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Impact of Monetary Approach on Balance of Payment in Nepal

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Abstract

This study investigated the applicability of the monetary method to the balance of payments in Nepal. The data for the paper's time series, which covered the period 1975 to 2021, originated from the NRB and the ministry of finance and covered variables such as the NFA, NDC, GDP, CPI, TB, and ER, among others. Software EViews 10 was used to analyze the data. A correlation and regression analysis were computed. Out of five macroeconomic factors that influence the supply and demand for money, the findings showed that the three variables that have the most effect on the country's NFA and BOP are net domestic credit, gross domestic product, and exchange rate.

Keywords: *Net foreign assets, Gross domestic product, Consumer price index, Trade balance and Exchange rate.*

I. INTRODUCTION

Monetary policy is one of the macroeconomic tools used by a country's monetary authority to manage its economy and achieve desired goals. The basic goals of monetary policy for the majority of economies are to maintain price stability, and balance of payments equilibrium, and to support employment, output growth, and sustainable development. These goals are essential for achieving the internal and external value of money balance and fostering long-term economic prosperity. Maintaining a sound balance of payments position is one of the fundamental macroeconomic objectives of stabilization policy in each state in the world to protect the external value of a Nation's currency. A monetary approach to the balance of payments refers to the BOP as a monetary incident. It establishes a link between a country's BOP and its money supply (Chacholiades, 1990)

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The phrase "balance of payments" is vague. It is frequently used ambiguously without a clear explanation of what it is intended to encompass, and this leads to a lot of confused thinking on the subject (Meade, 1955). The reason it is impossible to move forward without a thorough discussion of the multiple meanings of this phrase is because of the cause. The term "balance of payments" (BOP) refers to an account that details an economy's interactions with the rest of the world during a specific time frame, typically a year. The BOP depicts how an economy interacts with the rest of the world through the intersection of trade and finance. It includes gifts, government transactions, the buying and selling of commodities and services, as well as capital movements. The account is typically presented as the official settlement balance account, the capital account, which includes both foreign and domestic assets, and the current account, which mostly comprises commodities and services. The Current Account, Capital Account, and Financial Account are the three main accounts that make up the BOP. These accounts balance in that the total of the entries is conceptually equal to zero (IMF, 1977). It is a systematic record of all economic interactions between a country and the rest of the globe during a given time, both visible and unseen. It illustrates the connection between a nation's total outlays and inflows from all other nations. As a result, a statement of payments and receipts for foreign transactions constitutes a balance of payments. Both the credit side and the debit side are present. The credit side shows all payments to be received from abroad and the debit side shows all payments to be made to foreigners. It is a crucial metric for assessing a nation's strength since it shows transactions involving the export and import of tangible goods (physical goods) and intangible goods (transportation services, healthcare services, banking services, etc.) during a given period.

The monetary approach views the balance of payments as a monetary phenomenon and expresses how a country's BOP and its money supply and demand are related. Furthermore, it contends that the presence of surpluses and deficits creates an unbalance in the money market, which ultimately leads to the BOP issue. Surpluses result when money demand exceeds money supply, but deficits occur when the opposite is true. The balance of payment equilibrium is desired by each country but it is rarely attained. Disequilibrium in a country's balance of payments indicates imbalances between autonomous international payments and receipts. Generally, if BOP>0 implies Surplus and if BOP<0 implies Deficit. The disequilibrium in the balance of payments results in either surplus or deficit.

There is strong evidence that the Monetary Approach to Balance of Payment (MABP) is both a significant literary topic and an open question. While others, such as Watson (1990), did not find any evidence in favour of the MABP, Lachman (1975) and Dhliwayo (1996) did. The majority of research papers focus on the balance of payments from a financial perspective. Therefore, by investigating the effect of Monetary Policy and BOP on Price Stabilization in Nepal, this study will add to the body of literature.

