CHAPTER 12

Macroeconomic Variables Affecting External Commercial Borrowings: An Investigation

Pooja Misra and Jagdish Shettigar

Introduction

India's external debt was USD 529.7 billion in end March 2018, registering a rise of $58.4 billion from March 2017. The rise was due to an increase in commercial borrowings, deposits by NRIs, and short-term debt. The composition of external borrowings reflected that long-term borrowings was approximately 80.7% of the total external debt, balance consisted of debt which is short term in nature. The country's long-term debt comprises debt sourced from global financial institutions, that is, IMF, World Bank, and so on, external commercial borrowings, private banks funding, trade credit, NRI deposits, and so on. It is the prudent external debt management policy which has served well and helped in ensuring that external debt is within manageable limits. With regard to the ratio of reserves in the form of foreign exchange with the Reserve Bank of India (RBI) to external debt, India stood at the sixth position at 69.7% in 2015 (Indiamacroadvisors, 2018). In end March 2018, external debt to Gross Domestic Product (GDP) ratio was 20.5%.

P. Misra (✉) • J. Shettigar
Birla Institute of Management Technology, Greater Noida, India
e-mail: pooja.misra@bimtech.ac.in; j.shettigar@bimtech.ac.in

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External commercial borrowings (ECBs) are commercial loans that include bank loans, securitized instruments such as fixed-rate bonds, non-convertible, partially convertible, or optionally convertible preference shares, buyer's credit and supplier's credit, financial lease, and foreign currency bonds borrowed from lenders abroad who are not residents of India and has a maturity period of less than three years. Bonds issued by an Indian Corporation in foreign currency in which case both the constituents—principal and the interest to be paid on the principal—are in foreign currency are foreign currency convertible bond (FCCB), which are a part of India's long-term debt. ECBs can be accessed through both the routes—Automatic and Approval. External commercial borrowings are under purview of the Foreign Exchange Management Act (FEMA) (1999) and are monitored by the RBI along with the Ministry of Finance, Government of India. ECBs are an additional alternate source of funding from foreign countries for Indian corporates and Public sector undertakings in case of new investments to be made and expansion of current business undertakings. Borrowings in case of ECBs are permissible for specified purposes, generally for investments in capital goods. ECBs are not permissible for capital market investments, working capital, and repayment of existing rupee loans. Indian corporates are also able to benefit in case of differential interest rates between domestic and foreign markets.

During 1980s, Indian corporates and public sector undertakings (PSUs) were encouraged to tap the international market for foreign currency borrowings. With the advent of economic reforms post-1991, the exchange rate in India became a floating rate as against a pegged exchange rate with the current account being convertible and adopting a calibrated approach towards the capital account. External assistance lost its prominence in inflow of capital while on the other hand private capital inflows became strong. The capital flows alignment changed to private capital inflows with ECBs being the predominant component (Gopinath, 2004). For the period 1985–1990, ECBs provided 24% of the financing need. However, post the reforms due to the policy bent of encouraging non-debt inflows as against debt inflows, ECBs accounted for 16.3% of inflows in 2004–2005 as against 31.9% in 1990–1991. However, in March 2012, ECBs accounted for 27% of India's external debt, which further rose to 38.2% in March 2018. Factors such as Indian economy being well amalgamated in the world economy and a positive economic growth performance were instrumental in increasing the ECBs into India.

The Reserve Bank of India (RBI) announced a revised ECB framework in 2015, which consisted of three tracks:

- Track I permits ECBs in foreign currency for a medium period and maturity on an average of three to five years.
- Track II permits ECBs in foreign currency for a long period and a minimum maturity on an average of ten years.
- Track III permits ECBS in Indian rupee for a period an average of three to five years.

