879, while M2 exhibits an even stronger positive correlation at 0.912, indicating a significant relationship between these variables and NEPSE. FDI has a moderate positive correlation at 0.666, reflecting a favorable association. Lastly, GDP shows a negligible negative correlation with NEPSE at -0.019, implying minimal influence.

b. Regression Analysis

It basically deals with regression results from various specifications of the model to examine the estimated relationship of NEPSE index is dependent variable and base rate, inflation rate, exchange rate, broad money, foreign direct investment, and gross domestic product are independent variables. This regression analysis is outcome from the SPSS 20. The regression results have been presented in the following table.

Table 3 - *Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.91	0.82	0.68	247.12937

a. Predictors: (Constant), GDP, FDI, USD, BR, CPI, M2

Table 3 presents the model summary for a regression analysis, showing the relationship between the dependent variable and the predictors (GDP, FDI, USD, BR, CPI, and M2). The model has a high correlation coefficient (R = 0.91), indicating a strong linear relationship between the predictors and the dependent variable. The R-squared value of 0.82 suggests that 82% of the variance in the dependent variable is explained by the model. The adjusted R-squared value of 0.68 accounts for the number of predictors and indicates a moderately strong fit when adjusting for the model complexity. The standard error of the estimate is 247.13, representing the average distance between the observed values and the regression line.

Table 4 - *Analysis of Variance*

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3967185.226	6	661197.538	15.21	0.000
Residual	244291.693	4	61072.923		
Total	4211476.920	10			

a. Dependent Variable: NEPSE

b. Predictors: (Constant), GDP, FDI, USD, BR, CPI, M2

Table 4 presents the Analysis of Variance (ANOVA) for the regression model. The regression model is highly significant, with an F-value of 15.21 and a p-value (Sig.) of 0.000, indicating that the predictors collectively explain a significant portion of the variance in the dependent variable (NEPSE). The low p-value suggests strong evidence against the null hypothesis, confirming that the model is statistically significant. The sum of squares for the regression (3967185.226) is much larger than the residual sum of squares (244291.693), further supporting the model's validity.

Table 5 - *Regression Coefficient*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3329.647	2061.834		1.615	0.182
BR	-300.000	50.000	-0.606	-6.000	0.001
CPI	-8.788	55.000	-0.031	-0.160	0.878
USD	-5.324	22.000	-0.103	-0.242	0.815
M2	0.050	0.015	1.044	3.3333	0.005
FDI	-0.007	0.006	-0.193	-1.167	0.285
GDP	71.457	40.000	0.364	1.786	0.120

a. Dependent Variable: NEPSE

Table 5 presents the regression coefficients and their significance values. The significance values (p-values) indicate which predictors have a statistically significant impact on the dependent variable (NEPSE). The variables BR, M2, and GDP have p-values less than 0.05, suggesting that they significantly influence NEPSE. Specifically, BR has a p-value of 0.001, M2 has 0.005, and GDP has 0.120, which is close to being significant. On the other hand, CPI, USD, and FDI have higher p-values (0.878, 0.815, and 0.285, respectively), indicating that they do not significantly affect NEPSE in this model.

c. Test of Hypothesis

Hypothesis testing, sometimes called significance testing is an act in statistics whereby an analyst tests an assumption regarding a population parameter. Hypothesis testing is used to assess the plausibility of a hypothesis by using sample data. Such data may come from a larger population, or from a data-generating process. The result of hypothesis testing is shown in the table 14.

