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Impact of Monetary approach on Balance of Payment in Nepal

Pratima Chhetri

Abstract –
This paper examined whether the monetary approach to Balance of Payment holds in Nepal. The paper used time series for data spanning between july-1975 to july-2018 on variable such as NFA, GDP, CPI, NDC, TB and ER and data were sourced from NRB and ministry of finance. The paper found that an increase in TB has a negative effect on NFA and vice-versa and other variables such as GDP, CPI, NDC and ER were found to be significant using two different tools correlation and regression analysis.. The study therefore concluded that monetary variables play the vital role to stabilize the BOP for small and open country like Nepal
Key Variables: *Net foreign assets, Gross domestic product, Consumer price index, Trade balance and Exchange rate.*

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I. Introduction

The balance of payments has been an important indicator of the growing economic activities in all the countries. Balance of Payments problem in developing countries, especially in Nepal has been very important and burning issue of many years and are constrained by balance of payment deficits, more specifically on the current account. This is concern to Nepal given that like any other country, one of the macroeconomic objectives of the country is to maintain a stable equilibrium in the balance of payment. Fleermuys (2005) for instance contend that organizations such as the International Monetary Fund (IMF) have put great emphasis to stable balance of payments. The BOP records all economic transactions carried out between the domestic economy and the rest of the world, within a given period (IMF, 1993). The balance of payments is a statistical statement that systematically summarizes, for a specific time period, the economic transactions of an economy with the rest of the world (IMF, 1993).The BOP is made up of three main accounts, namely the Current Account, the Capital Account and the Financial Account. It is systemic records of all economic transactions, visible as well as invisible, in a period, between one country and rest of the world. It shows the relationship between one country's total payments to all other countries and its total receipts from them. Thus, balance of payment is statement of payments and receipts on international transactions. It has two sides: credit side and debit side. The credit side shows all payments to be received from abroad and debit side shows all payments to be made to the foreigners. It is a vital index used in measuring the strength of such country which reveals transaction relating to the export and import of visible (physical goods) and non-visible items(transport services, medical services, banking services, etc.) of a country for a specified period.

Scholars have explored approaches to address BOP disequilibrium, and one such approach, is the Monetary Approach to the Balance of Payments (MABP). Monetary approach to balance of payment (MABP) is the modern version of the classical price-specific-flow theory developed by David Hume in the eighteenth century, the proponents of this modern version being Johnson (1973,1977), Mundell (1968,1971), Frenkel (1971), Musa (1974,1976), Swoboda (1976) and the economist in the IMF (Polak,1957; Agry,1969). The basic thrust of MABP is that balance of payment is 'an essentially monetary phenomena, in that demand for and supply of money play crucial role in its determination. This does not , however mean that BOP is an exclusively ,monetary phenomena because MABP takes explicit account of the influence of real variable such as the level of income and interest on balance of payment (Musa, 1976).

Nepal experienced current account deficit from 1974/1975 to 1999/00 and improvise later in 2000/01 but fluctuate more frequently and shows deficit in 2018/19. This trend was mainly due to the deteriorating trade balance because of increased outgoing investment in the form of import. As Nepal is an open boarder country and highly depend on its neighbouring country India and China for importing every aspect and decline its export due to which Nepal experienced BOP deficit in most of the year so that in Nepal foreign trade is not become an engine for economic growth. Despite large recorded trade deficit, Nepal often maintains a surplus in its current account and thanks to surpluses in services including tourism, official aids transfers, and increasingly large remittances from Nepalese living abroad. In developing country like Nepal, one of the main problem is increasing demand of assets for its development plan and to solve this, it is necessary for the country to study the balance of payment with various aspect of country with the international economic position. The country

will face the extreme problem when it faces the BOP deficit, so that country needs to identify and control the influencing factor of balance of payment.