II. LITERATURE REVIEW

2.1 Empirical Review

Ram Kumar Shrestha (2011) used the Jhonson small country model to analyze Nepal's monetary approach to the balance of payments for the years 1964–1965 to 2009–2010. He then applied econometric tools like the OLS technique to the time series data to identify the key variables that significantly influenced Nepal's balance of payments. He discovered that only three economic factors—price level, GDP, and domestic credit creation—have any real bearing on the theory. Only two economic factors—price level and domestic credit—have significant levels in Nepal, and the relationship between interest rates and foreign assets produces inconsistent results and runs counter to monetary theory. In his analysis, he claimed that domestic credit had a favourable effect on NFA (net foreign assets) and that real GDP, which is used as a stand-in for income, had a large impact on changes in Nepal's NFA. Additionally, he suggested that domestic credit generation is a very suitable policy variable for addressing Nepal's BOP issue because it has been shown statistically to have a large impact on NFA.

Bobai (2013) conducted a study to provide an alternative viewpoint for considering Nigeria's experience with the balance of payments as a monetary issue. The debate centred on the question of whether an excessive money supply contributed significantly to the disequilibrium of the balance of payments between 1986 and 2010. The annual data were analyzed using the Johansen Cointegration, Vector Error Correction Mechanism, Impulse Response Function, and Variance Decomposition methods. In line with similar studies in other nations, the results of VECM and impulse responses demonstrate that the balance of payments in Nigeria is not a solely monetary phenomenon. The report recommended that the nation's monetary authorities closely control the budget deficit because it also leads to a rise in domestic credit.

Godslove and Chukwuma (2018) conducted empirical research on the effects of monetary policy and the balance of payments on price stabilization in Nigeria from 1980 to 2015. The findings showed that while changes in the balance of payments were influenced by changes in lending rates and broad money supply growth rates, changes in inflation were influenced by changes in monetary policy growth rates and broad money supply growth rates.

Senyefia et al. (2019) conducted a study to examine the monetary approach to the balance of payments (BoP) in Ghana using monthly data set that spans from January 2006 to February 2018 from the bank of Ghana. The Augmented Dickey-Fuller test and the Phillips-Perron test were used to determine if a unit root existed or not. The BoP in Ghana is a purely monetary phenomenon, according to empirical findings from ARDL cointegration and error correction modelling. Selected variables and Net Foreign Assets have both short-run and long-run correlations. In the long run, it is discovered that the exchange rate, net domestic credit, inflation rate, and interest rate all significantly affect the BoP situation. Additionally, Net Domestic Credit and Broad Money Supply have a profoundly large short-term impact on the BoP position.

2.2 Theoretical Framework

A theoretical framework is made up of concepts, their definitions, and references to pertinent academic works that are employed in the theory that is used for your specific study. The theoretical framework must show comprehension of ideas and concepts that are pertinent to your research paper's topic and that link to the more general fields of knowledge taken into account. In this study net domestic credit, gross domestic product, consumer price index, trade balance and exchange rate are independent variables and net foreign asset is the dependent variable. Based on a review of different literature studied theoretical model is established:

