RELATIONSHIP BETWEEN FOREIGN EXCHANGE RESERVES AND EXTERNAL DEBT: ANALYSIS OF INDIA

Project Report Submitted to

CENTRE FOR BUDGET STUDIES, CUSAT

In Partial Fulfilment of the Requirement for the second semester of

MASTER OF SCIENCE IN ECONOMETRICS AND FINANCIAL TECHNOLOGY

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APRIL 2025

DECLARATION

I, PARVATHY.S, do hereby declare that the project titled “RELATIONSHIP BETWEEN FOREIGN EXCHANGE RESERVES AND EXTERNAL DEBT :ANALYSIS OF INDIA” has been undertaken by me for the fulfilment of course outcome of second semester of Master of Science in Econometrics and Financial Technology under mentorship of Ms Aparna Prakash, probationary officer, Federal Bank

I also declare that the project is free from any plagiarism and has not been submitted for the award of any degree, diploma, associate ship or fellowship, or any other title in this University or any other university

Place: Cochin PARVATHY.S
Date: 30-04-2025

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I, PARVATHY.S, hereby certify that this assignment is an original effort of mine and I have not copied from anybody or any source. In case, it is found that it is not my original work, then I will be liable for the same, and action can be taken against me as per the established procedures.

DATE: 30th April 2024
PLACE: Cochin

ACKNOWLEDGEMENT

I would like to express profound gratitude to all those who contributed to the successful completion of this project

First and foremost, I am deeply appreciative of my advisor, Ms Aparna Prakash for her unwavering guidance, invaluable insights, and continuous encouragement throughout the entire research process.

I extend my sincere gratitude to Dr. Santosh Kumar PK and Dr. Haseena Akbar for their constructive feedback, scholarly advice, and unwavering commitment to academic excellence.

I would like to acknowledge the faculty and staff of the Centre for Budget Studies, CUSAT, for providing a supportive academic environment and granting access to essential resources necessary for conducting thorough research.

I am deeply appreciative of my family for their unwavering encouragement, support, and love throughout the process.

Lastly, I would like to express my sincere thanks to all my friends and classmates for their immense support and encouragement

ABSTRACT

The study aims to analyse the relationship between forex reserves and external debt of India. Forex reserves are an essential macroeconomic element for a developing country like India to stabilize the economy and pay off external debt. The data have been driven from the year 1991 to 2023 which consist of forex reserves and external debt paid off by India.

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INTRODUCTION

From a cross-country perspective, India’s external debt position is comfortable which is based on the standard set of indicators of debt vulnerability, measured both in terms of nominal and present value .The external debt was able to be managed over time. Compared to other Emerging Market and Developing Economies (EMDEs), the external debt position of India in 2022-23 is comfortable

India’s gross forex reserves comprises of foreign currency assets of the Reserve Bank, gold held by RBI and Special Drawing Rights (SDRs) of the Government of India. The country’s overall foreign exchange reserves rose from USD 2.816 billion to USD 606.859 billion in 2023, data released by Reserve Bank of India .In 2021 thy country's forex reserves touched an all-time high of about USD 645 billion .Much of the decline since then can be attributed to a rise in the cost of imported goods in 2022.Relative fall in forex reserves was largely because of the RBI's intervention in the market to defend the subsequent depreciation in rupee against a surging US dollar .

India’s external debt was placed at US$ 624.7 billion as at end-March 2023, grew marginally by 0.9 per cent (US $ 5.6 billion) over the previous year. There was a valuation gain of US$ 20.6 billion as at end-March 2023 due to appreciation of the US Dollar, Indian Rupee and other major currencies, such as, Yen, SDR, and Euro.

The RBI closely monitors the forex markets and intervenes only to maintain orderly market conditions by containing excessive volatility of the exchange rate, without reference to any pre - determined target level or band.

THEORETICAL FRAMEWORK

The relationship between foreign exchange reserves and external debt can be analysed by understanding the concept of self-insurance theory. Self-insurance theory was made into effect by economists' Mark Pauly, Richard Zechhauser and Kenneth Arrow. The theory focus on risk management strategy emphasised by entities during risk and uncertainties by allocating funds .The individual entity reserves money or resources to cover losses during uncertainty .Taking in account of self-insurance theory applicable to a country, nation mitigates financial crisis with the accumulated forex reserves they possess .Nations' holdings of foreign currencies ,foreign assets, SDR, reserves position in IMF, mitigates international payment obligations which in turn boosts investors' confidence and stabilise the nation's currency.

OBJECTIVE

Analyse the relationship between external debt and foreign exchange reserves

Forex reserves - Assets held by the central bank of a country in the form of foreign currency, gold reserves,SDR.

External debt -Total debt that country owes to foreign creditors

MODEL

Dependent Variable: LFOREX_RESERVES
Independent Variable: LGROSS_TOTAL _DEBT

$$Y = \alpha + \beta X + \varepsilon$$

y=lforex reserves
∝=intercept
β=beta coefficient
ε= error term
x=l.gross_total_debt

METHODOLOGY

The study included data of Indian foreign exchange reserves and external debt from the year 1990 to 2023 for analysis. The variables include:

Forex reserves - Assets held by the central bank of a country in the form of foreign currency, gold reserves,SDR.

External debt -Total debt that country owes to foreign creditors

ANALYSIS AND INTERPRETATION

Dependent Variable: LFOREX_RESERVES				
Method: Least Squares				
Date: 04/07/25 Time: 23:35				
Sample: 1 33				
Included observations: 33				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.607833	1.322592	-5.752216	0
LGROSS_TOTAL_DEBT	1.508686	0.095686	15.76712	0
R-squared	0.889128	Mean dependent var	13.18648	
Adjusted R-squared	0.885552	S.D. dependent var	1.690468	
S.E. of regression	0.571889	Akaike info criterion	1.778948	
Sum squared resid	10.13877	Schwarz criterion	1.869645	
Log likelihood	-27.35264	Hannan-Quinn criter.	1.809465	
F-statistic	248.6022	Durbin-Watson stat	0.110448	
Prob(F-statistic)	0			

Dependent variable foreign exchange reserves and independent variable external debt are highly statistically significant with p value < 0.01

F statistic which is 248.60 and p vale being 0.00 indicates the model’s significance.

The R-square value is 0.8891 which formulates that 89% of the variation dependent variable is influenced by the explanatory variable.

CONCLUSION

Foreign exchange reserves are an essential element for a developing and emerging country like India. Studies by the RBI was able to show that the external debts were able to be mitigated effectively by India's forex reserves. Even amidst the global financial crisis of 2008, India covered its external debts, showing a strong external position. During the global pandemic period the country remained stable due to lower borrowings and high forex inflows. According to the above study conducted by ordinary least squares method, holding other factors constant, 1% increase in gross total debt is associated with approximately a 1.51% increase in foreign exchange reserves. The model explains a large proportion of the variance in the dependent variable by independent variable, hence significant

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