Due to the ideal geographical condition i.e. landlocked by India in its three sides on the east, west and south and China on the north, neighbouring economics influenced the country monetary policy and cannot obtain the desired limit of macroeconomic variable and tend to face the balance of trade deficit. As due to the open market between India and Nepal legally and illegally, Nepalese rupees is pegged with Indian rupees, higher labour mobility and possibility of broken cross rate and currency arbitrage opportunity existence between these two country are the constraint for floating exchange rate for Nepalese monetary authority that influence country's monetary policy.

II. Literature Review

This section is devoted a brief retrospect of the literature on monetary approach to balance of payment and its variable namely net domestic credit, trade balance, gross domestic product, consumer price index, and real exchange rate that support to explore the relevance and applicability of monetary approach to balance of payment in Nepal. Though the data recording is insufficient and ineffective in underdeveloped countries like Nepal, the balance of payment has successfully concluded that it is entirely monetary phenomenon.

2.1 Theoretical Framework

The theoretical framework is the basis or foundation upon which the study is established. It is within the framework of this theory that the entire study proceeds. The structure shows the relation between dependent and Independent variable. In this study net domestic credit, gross domestic product, consumer price index, trade balance and exchange rate are independent variable and net foreign asset is dependent variable. On the basis of review of different literature studied theoretical model is established:

$Y = a + b1NDC + b2GDP + b3CPI + b4TB + bER + + \dot{\varepsilon}$

Where,

Y measures the variability of net foreign assets measured in million where the data consist of yearly observations taken from Nepal Rastra Bank.

NDC is ne domestic credit measured in million defined as annual domestic credit of the country.

GDP is Gross domestic measured in million defined as annual gross domestic product.

CPI is consumer price index expressed in percentage defined as annual consumer price index of the country.

TB is trade balance measured in million defined as annual trade balance of the country.

ER is exchange rate of the US Dollar defined as the annual exchange rate.

a is the constant or intercept and $\dot{\varepsilon}$ is the error term.

The theoretical framework of the study is mentioned below:

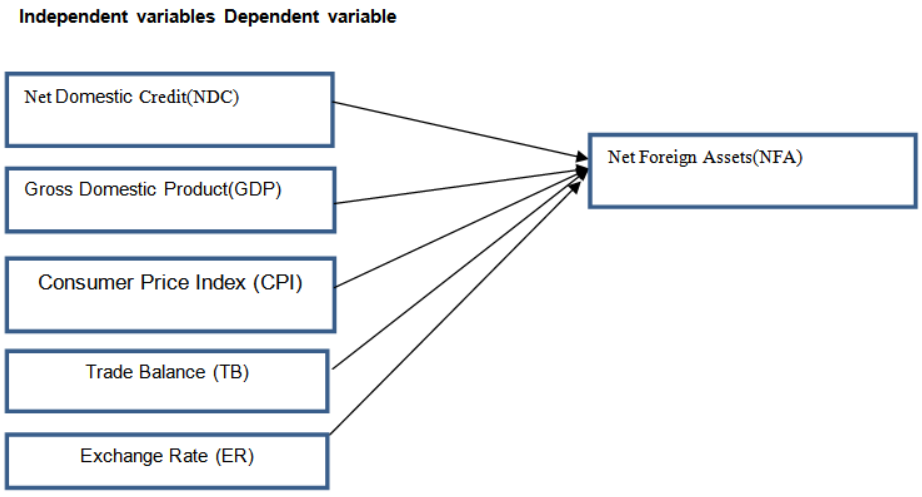

Figure: The conceptual framework

2.2 Empirical framework

Ram Kumar Shrestha (2011) analyzed the monetary approach to Balance of payment in Nepal for the period of 1964/65-2009/10 by using Jhonson small country model and applying econometric tools like OLS technique for the time series data and tried to find the significant factor that influence the balance of payment of Nepal. He found that only three economics factor i.e. price level, gross domestic product and domestic credit creation is significant with the theory. The relationship between interest rate and foreign assets shows

inconsistent result in Nepalese context and contradict with the monetary theory and only two economic factor price level and domestic credit has significance level. In his study he stated that there is positive impact of domestic credit on NFA (net foreign assets) and also real GDP which is taken as proxy for income shows significant impact on change in NFA of Nepal. He also recommended that domestic credit creation is found statistically very significant to influence NFA so to solve BOP problem in Nepal , domestic credit creation is very appropriate policy variable.