$$NFA = a + b1NDC + b2GDP + b3CPI + b4TB + b5ER + \dot{\varepsilon}$$

Where,

NFA = Net foreign Assets

NDC = Net Domestic Credit

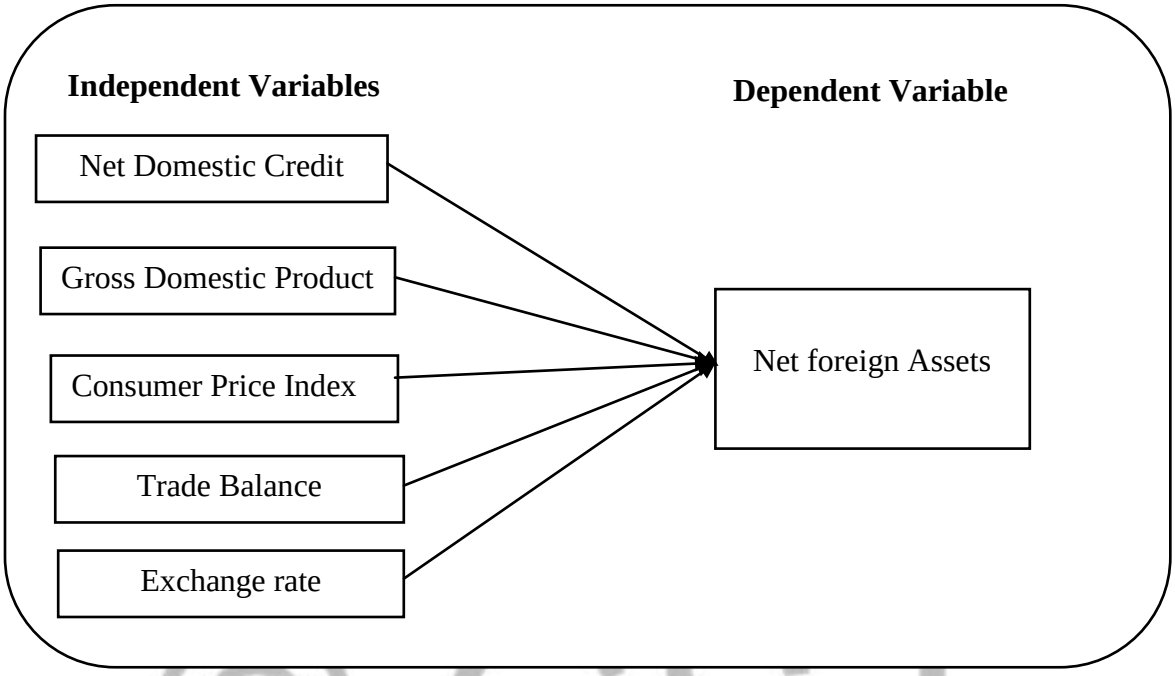
GDP = Gross Domestic Product

CPI = Consumer Price Index

TB = Trade Balance

ER = Exchange rate

The Conceptual Framework of the study is mentioned below:



Source: Author's Review

Figure: The conceptual framework

Introduction to Variables

Net Foreign Assets (NFA) - Net foreign assets are the value of a country's overseas assets minus the value of the local assets that are owned by foreigners, adjusted for variations in valuation and exchange rates. By comparing a country's foreign assets and liabilities, NFA may determine whether it is a creditor or debtor nation. The cumulative change in a country's current account, which is comprised of the trade balance, net income over time, and net current transfers over time, is another way to describe a country's NFA position (Ganti, 2021).

Gross Domestic Product (GDP) - The total monetary or market worth of all the finished goods and services produced within a nation's boundaries during a certain period is known as the gross domestic product (GDP). It serves as a thorough assessment of the state of the economy in a particular nation because it is a wide indicator of total domestic production (Fernando, 2022).

Consumer Price Index (CPI) - The Consumer Price Index tracks the overall change in consumer prices over time using a sample basket of products and services. The CPI is the most

commonly cited indicator of inflation, closely followed by other indicators utilized by policymakers, the financial sector, companies, and consumers (Fernando, 2022). The general level of prices and the value of money are inversely related. Money will have a lower value when the general price level is higher and vice versa.

Net Domestic Credit (NDC) - Net domestic credit is the total of net credits to the nonfinancial public sector, private sector, and other accounts. Domestic credit expansion boosts the money supply, which in turn raises demand for goods and services. Domestic assets leave the country and the BOP deficit results if domestic sources from foreign sources are stable or inelastic.

Trade Balance (TB) - The main component of a country's balance of payments is the balance of trade (BOT), which is the difference between the value of a country's imports and exports for a specific period (BOP). A nation with a trade deficit imports more goods and services than it exports in value terms, whereas a nation with a trade surplus sells more goods and services than it imports (Kenton, 2021).

Exchange Rate (ER) - The rate at which one currency will be exchanged for another is known as the exchange rate. The majority of exchange rates are characterized as floating and fluctuate in response to market supply and demand. Some exchange rates are set or linked to the value of the currency of a particular nation. Exchange rate fluctuations have an impact on businesses by altering the cost of supplies imported from other nations and the demand for their goods among clients abroad (Chen, 2021).To truly understand the country's NFA status, the exchange rate must be considered. The value of both assets and obligations denominated in foreign currencies will decrease as one country's currency appreciates versus another's, and vice versa. Therefore, currency depreciation will increase a country's foreign debt burden if it is a net debtor.

