DOES FOREIGN EXCHANGE RESERVE AFFECT EXTERNAL COMMERCIAL BORROWINGS – INDIAN PRAGMATIC INDICATION

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ABSTRACT

A central bank of the country that controls foreign exchange reserves by implementing the policies and procedures, which results the valuations of currency. In a supple polices on exchanges rates the valuation activities prompting involuntarily, due course the supply and demand of the foreign currencies are adjusted by bought and sold. External Commercial Borrowings (ECB) also not exempted from that, objectively study attempt to prove it. By using the various statistical tools, the research found and strongly believes that both the time series, Fx Reserves and External Commercial Borrowings had mutual relationship during the elected study period.

Keywords: Borrowings, Credit, ECB, Forex Reserve and Fx Rate

INTRODUCTION:

Financing of the protracted and generous gathering of Foreign Exchange Reserves (Fx Reserve) has connotations for the financial system of the country's central bank, the banking system and certainly, the private sector. Major shifts in balance sheet variables can eventually have significant macroeconomic effects which depend both on how the associated risk exposures are managed and on how intervention is financed. The value of foreign exchange reserves can change due by change in a central bank's monetary policy. A central bank's fixed exchange rate policy may visage circumstances where supply and demand would be liable to push the value of the currency in lower or higher. In a supple exchange rate rule, these activities crop up mechanically, with the central bank defrayal any excess demand or supply by foreign currency bought and sold. External Commercial Borrowings (ECB) also not exempted from that, objectively study attempt to prove it, before embarking, would like to note what Fx Reserve is and what ECB is.

FOREIGN EXCHANGE RESERVE:

The deposits of foreign currency held by a central bank of the country refer to as Fx Reserve. Holding the currencies of other countries as assets allow governments to keep their currencies stable and reduce the effect of economic shocks. The use of foreign exchange reserves became popular after the decline of the gold standard. More, Foreign-exchange reserves (also called forex reserves or FX reserves) in a strict sense are 'only' the foreign currency deposits and bonds held by central banks and monetary authorities. However, the term in popular usage commonly includes foreign exchange and gold, special drawing rights (SDRs) and International Monetary Fund (IMF) reserve positions. This broader figure is more readily available, but it is more accurately termed official international reserves or international reserves. These are assets of the central bank held in different reserve currencies, mostly the United States dollar, and to a lesser extent the euro, the pound sterling, and the Japanese yen, and used to back its liabilities, e.g., the local currency issued, and the various bank reserves deposited with the central bank, by the government or financial institutions.

The history of Fx Reserve, consisted only of gold, and occasionally silver. But under the Bretton Woods system, the US dollar functioned as a reserve currency, so it too became part of a nation's official international reserve assets. From 1944–1968, the US dollar was convertible into gold through the Federal Reserve System, but after 1968 only central banks could convert dollars into gold from official gold reserves, and after 1973 no individual or institution could convert US dollars into gold from official gold reserves. Since 1973, no major currencies have been convertible into gold from official gold reserves. Individuals and institutions must now buy gold in private markets, just like other commodities. Even though US dollars and other currencies are no longer convertible into gold from official gold reserves, they still can function as official international reserves.The official international reserve assets allow a central bank to purchase the domestic currency, which is considered a liability for the central bank (since it prints the money or fiat currency as IOUs). This action can stabilize the value of the domestic currency, as it's a major purpose.

EXTERNAL COMMERCIAL BORROWINGS:

External Commercial Borrowings refer to commercial loans in the form of bank loans, buyers' credit, suppliers' credit; securitized instruments (e.g. floating rate notes and fixed rate bonds) availed of from non-resident lenders with minimum average maturity of 3 years. By simple, foreign currency borrowings raised by the Indian companies from sources outside India are called ECB and ECBs act as an additional source of funds for companies to finance its investment needs.

In India, ECB can be accessed in two ways, namely Automatic Route and Approval Route. Major regulators governing the ECBs in India are Exchange Control Department of RBI and ECB Division in Department of Economic Affairs at Ministry of Finance. ECB policy aims at keeping maturities long, costs low and encourages infrastructure and export sector financing so as to ensure overall growth of the economy. ECB for investment in real sector-industrial sector, infrastructure sector-in India, and specific service sectors as indicated under section I (A) (i) (a) are under Automatic Route, i.e. do not require the Reserve Bank / Government of India approval. In case of doubt as regards eligibility to access the Automatic Route, applicants may take recourse to the Approval Route. Currently, companies can raise up to $750 million under the automatic route. Earlier, their requests had to be referred by the authorized dealers to RBI. Funds raised under the approval route will still have to be referred to RBI's department of foreign exchange. ECBs beyond $750 million are approved by RBI case by case.