Ahmad et al (2014) impact of exchange rate on balance of payment of Pakistan where various test like unit root, ARDL and Granger causality test were employed to ascertain the volatility of exchange rate and its tendency on balance of payment using time series data from January 2007 to October 2013. They concluded that there is significant and positice relation between exchange rate and balance of payment and recommended that stability of exchange rate may create a positive environment by encouraging the investment and can improve the foreign assets that maintains the balance of payment of the country.

Zhang and MacDonald (2013) empirically investigate the relationship between trade balance, exchange rate and net foreign assets by estimating equilibrium exchange rates for 23 OECD countries and four less mature economics for three different panel over the period from 1980 to 2011 based on theoretical framework proposed by Lane and Milesi-Ferretti (2002) using stationary test, co-integration test and show that there is significant relationship between trade balance and net foreign assets, and between real exchange rate and trade balance but do not find a significant link between real exchange rate and net foreign assets in a panel data setting. Furthermore, they realized that broad panel can identify more general pattern effectively than individual time series, it is also the case that large panel amplify heterogeneity issues which may arise in different countries.

Mushendami, Manuel, Shifotoka and Nakusera (2017) empirically examined monetary approach to balance of payment held in Namibia using Vector Error Correction Model (VECM) from the data between first quarter of 1991 to fourth quarter of 2015 on variable such as NFA, exchange rate, GDP, CPI, fiscal balance, interest rate and domestic credit. He concluded that domestic credit has negative impact on NFA and vice versa, while fiscal balance tends to improvise the NFA in short run. Meanwhile variable like exchange rate, GDP, CPI, interest rate to NFA has insignificant relationship. Although his study concluded that monetary variable are not only cause of variation in net foreign assets in Namibia, as fiscal balance which is a non monetary variable also has a significant impact on NFA. He also recommended that to improve Balance of payment, Namibian authorities should consider monetary and fiscal policies for reducing deficit of fiscal and domestic credit.

To sum up, the above literature review proves that researchers have been increasingly using monetary approach of balance of payment in different countries to understand and stabilize the balance of payment fluctuations. This review states that employing monetary approach of balance of payment to explain the relationship between macroeconomic variable in the context of BOP for small and open country like Nepal plays the vital role for determining the influencing factor that affect balance of payment of Nepal

III. Research Data And Methodology

3.1 Research Questions

The research question of this study is whether the applicability of monetary approachesaffect on BOP of the country which supports policy makers to formulate the better monetary policy in balance of payment of the country.

3.2 Research Design

This study uses deductive method based on both descriptive and analytical for analyzing the monetary approach of balance of payment in Nepal. The variables used for the study are NFA, GDP, CPI, trade balance, exchange rate and net domestic credit. NFA was used as target variable (dependent variable) instead of BOP because the inclusion of BOP variable in the estimation produced spurious results, and trade balance, GDP, CPI, exchange rate and net domestic credit are used as independent variables.

3.3 Nature and Sources of Data

This study uses the secondary data based on macroeconomic variable. The study uses the time series data spanning from July 1975 to July 2018, where the data for the variable such as net foreign assets, net domestic credit, and consumer price index were obtained from the quarterly bulletins of Nepal Rastra bank , where as gross domestic product, exchange rate and trade balance were taken from annual data of ministry of finance measured in Nepalese currency and consumer price index is measured in percentage.