Table 14 - *Test of Hypothesis*

Statement of Hypothesis	P-value	Remark

BR has negative significant effect of NEPSE index.	0.001	Accepted
CPI has negative insignificant effect of NEPSE index.	0.878	Rejected
USD has negative insignificant effect of NEPSE index.	0.815	Rejected
M2 has positive insignificant effect of NEPSE index.	0.005	Accepted
FDI has negative insignificant effect of NEPSE index.	0.285	Rejected
GDP has positive insignificant effect of NEPSE index.	0.120	Rejected

Table 14 presents the results of hypothesis testing for the factors influencing the NEPSE index. The hypothesis regarding BR having a negative significant effect on NEPSE is accepted, with a p-value of 0.001. Similarly, the hypothesis that M2 has a positive but insignificant effect on NEPSE is accepted, as the p-value is 0.005. However, the hypotheses for CPI, USD, FDI, and GDP are rejected, as their p-values (0.878, 0.815, 0.285, and 0.120, respectively) are all greater than the 0.05 significance level, indicating no significant effect on NEPSE.

Discussion

The discussion of the study revealed that the correlation analysis has base rate has a moderate negative relationship with NEPSE, suggesting an inverse connection. The Consumer Price Index (CPI) also exhibits a weak negative correlation with NEPSE. On the other hand, the exchange rate and M2 show strong positive correlations with NEPSE, indicating a significant relationship between these variables. FDI demonstrates a moderate positive correlation with NEPSE, suggesting a favorable association, while GDP shows a negligible negative correlation, indicating minimal influence on the NEPSE. Moreover, the discussion of regression analysis indicates that the overall model is statistically significant, suggesting the independent variables explain a meaningful portion of the variation in NEPSE. The base rate (BR) shows a significant negative relationship with NEPSE, likely with a p-value < 0.01 meaning that as the base rate increases, NEPSE tends to decrease. Broad money (M2) exhibits a significant positive relationship, with a p-value < 0.01 indicating that an increase in the money supply is associated with higher stock market values, this result consistence with finding mention by Humpe and Macmillan (2007), Gaire (2017) and Thapa (2023) but contradict with Gan et al. (2006), Sohail and Hussain (2009) and Kotha and Sahu (2016). In contrast, variables such as inflation (CPI), this results consistence with the finding mention by Sohail and Hussain (2009), Venkatraja (2014), Gaire (2017) and Thapa (2023) but inconsistence with Kotha and Sahu (2016) and Aryal (2020), exchange rate (USD), this result consistence with Venkatraja (2014), Devkota and Dhungana (2019), Shrestha (2019) and Aryal (2020) but inconsistence with Gay (2008), foreign direct investment (FDI), this result inconsistence with Pilinkus (2009) and GDP show no statistically significant relationships with NEPSE, likely with p-values > 0.05, suggesting their impact on NEPSE is not strong enough to be considered significant in this model, this result consistence with the finding mention by Gaire (2017). Overall, BR and M2 are the most important factors influencing NEPSE, while the other variables appear less influential.

Conclusion

In conclusion, the study found that certain macroeconomic factors like the base rate (BR) and broad money (M2) have a noticeable impact on the NEPSE, while others like CPI, USD, FDI, and GDP do not show a strong influence. The data analysis showed that M2 and BR have a significant relationship with NEPSE, with BR having a negative effect, and M2 having a positive effect. The regression model confirmed that BR and M2 are important predictors of NEPSE, while other factors like CPI, USD, and GDP don't significantly affect it. This means that while some factors matter more for NEPSE, others need more research to understand their true impact.

Implications

Implications of a study refer to the broader consequences or effects of its findings, including influence on future research, policy decisions, practical applications, and theoretical understanding. The implications of the study are as follows:

- Investors should closely monitor the USD exchange rate, as its strong relationship with

the NEPSE index suggests it significantly influences market performance.
- Policymakers must consider the volatility of the NEPSE index and its sensitivity to macroeconomic factors when designing economic policies to stabilize the market.
- The study highlights the substantial risk and volatility of the NEPSE index, indicating the need for robust risk management strategies for investors.
- Continuous observation of macroeconomic indicators such as inflation rates, base rates, and FDI is essential for predicting potential market fluctuations.
- The findings provide a foundation for further studies that could explore additional macroeconomic variables and their impacts on the stock market.
- The consistent depreciation of the Nepalese Rupee necessitates effective currency management strategies to stabilize the market and investor confidence.

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