These entities eligible to borrow in Track I are companies engaged in manufacturing activities, software development, shipping and airline, Small Industries Development Bank of India (SIDBI), and units in special economic zones (SEZs). Under Track II, all entities permissible within Track I are eligible; additionally, companies from the infrastructure sector, real estate investment trust, and core investment companies are eligible. Under Track III, all entities permissible within Track II are eligible; additionally, non-banking financial corporations, microfinance institutions, and companies engaged in research and development, and developers of SEZs are eligible. The RBI has further eased the rules for external commercial borrowings in April 2018 and has stipulated that the all in cost ceilings would be uniform 450 bps over the benchmark rate, which is generally 6 months London Interbank Offered Rate (LIBOR) for Track I and II, while for Track III it is the current yield of Government of India (GOI) securities of similar maturities. Additionally, the list of eligible borrowers for ECB has been expanded to include housing finance companies and port trusts. With an increasing current account deficit in September 2018, one of the corrective measures adopted by the Government has been to permit manufacturing entities to avail of ECBs up to $50 million with a minimum maturity term of one-year duration.

Additionally, in January 2018 notification, RBI has permitted overseas branches of Indian banks to refinance the borrowings of Navratna and Maharatna PSUs. The underlying clause being that the amount outstanding of the original borrowing is not decreased and the all-in-cost of the new external commercial borrowing is lower than the original borrowing. Also, partial refinance of the ECB is now permissible with the same conditions. Keeping in mind that ECBs are an attractive avenue for Indian corporates to borrow from and the considerable external long-term debt exposure that India has it is imperative to investigate the macroeconomic factors that impact external commercial borrowings.

Review of Literature

External commercial borrowings are done by Indian corporates for import of capital goods, access to funds for new projects and for expansion and modernization of existing manufacturing facilities and microfinancing (Arunperumal, 2016). Foreign currency borrowing of firms was studied by Patnaik, Shah, and Singh (2016). They found that the regulators have adopted a liberal approach towards promoting ECBs. However, they have also recommended policy decisions regarding systemic risks due to unhedged borrowings by corporates. Additionally, the reporting mechanism by RBI for firms borrowing through ECBs has been tightened. In September 2015, RBI further relaxed norms by permitting companies to borrow via rupee-denominated bonds, thereby transferring the currency risk to the lenders and promoting firms to borrow through the ECB route. Thus, the risks for the lenders are that of fluctuations in interest rates only and thereby the exposure of their balance sheet to exchange rate risks is reduced. The only shortcoming being that bonds less than $50 million has a maturity limit of three years and bonds over $50 million have a maturity limit of five years which might slow down the growth of these rupee-denominated bonds. From a policy viewpoint, RBI is encouraging borrowing for a longer duration of time and simultaneously is promoting hedging of risks undertaken by the borrowing enterprises. They have also worked on simplifying procedures and making the ECB framework more transparent thereby reducing borrowing cost and bringing in quality borrowers.

Analysis by Chakraborty based on quarterly data of the Indian economy from 1993 to 2003 states that post-liberalization foreign direct investment (FDI) and ECBs were not volatile, while portfolio flows were volatile in nature. The efficiency of the Indian financial system based on firm level data on financing patterns of corporates was studied by Oura (2008). The author stated that firms had begun to increasingly rely on external sources of funding to finance their investment decisions. This was due to the fact that the Indian financial system was not channelizing funds to Indian corporates who were borrowing externally.

Some of the reasons given for increasing dominance of ECBs in India's external debt are: increase in risk appetite of the investors for emerging economies, differential interest rates with the benefit lying with the

domestic market rates, improved sovereign credit ratings, strong investment demand, and an underdeveloped corporate bond market (Acharya et al., 2015). Factors such as domestic real activity, liquidity conditions in the country, differential interest rates (Singh, 2007; Verma & Prakash, 2011), and real interest rates are some of the factors influencing ECB flows into India. Additionally, during the crisis period, external credit shocks did influence ECBs (Singh, 2009).