3.4 Model Specification

Solow's growth model is used to establish the functional relationship between dependent variable and independent variables. Solow's growth model was appeared in the "quarterly Journal of Economics"-1956 in the title "A Contribution to the Theory of Economic Growth" to analyze the movement of economic system through the change in capital – labor ratio. The model is: $Q = f\ (L,)$…… (1)

Where, Q=output, L=labor and K=capital. Now, on the basis of Solow's growth model, the functional relationship between NFA and independent variables GDP, CPI, NDC, Trade balance and Exchange rate is established as:

NFA= (GDP, CPI, NDC, TB, ER)

Where NFA= Net foreign Assets

GDP= Gross Domestic Product

CPI= Consumer Price Index

NDC= Net Domestic Credit

TB= Trade Balance

Er= Exchange rate

3.5 Variable Specification

a) Net Foreign Assets (NFA)

Net foreign assets refers to the difference between external assets owned by a country and the values of domestic assets that are owned by external country i.e. foreigners adjusted for changes in valuation and exchange rate. It determines whether a country is a creditor or debtor by measuring its external assets and liabilities.

b) Gross Domestic Product (GDP)

GDP refers to the total value of money of all the final goods and services produced in a particular geographical territory generally during a year measured at current price.

c) Consumer Price Index(CPI)

Consumer price index is a measure of the change in the average price of goods and services that consumers normally purchases such as good, clothing, medical and others. It indicates changes in the general price level from the base year to the current year. There is inverse relationship between general price level and the value of money. When the general price level is higher the value of money will be lower and vice versa.

d) Net Domestic Product (NDC)

The sum of net claims on central government and claims on other sectors of domestic economy is known as net domestic credit. Increase in domestic credit increases supply of money which increases in demand of goods and services. If domestic sources from foreign sources are constant or inelastic then it causes foreign assets outflow and causes BOP deficit.

e) Trade Balance (TB)

The difference between the value of imports and exports of a country for a given period is called trade balance. TB is the largest component of BOP. When a country imports more goods and services than exports then a country has a trade deficit, while a country exports more has a trade surplus. Trade surplus and deficit bring great impact on country's BOP.

f) Exchange Rate (ER)

An exchange rate is the value of one country's currency in terms of another country. Exchange rate fluctuation can also have a significant effect on NFA position. So exchange rate should be taken into account to get a true picture of NFA position of the country. Appreciation of a country's currency against another will decline the value of both foreign currency denominated assets and liabilities and viceversa. Thus if a country is a net debtor, currency depreciation will increases its foreign currency debt burden.

IV. Analysis And Interpretation

4.1 Table 1: Descriptive Statistics

	CPI	DC	ER	GDP	TB	NFA
Mean	37.23636	390741.6	23.70045	2233320.	-133417.3	141620.5
Median	28.00000	125322.4	0.000000	264563.0	-48944.65	37394.55
Maximum	119.6000	2177792.	106.3500	30310336	622374.4	1014635.
Minimum	4.100000	970.2000	0.000000	16601.00	-1163743.	1029.100
Std. Dev.	33.28777	571139.0	39.91292	6723245.	285849.2	247188.3
Skewness	1.043046	1.717615	1.145954	3.478411	-1.540003	2.363297
Kurtosis	3.060904	4.918786	2.485533	13.42605	7.335248	7.785976
Jarque-Bera	7.985060	28.38467	10.11545	288.0163	51.84814	82.95146
Probability	0.018453	0.000001	0.006360	0.000000	0.000000	0.000000
Sum	1638.400	17192632	1042.820	98266091	-5870360.	6231302.
Sum Sq. Dev.	47647.24	1.40E+13	68500.78	1.94E+15	3.51E+12	2.63E+12

Observations	44	44	44	44	44	44

Distribution is considered normal is kurtosis and skewness are 3 and 0. From the above table, it can be observed that skewness values of trade balance (TB) are negatively skewed I.e. -1.54. On the other hand the skewness value of NFA, GDP. CPI, NDC and ER are positively skewed. Jarque-bera of all variables is less than 5% level of significance implying that distribution is normal.