III. RESEARCH METHODOLOGY

3.1. Research Design

This study employs a deductive approach based on both descriptive and analytical data to examine Nepal's monetary balance of payment. NFA, net domestic credit, GDP, CPI, trade balance, and exchange rate, and are the variables considered in the study. Because including

the BOP variable in the estimation led to erroneous results, NFA was utilized as the target variable (dependent variable) instead of the BOP. The independent variables were: net domestic credit, GDP, CPI, trade balance, and exchange rate.

3.2. Nature and Sources of Data

Secondary data based on macroeconomic variables are used in this study. The study uses time-series data from 1975 to 2021. The data for the variables net foreign assets, net domestic credit, and consumer price index were obtained from the quarterly bulletins of the Nepal Rastra Bank. The data for gross domestic product, exchange rates, and trade balance was taken from annual ministry of finance data measures in Nepalese currency.

3.3. Model Specification

The functional link between the dependent variable and the independent variables is established using Solow's growth model. Solow's growth model was published in the "Quarterly Journal of Economics" in 1956 under the title "A Contribution to the Theory of Economic Growth" to examine how the capital-to-labour ratio affected the movement of the economy. The functional link between NFA and the independent variables GDP, CPI, NDC, Trade balance, and Exchange rate is developed using Solow's growth model as follows: NFA = a + b1NDC+b2GDP+ b3CPI + b4TB + b5ER+ ἐ

IV. EMPIRICAL RESULTS AND ANALYSIS

4.1. Descriptive Statistics

Descriptive statistics describe the data quantitatively about the characteristics of data among the selected variables. Under descriptive statistics, the mean and standard deviation of all the selected variables are computed. The mean indicates the average value of all observations whereas the standard deviation shows the degree of variation among the observations' values. Normally, the higher the value of standard deviation, the higher the degree of fluctuation, and the higher will be the risk associated with it.

Table No.1 Descriptive Statistics of Independent and Dependent Variables

	NFA	NDC	GDP	CPI	TB	ER
Mean	121100.5	378982.4	2116385.	43.26170	-131887.9	29.57936
Median	40191.10	154582.7	300845.0	31.50000	-54573.40	0.000000
Maximum	955980.9	2177792.	30310336	137.0000	622374.4	118.2200
Minimum	1029.100	970.2000	16601.00	4.100000	-1163743.	0.000000
Std. Dev.	200472.4	549176.2	6516056.	39.76729	276475.6	44.80388
Skewness	2.634763	1.860551	3.622002	0.997268	-1.606482	0.930171

Table 1 depicts that net foreign assets range from 1029.100 to 955980.9 with a mean of 1221100.5 and a standard deviation of 200472.4. The net domestic credit ranges from 970.20000 to 2177792 with a mean of 378982.4 and a standard deviation of 549176.2. Similarly, gross domestic product ranges from 16601.00 to 30310336 with a mean of 2116385 and a standard deviation of 6516056. Likewise, the consumer price index ranges from 4.100000 to 137.0000 with a mean of 43.26170 and a standard deviation of 39.76729. Moreover, the trade balance ranges from -1163743 to 622374 with a mean of -131887.9 and a standard deviation of 276475.6. Furthermore, the exchange rate ranges from 0.000000 to 118.2200 with a mean of 29.57936 and a standard deviation of 44.80388.

Distribution is considered normal if kurtosis and skewness are 3 and 0. From the table, it can be observed that skewness values of trade balance (TB) are negatively skewed i.e. -1.6. On the other hand the skewness value of NFA, GDP. CPI, NDC and ER are positively skewed.

4.2. Correlation Analysis

The table of correlation matrix explains correlation coefficients between dependent and independent variables.