REVIEW OF THE LITERATURE:

Satyajit Gupta demonstrated in the study External Commercial Borrowings Policy Must Remain Proactive in 2009 that, the Indian economy has seen phenomenal growth over the last few years. The economic boom was

initiated by the information technology sector and followed by the resurgence in the manufacturing and services industries. While the boom was accompanied by substantial foreign direct investment, Indian enterprises have also accessed significant amounts of foreign debt. The cost of borrowing being higher in India compared with the international market, Indian companies started using the ECB route frequently.

Mora Sowjanya & D. Satish observed in 2009 through the case study named Tata Steel's External Commercial Borrowings: The Payoffs that, with the initiation of liberalization policies, the Indian financial markets had experienced remarkable changes and Indian companies started borrowing and investing abroad. Many Indian companies have raised substantial amounts of external borrowings through External Commercial Borrowings (ECBs) for their long-term requirements.

Ankita Chatterjee during 2010 noted through the study ECBs and its Growing Importance in India that, External Commercial Borrowings, known as ECBs in common parlance, is a three letter word that is presently ubiquitous in the corporate world as a catena of business activities thrive on ECB transactions taking place in the country on a daily basis. The Indian Corporate Market is one of the most prominent and formidable markets worldwide. As per records, from April 2006 to December 2006, ECB influx into India was a staggering USD 9 billion.

DATA AND METHODOLOGY:

The secondary data have been collected to analyze the Fx Reserve and ECB. Raw data includes monthly values of each in order to reveal the real vivacious. The data were taken from Reserve Bank of India's web portal (www.rbi.org.in). The study period covers from January 2004 to December 2011, it comprises 96 months. The ECBs includes both Automatic route and Approval route, Fx reserve and ECB are expressed with equivalent amounts in USD millions. The below statistical tools are used to get an empirical results, along with charts to give clear and self explanatory.

JARQUE-BERA (JB) - NORMALITY TEST:

The Jarque-Bera (JB) test is used to test whether Fx Reserve and ECB individually follow the normal probability distribution. The JB test of normality is an asymptotic, or large-sample, test. This test computes the skewness and kurtosis measures and uses the following test statistic:

$$JB = \frac{n}{6}\left(S^2 + \frac{1}{4}(K-3)^2\right)$$

Where n = sample size, S = skewness coefficient, and K = kurtosis coefficient. For a normally distributed variable, S = 0 and K = 3. Therefore, the JB test of normality is a test of the joint hypothesis that S and K are 0 and 3 respectively.

UNIT ROOT TEST (STATIONARITY TEST):

Empirical work based on time series data assumes that the underlying time series is stationary. Broadly speaking a data series is said to be stationary if its mean and variance are constant (non-changing) over time and the value of covariance between two time periods depends only on the distance or lag between the two time periods and not on the actual time at which the covariance is computed [Gujarati (2003)]. A unit root test has been applied to check whether a series is stationary or not. Stationarity condition has been tested using Augmented Dickey Fuller (ADF) [Dickey and Fuller (1979, 1981), Gujarati (2003), Enders (1995)].

AUGMENTED DICKEY–FULLER (ADF) TEST:

Augmented Dickey-Fuller (ADF) test has been carried out which is the modified version of Dickey-Fuller (DF) test. ADF makes a parametric correction in the original DF test for higher-order correlation by assuming that the series follows an AR (p) process. The ADF approach controls for higher-order correlation by adding lagged difference terms of the dependent variable to the right-hand side of the regression. The Augmented Dickey-Fuller test specification used here is as follows:

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \delta_1 \Delta y_{t-1} + \cdots + \delta_{p-1} \Delta y_{t-p+1} + \varepsilon_t$$

Yt represents time series to be tested, b0 is the intercept term, Δ is the coefficient of interest in the unit root test, μi is the parameter of the augmented lagged first difference of Yt to represent the P^{th} -order autoregressive process, and et is the white noise error term.

CORRELATIONS (RELATIONSHIP ANALYSIS):

The correlation is one of the most common and most useful statistics. A correlation is a single number that describes the degree of relationship between two variables. The main result of a test is called the correlation coefficient (or "r"). It ranges from -1.0 to +1.0.
The closer r is to +1 or -1, the more closely the two variables are related. If r is close to 0, it means there is no relationship between the variables. If r is positive, it means that as one variable gets larger the other gets larger. If r is negative it means that as one gets larger, the other gets smaller (often called an "inverse" correlation).

$$r = \frac{\sum_{i=1}^{n}(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^{n}(X_i - \bar{X})^2}\sqrt{\sum_{i=1}^{n}(Y_i - \bar{Y})^2}}.$$