4.2 Table 2: Correlation Analysis

	CPI	DC	ER	GDP	TB	NFA
CPI	1.000000	0.845059	0.910794	0.693708	-0.710909	0.912778
DC	0.845059	1.000000	0.743800	0.743218	-0.685221	0.870858
ER	0.910794	0.743800	1.000000	0.616796	-0.651733	0.850234
GDP	0.693708	0.743218	0.616796	1.000000	-0.796828	0.892433
TB	-0.710909	-0.685221	-0.651733	-0.796828	1.000000	-0.799129
NFA	0.912778	0.870858	0.850234	0.892433	-0.799129	1.000000

The above table depicts that there is positive correlation i.e. positive significant relationship between dependent and independent variable (GDP, CPI, NDC and ER) which means if the value of all key independent variables increases then the value of NFA also increases and vice-versa. On the other hand, there is negative correlation between TB and NFA which means if the value of TB increases then the value of NFA decreases and vice-versa.

4.3 Table 3: Regression analysis

Dependent Variable: NFA
Method: Least Squares
Date: 06/09/20 Time: 01:09
Sample: 1975 2018
Included observations: 44

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-34595.37	13831.16	-2.501262	0.0168
CPI	2571.156	654.2951	3.929658	0.0003
DC	0.044645	0.025326	1.762817	0.0860
ER	1045.896	429.6249	2.434439	0.0197
GDP	0.017605	0.001935	9.099148	0.0000
TB	0.008055	0.043711	0.184268	0.8548

R-squared	0.969347	Mean dependent var	141620.5
Adjusted R-squared	0.965313	S.D. dependent var	247188.3
S.E. of regression	46037.21	Akaike info criterion	24.43841
Sum squared resid	8.05E+10	Schwarz criterion	24.68171
Log likelihood	-531.6451	Hannan-Quinn criter.	24.52864
F-statistic	240.3341	Durbin-Watson stat	1.530290
Prob(F-statistic)	0.000000		

In the above table, the probability of TB, CPI and ER is greater than 5% level of significance i.e. we fail to reject null hypothesis which means this three key independent variables cannot affect the dependent variable. GDP and NDC have p-value less than 5% level of significance so we reject null hypothesis that means this two key independent variables affect the dependent variable. In case of R-squared, it is observed 96.93% of dependent variable is explained by key independent variables (GDP, CPI.TB, ER, and NDC) and other remaining percentage is explained by other factors. For a good regression model, Durbin Watson Stat should be 2. In this result, Durbin Watson Stat is near to 2 i.e. 1.53.

V. Conclusion

The objectives of this study were to find whether the monetary variables are responsible to produce fluctuations in BOP of Nepal. To answer this questions descriptive statistic, correlation and regression analysis

tool was adopted where NFA was target variable representing BOP while, GDP, CPI, NDC, and exchange rate, trade balance were used as explanatory variables.

This paper examined correlation and regression analysis to find out the impact of macro- economic variables on BOP in Nepal where both analysis found that improvement in GDP, CPI, NDC and ER tends to improve NFA whereas, variable such as trade balance (TB) was found to be insignificant whereas increase in TB has a negative effect on NFA and vice-versa. From all of above observations, the study concluded that monetary variables are one of the causes to affect the BOP in Nepal that is consistent with the above scholar's mentioned in the literature and reached the same conclusion.

