SBI ECOWRAP

'Be the Bank of Choice for a Transforming India'

AT 71.2, RUPEE COULD SLID FURTHER

The rupee has now depreciated by 6.2% since June 2018 when the RBI started hiking rates. Even as the decline in rupee is in consonance with strengthening of US$, we believe the decline may continue further and there are enough reasons to substantiate such.

There has been a spate of recent RBI communications in recent times which have perhaps gone unnoticed by the market. For example, in August Monthly Bulletin and also vividly emphasised in RBI Annual Report there is a detailed discussion on the costs of continued RBI intervention in the foreign exchange market. In principle, if the attendant liquidity injected by RBI through dollar purchases is sterilised through open market sale of government bonds, it will harden domestic yields and result in greater capital inflows thus offsetting the very purpose of sterilisation.

Studies show that in Indian context, such offset coefficient has increased significantly from being in the range of -0.31 and -0.33 in 1990's to around -0.79 and -0.84 in 2000s. A value of -1 for the offset coefficient indicates central bank ineffectiveness in sterilising capital flows.

Secondly, sterilisation by the RBI comes with associated costs. These costs arise because the RBI in lieu of sterilising, substitutes higher yielding government securities with lower yielding foreign securities. There are other costs of sterilisation as well, which is however difficult to estimate. For example, sterilised intervention raises interest payments and subsequently revenue expenditure, squeezing out capital expenditure in the process . We estimate such costs per annum could be around Rs 10,000 crore.

What do all these mean for markets? Given the inefficacy of sterilised intervention, we believe RBI may be thus following a relatively hands off policy in forex market for now and hence the recent penchant for rupee to depreciate at a much faster rate. For example, it took only one trading day for the rupee to travel 100 paisa on 13 Aug, as against a historical average of 17 days beginning Apr'18 (27 days in 2015)!

Hence, we should be utterly careful about any rapid depreciation and must be equally mindful of the quotes coming out from policy making authorities regarding the desirability of rupee depreciation (*for the record, 11.5% rupee depreciation in 2018 is far higher than even Indonesia!*). Continued volatile depreciation, we strongly believe that may result in orthodox monetary policy measure like rate hikes in future thus slowing down consumption significantly as in past as in 2014.

We also urge the Government and RBI to quickly implement Standing Deposit Facility (SDF) without any further delay as it has no sterilisation cost. In the interregnum till SDF is implemented, the RBI must continue with durable liquidity injections through regular OMO purchases so as to offset the current spate of liquidity withdrawals.
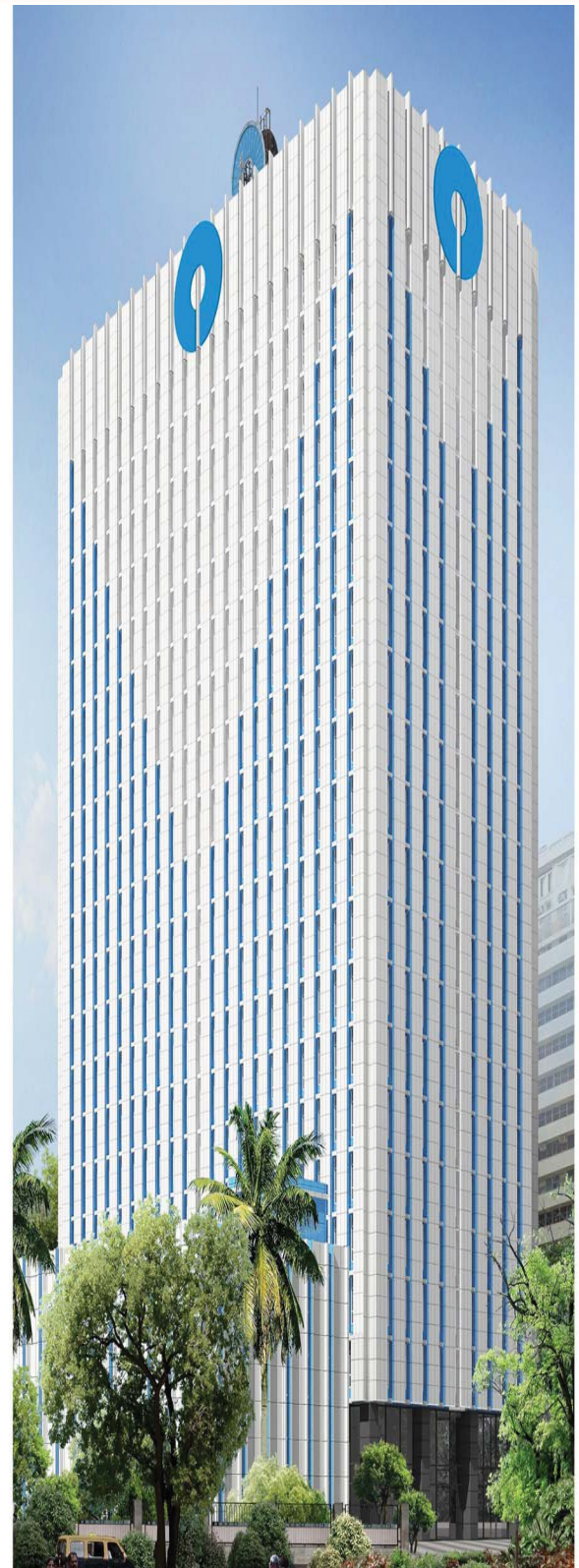
CURRENT STATUS OF RUPEE