Table No.2 Correlation Analysis

	NFA	NDC	GDP	CPI	TB	ER
NFA	1.000000	0.868045	0.636325	0.678778	-0.584477	0.697179
NDC	0.868045	1.000000	0.508858	0.618378	-0.487955	0.599459
GDP	0.636325	0.508858	1.000000	0.519339	-0.796078	0.494682
CPI	0.678778	0.618378	0.519339	1.000000	-0.562029	0.933198
TB	-0.584477	-0.487955	-0.796078	-0.562029	1.000000	-0.550032
ER	0.697179	0.599459	0.494682	0.933198	-0.550032	1.000000

The correlation coefficient has been used to explain the link between the dependent and independent variables. The correlation coefficient's value falls between -1 and +1. If the correlation coefficient is precisely -1, the variables are said to have a complete negative correlation. On the other hand, if the correlation coefficient is exactly +1, the variables are said to have a perfect positive correlation. The aforementioned table shows that there is a positive correlation, or a positive significant association, between the dependent and independent

variables (NDC, GDP, CPI, and ER). If the values of all important independent factors rise, then the values of NFA rise as well, and vice versa. The value of NFA drops when the value of TB increases, and vice versa. This is because there is a negative correlation between TB and NFA.

4.3. Regression Analysis

Table No.3 Regression Analysis

Dependent Variable: NFA
Method: Least squares
Date: 07/24/22 Time:
Sample: 1975-2021
Included observations: 47

Variable	Coefficient	Std. Error	t-Statistic	Prob
ND	0.23612	0.03071	7.68805	0.000
GD	0.00711	0.00331	2.14787	0.037
CPI	-	915.932	-	0.346
TB	0.01466	0.07952	0.18443	0.854
ER	1644.28	793.837	2.07131	0.044
C	7557.78	22881.7	0.33029	0.742

R-squared	0.83568	Durbin-Watson stat	1.942037
Adjusted R-squared	0.81564		
F-statistic	41.70407		
Prob (F-statistic)	0.000000		

According to Table 3, the R-squared value is 83.56 percent, meaning that 83.56 percent of the dependent variable can be predicted by the independent variables (NDC, GDP, CPI, TB, and ER) and the remaining percent can be explained by additional factors not included in this study. A strong regression model should have a Durbin Watson Stat of 2. The Durbin Watson Stat in this result, which is 1.94, is close to 2. The whole model is statistically significant since the F test is significant at a level of significance of 5%. NDC, GDP, CPI, TB, and ER were used as predictors to regress the dependent variable NFA. We reject the null hypothesis since NDC, GDP, and ER all have P-values that are less than 5% of the level of significance, indicating that they have an impact on the dependent variable. The p-value for CPI and TB, on the other hand, is greater than the level of significance of 5%, indicating that we accept the

null hypothesis, which states that these two independent variables have no impact on the dependent variable. According to the coefficients of NDC, every unit change in NDC will result in a 0.236 unit change in NFA. Since the GDP Coefficient is 0.0071, every unit change in GDP will result in a 0.0071 unit change in NFA. The Coefficients of CPI, on the other hand, are -871.61, meaning that every unit change in CPI will result in a -871.61 unit change in NFA. Similar to TB, NFA will vary by 0.0146 units for every unit change in TB, according to the coefficients of TB, which are 0.0146. Furthermore, since the ER coefficients are 1644.285, any unit change in ER will result in a 1644.285 unit change in NFA.

V. CONCLUSION AND RECOMMENDATIONS

The purpose of this study was to determine whether monetary factors contributed to changes in Nepal's BOP. NFA was chosen as the target variable, which represents the BOP, and NDC, GDP, CPI, trade balance, and exchange rate were chosen as the explanatory factors to answer this question. From this analysis, it can be inferred that by effectively controlling money supply and demand, Nepal's NFA and BOP can undergo the desired change. Many macroeconomic factors affect the supply and demand for money, but net domestic credit, GDP, and exchange rate are three variables that have the biggest impacts on the nation's NFA and BOP. From all of the above observations, the study concluded that monetary variables are one of the causes of the BOP in Nepal, which is consistent with the above scholars mentioned in the literature and reached the same conclusion.

Instead of depending primarily on monetary tools to achieve stability in the country's balance of payments account, policymakers should give equal attention to other policy levels while searching for policy instruments to correct the disequilibrium in the balance of payments. It is advised that a sample size significantly bigger than the one employed for this research be used for future investigations. To have a complete view of the factors that significantly influence the balance of payments, additional non-monetary variables, such as government expenditure, should be taken into account.

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