Bibliography

[1]. Ahuja, H. L. (2011). *Macro-economics.* New Delhi: S. Chand & Company Ltd.
[2]. Dahal, M. (ed.) (2004). Nepalese Economy. Kathmandu: Central Department of Economics, Tribhuwan University
[3]. Khan, R. (1998). *"Monetary Approach to Balance of Payment: Case Study of India (1968-85)." Economic and Political Weekly*, Vol.24(4).
[4]. Ministry of Finance (2019). *Economic survey: FY 2018/19*, Kathmandu: Ministry of Finance.
[5]. Mushendam., P., et.al., (2017). "*Empirical Analysis of the Monetary Approach to the Balance of Payment in Namibia"* Vol. 3 (1)
[6]. NRB (2018), *Economic Bulletin*, Various Issues, Nepal Rastra Bank, Kathmandu
[7]. Shrestha, R. k., (2011). "The study of Monetary Approach to Balance of Payment in Nepal"
[8]. Zhang, G.,& MacDonald, R. (2013). "Real Exchange Rates, The Trade Balance and Net Foreign Assets: Long-Run Relationship and Measures of Misalignment"

APPENDIX

Year	NFA	TB	GDP	CPI	ER	DC
1975	1451.5	-925	16601	4.2	0	970.2
1976	1029.1	-797.9	17394	4.1	0	1637.8
1977	1575	-843.3	17280	4.3	0	1763.3
1978	1875.2	-1423.4	19727	4.7	0	2125
1979	1783.3	-1587.9	26128	4.9	0	2905.3
1980	2288	-2329.6	23351	5.4	0	3540.8
1981	2231.9	-2819.5	25530	6.1	0	4305.8
1982	2414.5	-3438.8	30988	6.7	0	5161.4
1983	3097.4	-5182	33821	7.7	0	6043.1
1984	2611.4	-4810.4	39290	8.2	0	8490.9
1985	2539.8	-5001.5	46587	8.5	0	9824.5
1986	1897.6	-6263.2	55734	9.8	0	12550.9
1987	2600	-7913.8	63864	11.2	0	15322.9
1988	3059.9	-9755.1	76906	12.4	0	17803.1
1989	5573.6	-12068.4	89270	13.4	0	20469.3
1990	6203.5	-13168.7	103416	14.7	0	26584.3
1991	9338.9	-15839	120370	16.1	0	296616
1992	16151.7	-18233.5	149487	19.5	0	344914
1993	20792.4	-21939.1	171492	21.2	0	419730
1994	29125	-32277.4	199272	23.1	0	498260
1995	36218.1	-46040.3	219175	24.9	0	58413.5
1996	37085.5	-54573.4	248913	26.9	0	73254.7
1997	37703.6	-70916.9	280213	29.1	0	89265.7
1998	40191.1	-61488.5	300845	31.5	0	100916.7
1999	55572.8	-51849	342036	35.1	0	115812.1
2000	65027.6	-58682.2	379488	36.3	0	134832.7
2001	80467.5	-60033.1	441519	37.2	0	154582.7
2002	87798.1	-60444.2	459443	38.3	0	1837885
2003	88419.1	-74421.5	492231	40.1	0	202956.5
2004	91407	-82366.4	536749	41.7	0	224077.3
2005	108804.7	-90767.9	589412	43.6	0	246171.8
2006	107742.1	-113546.2	654084	47.1	0	280240.4
2007	139439.1	-135311.5	727827	49.8	70.49	322683.8
2008	131909.5	-162671.2	815658	53.2	65.03	360558
2009	171455.4	-216772.1	988272	59.9	76.88	43727
2010	227666.4	-313511.2	1192774	65.6	74.54	555676
2011	216355.9	-331837	1366954	71.9	72.27	796598.2
2012	221265.6	-387406.7	1527344	77.8	81.02	910224.9
2013	383772.1	-479823.2	1695011	85.5	87.96	994691.5
2014	468238	622374.4	1964540	93.3	98.21	1165866
2015	599219.7	-689365.1	2130200	100	99.49	1314305
2016	747287.4	-703482	22531631	109	106.35	1527346
2017	955980.9	-917064.1	26744928	114.8	106.21	1805736
2018	1014634.9	-1163743.4	30310336	119.6	104.37	2177792