- Rupee closed at 71.21 on 03 Sep'18. Though such decline could be attributed to some exogenous factors. To stabilize the exchange rate, RBI has spent nearly $14 billion in Q1 FY19 which has further dented the overall stock of foreign exchange reserves.

- Even Finance ministry official has clearly stated that "*As currencies of other economies are also depreciating, intervention by the RBI, by selling dollars in the country, will not help much at this stage for stabilising the rupee*".

Graph 1: Movement of Rs vis-à-vis $
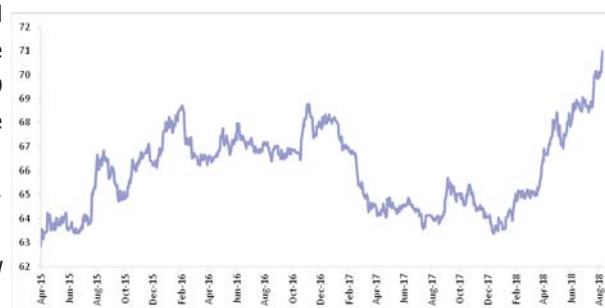
Source: Bloomberg, SBI Research

EXCHANGE RATE VOLATILITY

- Since the beginning of the year, emerging market currencies have also witnessed volatility and have depreciated considerably on the back of US policies on free trade and a strengthening US economy. The US recovery has made the possibility of rate hikes imminent and akin to the time of the taper tantrum the emerging market currencies have tumbled.

- Indian Rupee is one of the worst performing among its Asian peers one of the reasons for which could be the spike in current account deficit on the back of crude oil price increase. After appreciating marginally in Jan'18 Rupee has witnessed depreciation every month.

Movement in metrics		
Country	Exchange Rate Depreciation in 2018(%)	Change in 5Yr CDS in 2018 (points)
Brazil	24.3	140.8
Russia	17.3	35.4
South Africa	17.9	73.8
China	5.2	8.9
India	11.5	19.0
Indonesia	8.9	38.5
Thailand	0.6	3.5
Malaysia	2.7	33.7

Source: SBI Research, Till 31 Aug'18

- The 5 year Credit Default Swap (a possible proxy for country risk) has also widened for these economies, signaling further distress. However, as per the 5 year Credit Default Swap the Indian economy is still a relatively safer investment destination.

THE COST OF RBI INTERVENTION IN FOREIGN EXCHANGE MARKET

- In economic theory, impossible trinity says that for a central bank it is difficult to operate an efficient monetary policy in an open economy with a fixed exchange rate and perfect capital inflows. In effect, capital inflow/outflows creates appreciation/depreciation pressures on the rupee dollar rate which is sought to be neutralised by the central bank through intervention in foreign exchange market, i.e. purchases/sale of foreign exchange at the time of rupee depreciation/appreciation, with the aim of maintaining exchange rate stability.

- However, when the RBI intervenes in the forex market, foreign exchange assets are exchanged for a liability of the monetary authorities. For instance, if the monetary authority sells (buys) foreign assets both sides of the balance sheet will decrease (increase). This sort of intervention that alters the monetary base is called non-sterilised intervention in the foreign exchange market. The impact on the monetary base can however be neutralised by offsetting transactions in domestic assets having the same magnitude as the transaction in foreign assets.

- If the monetary authority makes an open market sale (purchase) of government securities this will reduce (increase) both the assets and liabilities, offsetting the money-supply effect of the original purchase (sale) of foreign assets. This type of foreign-exchange intervention is called sterilised intervention.

- By definition, the extent of sterilisation is given by the change in net domestic assets by the central bank by means of open market purchase/ sale of government bonds. The sterilisation coefficient is negative in sign, lying between -1 and 0 (if is equal to -1, it means that the change in net foreign exchange assets arising out of the intervention in the foreign exchange market has been exactly offset by an opposite change in net domestic assets, implying that the initial intervention has been fully sterilised). Under perfect capital mobility and fixed exchange rates this coefficient takes a value of -1, since any expansion of the foreign currency assets of the Central Bank will give rise to an offsetting change in net domestic assets, leaving the stock of money unchanged and implying a virtual loss of monetary autonomy.

