
The impact of exchange rate differences on balance of payment in Sri Lanka

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Introduction

The exchange rate indicates the national currency's price in respect to foreign ones. The exchange rate changes from time to time in currency market. The Balance of Payment (BOP) shows various perspectives of country's international economic situation. Also it presents the international financial position of a country. Exchange rate has an impact on a country's BOP (Alawattage, 2011). It also tells us how many goods and services the country has been exporting and importing and whether the country has been borrowing from or lending money to the rest of the world. BOP keeps the complete record of a country trade, net foreign assets, imports and exports of goods, financial transfer and financial capital. In Sri Lanka, it is difficult to maintain a stable exchange rate, because exchange rate is determined by the demand and supply of the currencies. The country has failed to increase its exports significantly (Somarathne, 2016). Thus, it affects to the BOP and can have balance of payment crises. The study therefore aims to identify the variables that cause BOP fluctuations and find out if exchange rate has had any significant impact on the external sector (BOP) of Sri Lankan economy.

The general objective of this research is to analyze the dynamics of exchange rate influencing the BOP in Sri Lanka. The specific objectives are to find out the relationship between exchange rate and the BOP, to find out the reasons, which influence exchange rate, to identify solutions if the relationship between BOP and exchange rate create adverse effect to the Sri Lankan economy.

Methodology

This study has focused on secondary data and time series data. The results of this study were obtained by using Microsoft excel and E- views. This study focuses on BOP as the dependent variable and exchange rate (EXR) as the independent variable. Based on the theoretical background this research estimates the following function.

$$BOP = f(EXR, IM, EX)$$

Where; BOP is Balance of Payment, EXR is exchange rate, IM is total import and EX is total export. To calculate the balance of payment in this study

is followed the methodology used by Odili (2014). Odili calculated the BOP by dividing total export from total import (X/M).

The econometric model of Auto Regressive Distributed Lag (ARDL) is used to understand the relationship between the dependent and independent variables. In ARDL integration technique does not need pretests for unit roots tests ARDL cointegration technique is preferable when dealing with variables that are integrated of different order, I(0), I(1) or combination of the both and, when there is a single long run relationship between the variables in a small sample size. In this study first should look at the time series properties of the data and analysis the ARDL that none of the variables should be more than I (1). All the data were in log form. Unit root test was done to make sure none of the variables integrated of the order two or higher, and that will violate the principle of ARDL.

$$\begin{aligned} \ln BOP = & \alpha_0 + \sum_{k=1}^{p_1} \alpha_1 \Delta \ln BOP_{t-k} + \sum_{k=1}^{p_2} \alpha_2 \Delta \ln EXR_{t-k} + \\ & \sum_{k=1}^{p_3} \alpha_3 \Delta \ln IM_{t-k} + \sum_{k=1}^{p_4} \alpha_4 \Delta \ln EX_{t-k} + \lambda E_{t-1} + \beta_1 \ln BOP_{t-1} + \\ & \beta_2 \Delta \ln EXR_{t-1} + \beta_3 \Delta \ln IM_{t-1} + \beta_4 \Delta \ln EX_{t-1} + \mu_t \end{aligned} \quad (1)$$

where; $\Delta \ln BOP$ is the difference of the balance of payment. $\Delta \ln EXR$ is the difference of the exchange rate. $\Delta \ln IM$ is the difference of the total import. $\Delta \ln EX$ is the difference of the total export. $\alpha_1, \alpha_2, \alpha_3, \alpha_4$ Are short run coefficients and $\beta_1, \beta_2, \beta_3, \beta_4$ are long run coefficients of balance of payment, exchange rate, total import, and total export. E_{t-1} Is the error correction term for one period and λ is the adjustment coefficient, it shows the error generation in one period correlation with the following period. μ_t is the stochastic error term.

Results and discussion

R-square shows the percentage of the response variable variation that is explained by the model. In general, the higher the R-square, the better the model fits. In this model the R-square is 0.98 and it implies that this model is significant. The Durbin Watson statistic, it is the number that shows the autocorrelation in the residuals from a statistical regression analysis. Autocorrelation shows mathematical representation of the degree of similarity between a given time series and a lagged version of itself over successive time intervals. Durbin Watson statistic is always between 0 and 4. A value of 2 means that there is no auto correlation in the sample. In this research the Durbin Watson statistic is 2.1 and through that we can say there is no autocorrelation in the model. The F-statistics (266.072 [0.000]) measuring the joint significance of all repressors in the model are statistically significant at the 5 percent level of significance.

Table 1 Estimated long-run coefficient ARDL model

Variable	Coefficient	Std.Error	T-statistics	P-Value
C	0.0610***	0.0290	2.0490	0.0459
LN EXR	-0.1146***	0.0403	-2.8439	0.0065
LN IM	-0.7108***	0.0246	-28.8036	0.0000
LN EX	0.7205***	0.0349	20.6186	0.0000
F-statistic	266.0722			
Prob(F-statistic)	0.0000			
R-squared	0.9851			
Adjusted R-squared	0.9814			
Durbin-Watson stat	2.1508			

Note: *, ** and *** represent statistical significance at 10%, 5% and 1% respectively.

According to the test it is clear that there is a relationship between exchange rate and the balance of payment and also important to understand the facts that affect exchange rate in Sri Lanka and should understand the appropriate macroeconomic policies to stabilize exchange rate and balance of payment condition in Sri Lanka. The exchange rate should find its equilibrium level to make the balance of payments position achievable. Foreign private investment, which includes foreign private direct investment is an important component of aggregate investment, thus it must be encouraged in Sri Lanka. Thus, macroeconomic policies designed to bring about low inflation, achievable balance of payments position and stable exchange rates will go a long way to encouraging foreign private investment in Sri Lanka.

Conclusion

The main objective of this study was to analyze the impact of exchange rate differences on the balance of payment in Sri Lanka. In this study, the econometric model of Auto Regressive Distributed Lag is used to understand the relationship between the dependent and independent variables. The results showed that exchange rate has a significant relationship with balance of payment. Foreign exchange rate provides a window to its economic stability. Today Sri Lanka adopted a flexible exchange rate regime, where the Exchange Rate is determined by the demand and the supply of the foreign exchange. In Sri Lanka, low earning of foreign exchange depreciates the exchange rate. So that polices should be focused to discourage import to the country and promote export promotion programmes. This can be the way to improve the balance of payments position in Sri Lanka.

Keywords: *Balance of Payment, exchange rate, export, import.*

References

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Appendix

Table 1-Unit roots and stationary tests results

variable	Level	1st Difference	Integration
BOP	-4.361*		I(0)
EXR	-3.55**		I(0)
Import	-2.512	-8.825*	I(1)
Export	-2.051	-8.63*	I(1)

Note: *, ** and *** represent statistical significance at 10%, 5% and 1% respectively.