Interest rate differential and an underdeveloped domestic corporate bond market as per the study conducted (Verma & Prakash, 2011) are the reasons for Indian corporates turning towards ECBs. Additionally, positive growth levels of Organisation for Economic Co-operation and Development (OECD) countries resulted in increased capital inflows into India. As per Bhanumurthy, Bose, and Panda (2014), it is the pace of activity in the international and national markets which influences capital flows. In his study based on India for 2003–2014 Arunperumal (2016) found that exchange rates, interest rate differential, and real domestic activity impact ECBs. In his analysis, based on time series econometrics Dev (2017) studied the relationship between ECBs and index of industrial production (IIP), exports, imports, exchange rate, foreign investment, and differential interest rate for the period September 1999 to September 2012. It has been established that there is a positive long-term association between IIP, differential interest rate, and exchange rate, while imports and FI have a negative relationship. In the short run, interest rate differential, imports, exchange rate, and FI have a long-term positive relation while exports and IIP have a negative relationship. As per Ghosh and Chandrashekhar (2009) reasons for ECBs in India are primarily lowering of interest rates in the credit market and higher interest rate differentials.

Composition and factors influencing external commercial borrowings from 2000 to 2015 were studied by Ray, Sur, and Nandy (2017). The study looks into the macroeconomic trends and changes in the policies relating and impacting ECBs. With the help of Johansen cointegration test and vector error correction model, it analyses the influence of domestic and global determinants on ECBs. Factors considered were real interest rate differentials, growth differential and exchange rate, openness of the capital account, and sovereign credit ratings. A relationship was established between all the independent factors and the dependent factor of external commercial borrowings except sovereign credit ratings. The study

states that higher focus on domestic economic fundamentals and carefully approaching capital account liberalization is needed to stabilize ECB flows. The pre-crisis period impacting overseas borrowings by companies focusing on interest rates, real sector activity, and domestic credit constraint was studied by Singh (2007). He states that domestic companies have made use of overseas corporate borrowings to augment available financial resources. The shortcoming of the study was that IIP was taken as the representative of activity in the real sector, and thus, services have not been considered by the author. The subsequent study (Singh, 2009) states that additionally demand shocks affected borrowing from overseas while credit shocks were the dominant factor during a crisis.

The link between the impact of interest rate differentials and exchange flows was researched by Verma and Prakash (2011). A study by Bhanumurthy et al. (2014) found that capital inflows are exogenous in the long-run and are not influenced by differential interest rate and costs. It is the credit ratings, which affected FDI flows and cross border lending. Study done by Habermeier, Baba, and Kokenyene (2011) and Pradhan et al. (2011) showed that the components of inflow of capital were largely influenced by the system of Indian capital policies and controls. During the study, it was seen that capital controls encouraged unhedged borrowings when there was low volatility in exchange rates.

Our study follows a macroeconomic approach in determining the factors that impact external commercial borrowings. It considers the following independent set of factors, that is, exchange rate, differential growth rate, index of industrial production in India, interest rate differential, differential inflation, global money supply, and capital account openness which has been considered as a dummy variable. Thus, in comparison to the study conducted by Ray et al. (2017), the current research undertaken also explores the impact of IIP and differential inflation on external commercial borrowings.

Research Methodology

Quarterly data for the period July 2004–December 2017 was collected from secondary sources such as Worldbank.org, OECD, U.S. Bureau of Economic Analysis, and indiastats.com. The independent variables

considered were exchange rate, differential growth rate, index of industrial production in India, interest rate differential, differential inflation, and global money supply. The mathematical and statistical analysis was done via EViews.

The statistical tests adopted were an unrestricted vector autoregressive model (VAR) as it analyses the relationship between multiple influencing parameters. VAR is a flexible and simple model which analyses multivariate time series data. It is a quantitative forecasting approach. In a VAR model in case cointegration between the variables is established, a vector error correction model (VECM) is adopted. It is one of the modelling methods for multivariate time series data analysis. VECM is used in cases where a long-term relationship exists between non-stationary data parameters and variables in the economic data set. The data being analysed is time series in nature/longitudinal data, and the test conducted is the Augmented Dickey–Fuller test to establish for stationarity of data or unit root. In case, the data was not found to be stationary, the test was again conducted in the differentiated data set. It also determines the causal relationship between the independent and dependent variables through the Granger causality test.