EXHIBIT NO.1
LINE PLOT OF FX RESERVE FROM JANUARY 2004 TO DECEMBER 2011

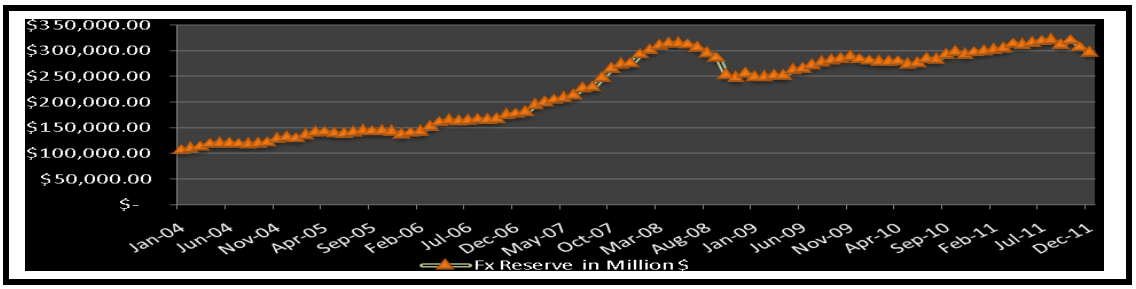

Exhibit No.1 describes the Fx Reserve from the month of January in the year 2004 to December during 2011 in USD million.

EXHIBIT NO.2
LINE PLOT OF ECB FROM JANUARY 2004 TO DECEMBER 2011

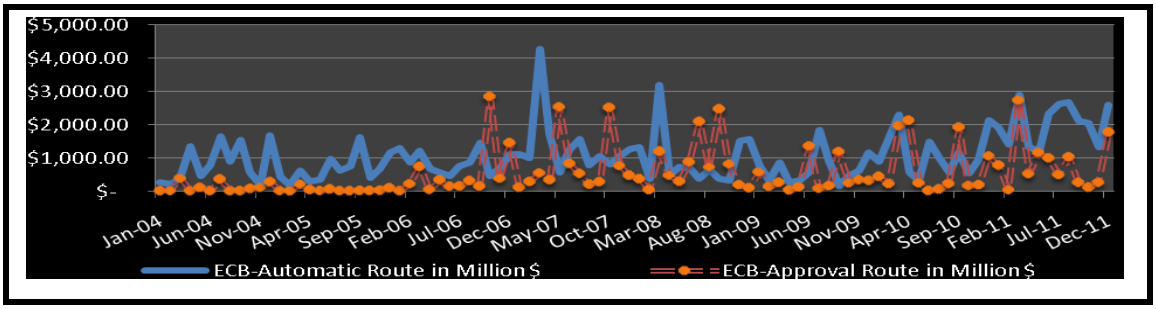

Exhibit No.2 describes the ECB in both automatic route and approval route from the year 2004 to 2011 in USD million.

EMPIRICAL RESULTS:

(I) Hypothesis (Ho) – Fx Reserve and ECB are normally distributed.

TABLE NO. 1 DESCRIPTIVE AND JARQUE-BERA NORMALITY ON FX RESERVE AND ECB

DOMAINS	FX RESERVE	ECBs
N	96	96
Minimum	178	106384
Maximum	5631	320785
Sum	153800	21596027
Mean	1602.08	224958.61
Std. Deviation	1111.60	72517.68
Skewness	1.31	-0.26
Kurtosis	1.73	-1.58
Jarque-Bera Normality	33.96 – Not Normal	84.91 – Not Normal

Source: Computed based on data from RBI

Null hypothesis got rejected with result from JB test, hence no normality in both Fx Reserve and ECBs distributions. Hence, the question of stationarity of the two time series posed concerns. In below the stationarity has been checked through ADF test on both Fx reserves and ECBs.

TABLE NO. 2 AUGMENTED DICKEY-FULLER UNIT ROOT TEST ON FX RESERVE

Null Hypothesis (Ho): Fx Reserve has a unit root				
Exogenous: Constand and linear Trend				
Lag Length: 2 (Automatic Based on AIC, MAXLAG=10)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			**-2.883451**	0.172720
Test critical values:	1% level		-4.060951	
	5% level		-3.459423	
	10% level		-3.155815	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Method: Least Squares				
R-squared	0.39		Mean dependent var	-170.51
Adjusted R-squared	-0.10		S.D. dependent var	7960.90
S.E. of regression	6375.32		Akaike info criterion	20.41
Sum squared resid	3536088540.34		Schwarz criterion	20.55
Log likelihood	-933.91		F-statistic	13.72
Durbin-Watson stat	1.94		Prob(F-statistic)	0.00

Source: Computed based on data from RBI

DECISION RULE ADF TEST:

- If computed t* is greater than ADF critical value, ==> not reject null hypothesis, i.e., unit root exists.
- If computed t* lower than ADF critical value, ==> reject null hypothesis, i.e., unit root does not exist.