- In the Indian context, several studies have estimated the "sterilisation coefficient", by employing different methodologies for different time periods. The most recent study has done by the RBI (Raj, Pattanaik, Bhattacharya and Abhilasha, 2018) and estimated the sterilization coefficient of −1.03, by using the monthly data for over a 20-year period from July 1997 to October 2017, which is consistent with the findings of Ouyang and Rajan (2008). While, Ghosh (2004) had estimated the coefficient for the period 1994-2004 and found −0.73.

- We made an attempt to estimate the 'sterilisation coefficient' for the period 2013-2018, as the rupee turmoil started since 2013. Our estimated coefficient for the study period stands at −0.93, indicating that 93% of the liquidity injected through dollar purchases during the period FY13-18 has been neutralised by the RBI. Hence sterilization by RBI has been quite successful in the Indian context.

India: Estimation of Sterilisation Coefficient		
Author	**Period**	**Sterilisation coefficient**
Ila Pattanaik (2004)	April 1993-December 2003	−0.82
RBI Report on Currency and Finance, 2002-03 (2004)	April 1994-September 2003	−0.92
	October 1995-September 2003	−0.65
Soumya Kanti Ghosh (2004)	FY1994-2004	−0.73
Ouyang, Alice Y. and Ramkishen S Rajan (2008)	1990:Q1 – 2004:Q4	−1.1
Abhijit Sen Gupta and Rajeshwari Sengupta (2013)	January 1990 - August 2010	(-0.21) to (-0.61)
Janak Raj, Sitikantha Pattanaik, Indranil Bhattacharya and Abhilasha (2018)	July 1997 to October 2017	−1.03
SBI (2018)	FY2013-2018	−0.93
Note: Sitikanta Pattnaik in 1997 (Targets and Instruments for the External Sector with an Open Capital Account, Economic and Political Weekly) was the first one to initiate this debate; Source: SBI Research		

INTERNATIONAL EVIDENCE ON STERILISATION COEFFICIENT

- Internationally, a number lot of studies have been done regarding calculation of sterilisation coefficient. We have reviewed some of the recent studies (post year 2000) and found that in almost all the studies sterilisation coefficient was near to −1 which indicate that the change in net foreign exchange assets arising out of the intervention in the foreign exchange market has been nearly offset by an opposite change in net domestic assets. In some of the countries sterilisation coefficient was less than −1 also which indicate that central banks are sterilising expected capital inflow.

Country-wise Estimation of Sterilisation & Offset Coefficient					
Author	**Method**	**Country**	**Period**	**Sterilisation coefficient**	**Offset coefficient**
Brissimis et al. (2002)	3SLS	Germany	1980–1992	−0.96	−0.40
Ouyang et al. (2007)	2SLS	China	1999–2005	−0.92 to −0.97	−0.63 to −0.70
Christensen (2004)	VAR	Czech Republic	1993–1996	−0.11	−0.15
Siklos (2001)	OLS	Hungary	1992–1997	−1.002	-
Palić (2005)	2SLS	Serbia	2001–2005	−0.81	−0.61
Emir et al. (2000)	2SLS	Turkey	1995–1999	−0.88	−0.78
Waheed (2007)	VAR	Pakistan	2001–2006	−0.5	−0.16
Cavoli and Rajan (2005)	VAR, OLS	Korea	1990–1997	−1.11	-
		Indonesia		−0.76	-
		Thailand		−0.91	-
		Malaysia		−0.94	-
Source: SBI Research					

- Theory suggests that sterilised intervention operations can potentially provide governments an additional policy tool with which to attain internal and external balance. Practice suggests that governments in both fixed and flexible exchange rate systems have frequently resorted to sterilised intervention policy.

- Empirical studies of the efficacy of these operations suggest that intervention in developed countries has often been successful (as their sterilisation coefficient is close to −1), though whether sterilised intervention can serve as a fully independent policy tool remains controversial. The efficacy of sterilised intervention policies in developing countries has been less widely studied, in large part because governments have been reluctant to provide data on their operations. Developing countries are also not always able to fully sterilise their operations due to their illiquid domestic bond markets and the potentially high fiscal costs of foreign reserve accumulation.

OFFSET COEFFICIENT AND COSTS OF STERILISATION

♦ Notwithstanding this success, the problem with sterilisation however lies elsewhere. Firstly, the reduction in liquidity through open market sale of domestic bonds can widen the interest rate differential thereby resulting in second round capital inflows. The offset coefficient captures this combined effect, i.e., the extent to which a decline in NDA due to open market sales is offset by an increase in net foreign assets driven by sterilisation induced higher yields.