In the analysis the model has been defined as:

$$\begin{aligned}\text{External Commercial Borrowings} = {} & C1 + C2(\text{Exchange Rate}) \\ & + C3(\text{Differential Growth Rate}) \\ & + C4(\text{Differential Interest Rates}) \\ & + C5(\text{Index of Industrial Production}) \\ & + C6(\text{Global Money Supply}) \\ & + C7(\text{Differential Inflation}) + E_t.\end{aligned}$$

Data Analysis and Results

On analysing the data by the Augmented Dickey–Fuller test, it was found that the independent parameters and the dependent parameter were not stationary. They had a unit root. Thereafter, Augmented Dickey–Fuller test was done for each of the parameters on their first difference and the data was found to be stationary or having no unit root.

Table 12.1 Johansen cointegration test

Lag Interval (in first differences): 1 to 1				
Unrestricted cointegration rank test (Trace)				
Hypothesized no. of CE(s)	*Eigenvalue*	*Trace statistic*	*0.05 critical value*	*Prob***
None*	0.560	157.363	125.615	0.0001
At most 1*	0.520	114.673	95.754	0.0014
At most 2*	0.478	76.476	69.819	0.0133
At most 3	0.295	42.679	47.854	0.1405
At most 4	0.267	24.490	29.798	0.1805
At most 5	0.132	8.341	15.495	0.4296
At most 6	0.019	0.992	3.842	0.3194

*Shows that there are three cointegration equations

After conducting the Augmented Dickey–Fuller test, the Johannsen cointegration test was done to check for long-run association between the variables. The test for Johannsen cointegration assesses for whether the parameters have a long-run relationship or are cointegrated or not. The basic assumption in case of Johansen cointegration is that the variables must be non-stationary. Lag order selection was done on the basis of Schwarz information criterion, Hannan–Quinn information criterion and final prediction error. Based on the results obtained, the lag was taken as 1. The test for Johansen cointegration showed that there are three cointegrating equations and there exists a long-run association amongst the variables. This was established at 5% confidence level. In cases where the parameters are seen to be cointegrated, a vector error correction model is run. As it was seen that for the given data set cointegration exists, thus the vector error correction model was conducted (Table 12.1).

Three cointegration equations at 0.05 confidence level were indicated based on trace statistics, thereby establishing the fact that the variables are associated in the long run.

Vector Error Correction Model

Based on the Johansen and Augmented Dickey–Fuller test for cointegration, a long-run association was established between the independent and dependent parameters, that is, external commercial borrowings. Keeping the same in mind, the vector error correction model was run using the following equation (Table 12.2).

$$
\begin{aligned}
D(\text{Ecbs}) = C(1)*&\left(\begin{array}{l}\text{Ecbs}(-1) - 179.63370019*\text{Iip}(-1) - \\ 2.11173629526*\text{Inflation}(-1) + \\ 114.217736605*\text{Interestrate}(-1) + \\ 1.47008375639*\text{M2}(-1) + 288.626969966\end{array}\right) + \\
C(2)*&\left(\begin{array}{l}\text{Exchangerate}(-1) - \\ 2.12178685663*\text{Iip}(-1) - \\ 1.299027043*\text{Inflation}(-1) + \\ 6.16289744854*\text{Interestrate}(-1) + \\ 0.00881223015925*\text{M2}(-1) + 29.9619898456\end{array}\right) + \\
C(3)*&\left(\begin{array}{l}\text{Growthrate}(-1) - \\ 3.9024558748*\text{Iip}(-1) - \\ 1.31652487607*\text{Inflation}(-1) + \\ 9.28245671998*\text{Interestrate}(-1) + \\ 0.02390915453*\text{M2}(-1) + 82.0638488236\end{array}\right) + \\
&C(4)*D(\text{Ecbs}(-1)) + C(5)*D(\text{Exchangerate}(-1)) + \\
&C(6)*D(\text{Growthrate}(-1)) + C(7)*D(\text{Iip}(-1)) + \\
&C(8)*D(\text{Inflation}(-1)) + C(9)*D(\text{Interestrate}(-1)) + \\
&C(10)*D(\text{M2}(-1)) + C(11) + C(12)*\text{Dummy\_Capital}
\end{aligned}
$$