Table No. 2 demonstrating the ADF Test result on Fx Reserves for Unit Root. Comparing the obtained ADF statistics for Fx Reserves during the study period with the critical values, it becomes evident that the obtained statistics for fx reserves (-2.883451) is greater than the critical values of ADF unit root; thereby, leading to accept H0, i.e., unit root exists in Fx Reserve. Hence, it can be noted on the basis of ADF test statistics that Fx Reserves found to be non-stationarity. In below, the same ADF test has been incorporated on ECBs as well to obtain the stationarity level on the same.

TABLE NO. 3 AUGMENTED DICKEY-FULLER UNIT ROOT TEST ON ECB

Null Hypothesis: ECB has a unit root				
Exogenous: Constand and linear Trend				
Lag Length: 10 (Automatic Based on AIC, MAXLAG=10)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-4.526233	0.002495
Test critical values:	1% level		-4.071077	
	5% level		-3.464221	
	10% level		-3.158615	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Method: Least Squares				

R-squared	0.87		Mean dependent var	13.00
Adjusted R-squared	0.74		S.D. dependent var	2472.62
S.E. of regression	980.01		Akaike info criterion	16.75
Sum squared resid	68189999.60		Schwarz criterion	17.13
Log likelihood	-690.68		F-statistic	38.11
Durbin-Watson stat	1.94		Prob(F-statistic)	0.00

Source: Computed based on data from RBI

Table No. 3 representing the ADF Test result on ECBs for Unit Root. Comparing the obtained ADF statistics for ECBs during the study period with the critical values, apparently the obtained statistics for ECBs (-4.526233) is lower than the critical values of ADF unit root; thereby, leading to reject the null hypothesis, i.e., unit root does not exist in ECB distributions. Hence, it can be noted on the basis of ADF test statistics that ECBs found to be stationarity.

ECBs provide a broad range from where funds can be raised. It provides an option to take both simple forms of credit such as supplier's credit to complex forms of credit such as securitization instruments. The attractiveness of ECB is availability of funds for large reputed borrowers. ECBs act as an additional source of funds for companies to finance its investment needs. Balance of payment and foreign exchange reserves position are two important drivers to decide the level of ECBs. The discussion point over here is, how much the fx reserve is implicating the level of ECBs to the country. The analysis on relationship between the elected variables can answer the question that how both moves together?

The observations confirming through Augmented Dickey-Fuller Unit Root that, there was no-stationarity and stationarity among Fx Reserves and ECBs respectively during the elected study period from January 2004 to December 2011. Finally, as referred in Data and Methodology part, the relationship between the Fx Reserves and ECBs also indentified through the statistical tool called Correlation Analysis, in below highlighted with the results of correlation relationship between fx reserve and external commercial borrowings.

TABLE NO. 4 THE CORRELATION RELATIONSHIP BETWEEN FX RESERVE AND ECB

CORRELATIONS			ECB	FxReserve
Spearman's rho	ECB	Correlation Coefficient	1.000	.489(**)
		Sig. (2-tailed)	.	.000
		N	96	96
	FxReserve	Correlation Coefficient	.489(**)	1.000
		Sig. (2-tailed)	.000	.
		N	96	96

** Correlation is significant at the 0.01 level (2-tailed).

Source: Computed based on data from RBI

Table No. 4 confirming the relationship between the Fx Reserve and ECBs during the study period from January 2004 to December 2011 through the statistical test Correlation Co-efficient. Based on the result obtained from the analysis, it's observed that one gets increment, another also getting increment. Technically called a "positive" correlation found during the study period. More, the affirmative relationship with .489 among fx reserves and external commercial borrowings in 0.01 level significance (2-tailed).

CONCLUSION:

ECBs have emerged as a predecessor in the credit market and have progressively adding gigantic eminence in the Indian market. External commercial Borrowings have been an excellent way for India to raise business finance. Concluding this study with meeting the objective had in introduction by through the statistical applications results. Jarque-Bera Normality test results posed questions on the stationarity of the two series. Hence subsequently, stationarity of the two series was checked with ADF test. Then, the coefficient of correlation between the two variables was computed.

Those statistics yielded the results; non-normal distribution on the variables, non-stationarity and stationarity among Fx Reserves and ECBs respectively and positive relationship between both the variables during the elected study period. That is, fx reserve having impact on external commercial borrowings.

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