♦ In the Indian context, studies by RBI reveal that offset coefficient has significantly increased from being in the range of -0.31 and -0.33 in 1990's to around -0.79 and -0.84 in 2000s. A value of -1 for the offset coefficient indicates that the central bank is completely ineffective in sterilising capital flows / complete attenuation of monetary control. Alternatively, these results clearly show the challenges in liquidity management of the RBI in the face of increased capital inflows.

♦ Sterilisation by the RBI also comes with other associated costs. One of the components of such costs widely discussed in the literature is 'quasi-fiscal cost'. These costs arise because the RBI in lieu of sterilising, substitutes higher yielding government securities with lower yielding foreign securities.

♦ This apart, there are other costs of sterilisation as well, which is however difficult to estimate. For example, sterilised intervention, by mopping up monetary resources from the system by engaging in open market purchases of gilts pushes up domestic debt. This in turn raises interest payments and subsequently revenue expenditure, squeezing out capital expenditure in the process. Since public expenditure of the government is analogous to public investment, a decline in public investment may have a negative effect on private investment, to the extent that public investment is complementary to private investment.

♦ There is also the possibility of a concomitant decline in net domestic assets because of an increase in net foreign exchange assets, given that intervention is sterilised. The decline in net domestic assets, because of the increase in interest rates, pushes down private investment in the process. In addition, to make the OMO rates are market determined interest rate, which is mostly based on interest on gilts. This, in turn, pushes up the lending rates, as the interest rate on government bonds typically acts as a floor below which rates cannot fall. This higher in turn, implies that implies that there is a dampening of private investment activities.

♦ We estimate that Rs 10,000 crores could the minimum estimate of such costs, of what is measurable.

NEED TO INTRODUCE STANDING DEPOSIT FACILITY (SDF) AT THE EARLIEST

♦ RBI in order to absorb surplus liquidity from the system without the need for providing collateral in exchange, has been planning to introduce a (low) remunerated standing deposit facility. The Urjit Patel committee recommended this instrument and indicated that this would be done with the discretion to set the interest rate without reference to the policy target rate. The committee recommended that the introduction of the standing deposit facility (analogous to the marginal standing facility for lending purposes) will require amendment to the RBI Act and may replace reverse repo in the long-run.

Urjit Patel Committee Recommendation for Reverse repo rate	
Phase-I	*Phase-II*
The floor of the corridor – but **transition to standing deposit facility will start**.	Reverse repo will be used in fine tuning operations i.e., to impound only daily surplus liquidity from the system to ensure that money market rates do not drop below the policy target rate. **Standing deposit facility will replace reverse repo as the floor of the corridor**, and reverse repo rates will be close to the policy rate.
Source: Report of the Expert Committee to Revise and Strengthen the Monetary Policy Framework	

OUR RECOMMENDATIONS

♦ With the recent amendment to the RBI Act, 1934 vide Finance Bill, 2018, the standing deposit facility (SDF) has now been made available for adoption. The SDF is an unlimited, uncollateralised, fixed rate deposit facility, which once operationalised, would enable the RBI to absorb unlimited liquidity without any constraint of securities.

♦ We recommend that the Government and the RBI quickly move ahead now to implement SDF as it will serve 3 fold purpose of (a) negate the costs of sterilisation in terms of its no impact on interest rates and (b) since the SDF comes with the conditionality of no collateral of G-secs, it will free up securities from SLR holdings and hence will lead to an increase in demand for bonds and (c) this move will also ensure a lower supply of Government bonds through less issuance of Cash Management Bills. Thus, a simultaneous increased demand for and a lower supply of bonds will ensure a downward trajectory of interest rates through an increase in bond prices.

WAY FORWARD

♦ Clearly, the current disturbances in foreign exchange market provide enough opportunities for the RBI to fine tune its liquidity and foreign exchange management policies without bothering too much on attendant implications of market volatility, with a little bit of coordination from Government on implementing SDF. In the interregnum till SDF is implemented, the RBI must continue with durable liquidity injections through regular OMO purchases so as to offset the current spate of liquidity withdrawals enabling a robust financial architecture where markets will be effi-cient, interest rates will trend lower and the RBI will be in a better position to address exchange rate volatility in future too!

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ABOUT US

The Economic Research Department (ERD) in SBI Corporate Centre is the successor to the Economic and Statistical Research Department (E&SRD). The latter came into being in 1956, immediately after the State Bank of India was formed, with the objective of "tendering technical advice to the management on economic and financial problems in which the Bank has interest and which required expert analysis".

After the first reorganization of the Bank, when specialized departments like Management Science, Management Information Systems, Planning and Market Segment Departments took over the statistical work of E&SRD, the Department was renamed as ERD.

However, with the ERD team now taking on multidimensional functionalities in the area of risk management, corporate analytics, strategy and so on, who knows, the time may have come to rename it again!

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