Table 12.2 Results of vector error correction model

	Coefficient	*Std. error*	t-*Statistic*	*Prob.*
C(1)	−0.987861	0.219112	−4.508480	0.0001
C(2)	−87.34358	121.6081	0.718238	0.0368
C(3)	−21.39916	84.25100	−0.253993	0.0408
C(4)	−0.100891	0.152462	−0.661740	0.5119
C(5)	−85.34203	154.5945	−0.552038	0.5840
C(6)	87.12463	153.0455	0.569273	0.5724
C(7)	243.5901	151.1729	1.611334	0.0450
C(8)	115.0615	160.4348	0.717186	0.4774
C(9)	−520.7291	626.8669	−0.830685	0.4111
C(10)	9.557576	3.975981	2.403828	0.0209

(continued)

Table 12.2 (continued)

	Coefficient	*Std. error*	t-*Statistic*	*Prob.*
C(11)	−1544.865	664.6847	−2.324207	0.0253
C(12)	−120.8327	863.9199	−0.139866	0.8895
R-squared	0.5615	Mean dependent var.		31.3653
Adjusted *R*-squared	0.4410	S.D. dependent var.		1828.494
S.E. of regression	1367.210	Akaike info criterion		17.4781
Sum squared resid	74,770,533	Schwarz criterion		17.9284
Log likelihood	−442.431	Hannan–Quinn criter.		17.6508
F-statistic	4.6563	Durbin–Watson stat		2.1677
Prob(F-statistic)	0.000148			

Table 12.3 Breusch–Godfrey serial correlation LM test

F-statistic	*1.4887*	*Prob. F(2,37)*	*0.2212*
Obs *R*-squared	3.7783	Prob. Chi-Square(2)	0.1305

Table 12.4 Heteroskedasticity test: ARCH

F-statistic	*0.001409*	*Prob. F(1,49)*	*0.9702*
Obs***R*-squared	0.001467	Prob. Chi-Square (1)	0.9694

The VECM showed that the R square is 56.19% and the model is strong, Prob (F-statistic) is 0.000148. It was established that the model has no serial correlation and no autocorrelation. Serial correlation was checked for by the Breusch–Godfrey serial correlation LM test. The results show that the developed VECM is strong and there is a relationship between the independent variables and the dependent variable in the long run (Table 12.3).

As value of Prob. Chi-square is above 0.05, the null hypothesis, that is, model does not have serial correlation is accepted (Table 12.4).

Prob. Chi-square is above 0.05, thus null hypothesis that model does not have heteroskedasticity is accepted. The model has no heteroskedasticity.

Long-Run Causality

C(1), C(2), and C(3) are the error correction term or speed of adjustment towards equilibrium. Long-run association requires C(1), C(2), and C(3) to be negative in sign and significant. Since the same is significant and has a negative sign it shows that there is long-run association between the independent variable of exchange rate, differential growth rate, index of industrial production in India, interest rate differential, differential inflation, global money supply, and capital account openness as a dummy variable and external commercial borrowings in India. The analysis also showed that on an individual level, the independent parameter of index of industrial production and the independent variable of global money supply has a long-run relationship with external commercial borrowings. The variables do not jointly impact ECBS in the short run.

Short-Run Causality

The Wald test was used to check for the association in the short run between the independent and dependent parameters. The guideline for the same is that for association to exist in the short run based on the Wald test the value of Chi-square is to be less than 5%. The test results established that there does not exist an association in the short run between rate of exchange and ECBs, differential growth rate and ECBs, differential inflation and ECBs, and differential interest rate and ECBs. However, there does exist a short run association between IIP and external commercial borrowings and global money supply and external commercial borrowings.

Discussion and Conclusions

The composition of external borrowings reflected that long-term borrowings was approximately 80.7% of the total external debt, balance consisted of short-term debt. It is the prudent external debt management policy which has served well and helped in ensuring that external debt is within manageable limits. ECBs are under the purview and framework of FEMA 1999. The flow of capital changed to private capital inflows with ECBs being the predominant component (Gopinath, 2004). Factors such as amalgamation of the Indian economy in the global scenario and a positive growth performance were instrumental in increasing the ECBs into India.

Foreign currency borrowing of firms was studied by Patnaik et al. (2016). They found that the regulators have adopted a liberal approach towards promoting ECBs. However, they have also recommended policy decisions regarding systemic risks due to unhedged borrowings by corporates. In September 2015, RBI further relaxed norms by permitting companies to borrow via rupee-denominated bonds, thereby transferring the currency risk to the lenders and promoting firms to borrow through the ECB route. From a policy viewpoint, RBI is encouraging borrowing externally by firms for a longer duration and simultaneously is promoting hedging of risks by the borrowing firms. They have also worked on simplifying procedures and making the ECB framework more transparent thereby reducing borrowing cost and bringing in quality borrowers.

The study followed a macroeconomic approach in determining the factors that impact external commercial borrowings. It considers the following independent set of factors, that is, exchange rate, differential growth rate, index of industrial production in India, interest rate differential, differential inflation, global money supply, and capital account openness which has been considered as a dummy variable.

The Augmented Dickey–Fuller test showed that the independent parameters and the dependent parameter had a unit root or were not stationary. The test for Johansen cointegration showed that there are four cointegrating equations and there exists a long-run association amongst the parameters at 5% level. The VECM showed that the R square for the model is strong and is 61.89% and Prob (F-statistic) is 0.000034. This showed that the dependent variable of exchange rate, differential growth rate, index of industrial production in India, interest rate differential, differential inflation, global money supply, and capital account openness which has been considered as a dummy variable are able to explain the variation in external commercial borrowings upto an extent of 61.89%. It was established that the model has no serial correlation and no autocorrelation. The results also showed that the VECM developed is strong and there exists a long-run association between the independent parameters and the dependent parameter.

The analysis showed that there is long-run association between the independent variable of exchange rate, differential growth rate, Index of industrial production in India, interest rate differential, differential inflation, global money supply, and capital account openness which has been

considered as a dummy variable and external commercial borrowings in India. The analysis also showed that on an individual level the independent parameter of index of industrial production and the independent variable of global money supply has a long run relationship with external commercial borrowings. This also corroborates the findings of Singh (2007) wherein he states that the underlying pace of domestic real activity has an association with ECBs. Thus in situations when the Government is keen to encourage flow of ECBs into the country, policymakers should be cognizant of this fact and devise conducive policies especially with regard to IIP. The gap between LIBOR and domestic interest rates has been increasing since 2008, resulting in a sudden rise in demand for ECBs. Also, relative to the world economy, the Indian economy post the financial crisis of 2008, has been performing well, a direct outcome of which could be the rise in ECBs again.

The Wald test showed that there is no causality existing in the short run between rate of exchange and ECBs, differential growth rate and ECBs, differential inflation and ECBs, and differential interest rate and ECBs. However, there does exist a short-run causality between index of industrial production and external commercial borrowings and global money supply and external commercial borrowings. Thus policy makers ought to be aware of these factors, while policy decisions are undertaken especially with reference to index of industrial production as it is shown to have an association with ECBs both in the long run and short run. Additionally, as per the analysis a change in global money supply has an association with ECBs and the Government should be mindful of the same while making policy changes.

The Granger causality test showed that the independent parameters of index of industrial production, exchange rate, interest rate, and global money supply do Granger causality impact external commercial borrowings. Thus the economists and policy makers should be cognizant of the fact that changes in IIP, exchange rate, interest rate, and global money supply can have a Granger causal impact on Indian Corporates borrowing through external commercial borrowings and any changes in any of these parameters influence ECBs.

In this research study, credit rating of India has not been considered as a variable which can impact ECBs. Future research can investigate into the same.

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