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# Limits to RBI's intervention in the foreign exchange market

*The current disturbances in the foreign exchange market provide opportunities for the RBI to fine-tune its liquidity and foreign exchange management policies*

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Central bank communication in India is often mistaken to consist only of what the senior management says. However, seldom does the market realize the importance of Reserve Bank of India's (RBI) research publications that provide an unambiguous signal regarding future policy directions. Tucked away in RBI's August monthly bulletin is one such indication ("Forex Market Operations And Liquidity Management") which deliberates on the RBI forex and liquidity management policy over the past two decades (reproduced in the RBI annual report). Juxtaposed with this, the annual report (AR) also conveys a clear message of the RBI possibly employing new tools, such as standing deposit facility (SDF), to manage liquidity. In the process, the article in conjunction with the AR conveys a larger message of the efficacy of continued RBI intervention in the forex market. What is this message?

The rupee has depreciated by 6.2% against the dollar since June 2018, when the RBI started hiking rates. Even as the decline in rupee is in consonance with the strengthening of the US dollar and happenings in Turkey, among others, the worrying part is that foreign exchange reserves have declined from their 13 April peak of $426 billion by about $25 billion, of which $14 billion declined in Q1FY19. A significant part of such a decline can be attributed to the RBI's intervention in the forex market. The question is: Is it worth doing?

In practice, such an intervention has implications for liquidity management. When the RBI intervenes in the forex market, assets (dollars) are exchanged for a liability of the monetary authorities. For instance, if the monetary authority buys/sells foreign assets, both sides of the RBI's balance sheet (RBI assets are forex and domestic assets, while the liabilities are deposits of commercial banks and currency in circulation) will increase/decrease. This sort of intervention that alters the monetary base is called non-sterilized intervention. The impact on the monetary base can, however, be neutralized by offsetting transactions in domestic assets by the same degree as the transaction in foreign assets.

Thus, 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 intervention is termed a sterilized intervention.

Sterilization can be achieved through a host of methods, such as an increase in cash reserve ratio (CRR) of commercial banks, or a ceiling on the total credit extended. But the most common method is open market operations (OMOs).

The sterilization coefficient (SC) is negative in sign, lying between -1 and 0 (if it 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 offset by an opposite change in net domestic assets, implying that the initial intervention has been fully sterilized). Under perfect capital mobility and fixed exchange rates, this coefficient takes a value of -1, since any expansion of the foreign currency assets (NFA) of the central bank will give rise to an offsetting change in net domestic assets (NDA), leaving the stock of money unchanged and implying a virtual loss of monetary autonomy.

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

What is the value of the SC in the Indian context?

Several studies have estimated the "sterilization coefficient" by employing different methodologies for different periods. The most recent study by RBI (Raj, Pattanaik, Bhattacharya and Abhilasha, 2018) 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 too made an additional attempt to estimate SC for the 2013-18 period, 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 was neutralized by the RBI through attendant liquidity management. Thus, sterilization has been largely successful in the Indian context.

Notwithstanding this success, the problem with sterilization, however, lies elsewhere. Firstly, the reduction in net domestic assets (NDA) 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, that is, the extent to which a decline in NDA due to open market sales is offset by an increase in net foreign assets driven by sterilization-induced higher yields.

In the Indian context, studies by the RBI reveal that offset coefficient has significantly increased from being in the range of -0.31 and -0.33 in the 1990s 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 sterilizing 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.

Secondly, sterilization by the RBI comes with 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 sterilizing, substitutes higher yielding government securities with lower yielding foreign securities. This apart, there are other costs of sterilization as well which are difficult to estimate. For example, sterilized intervention 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. Our estimates show an annual cost of around ₹10,000 crore alone in lieu of substitution and higher interest payments obligations.

What does all this mean for markets? The increasing value of the offset coefficient (along with quasi fiscal costs) is unavoidable, given the integration of global financial markets with India and, thus, making sterilization progressively less effective. This would clearly imply the limits to the RBI intervention in the forex market and, hence, greater exchange rate flexibility (read orderly depreciation). Clearly, a relatively hands-off exchange rate approach could be the new RBI response in current times under this dispensation.

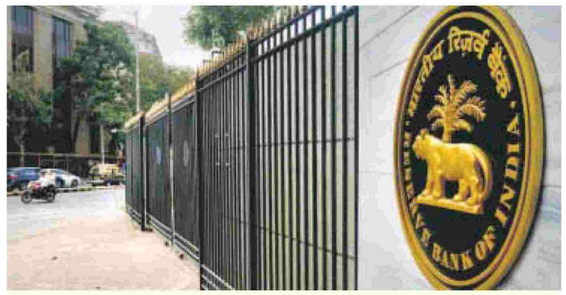
However, the AR goes a step further and lists out the potential benefits of SDF that could introduce an operational flexibility in sterilization by the RBI and, hence, exchange rate. With the recent amendment to the RBI Act, 1934, vide the Finance Bill, 2018, the SDF has now been made available for adoption. It may be noted that the Urjit Patel committee had recommended this instrument to absorb surplus liquidity from the banking system. The committee had recommended that the introduction of the SDF (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. The SDF is an unlimited, uncollateralized, fixed rate deposit facility, which, once operationalized, will enable the RBI to absorb unlimited liquidity without any constraint of securities. It may be noted that in the aftermath of demonetization, when there was a large liquidity surplus in the banking system, the RBI had faced a shortage of government securities (G-secs) as collateral and this had necessitated reliance on the government for supply of G-secs under the market stabilization scheme.

We recommend that the government and the RBI quickly move ahead now to implement SDF as it will serve a three-fold purpose. It will (a) negate the costs of sterilization in terms of its impact on interest rates; (b) free up securities from statutory liquidity ratio holdings since the SDF comes with the conditionality of no collateral, and, hence, will lead to an increase in demand for bonds; and (c) will 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.

Clearly, the current disturbances in the foreign exchange market provide enough opportunities for the RBI to fine-tune its liquidity and foreign exchange management policies without bothering too much about attendant implications of market volatility with coordination from the 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. A combination of such OMOs for the time being with the promise of SDF implementation when capital inflows pick up will enable a financial architecture where markets will be efficient, interest rates will trend lower and the RBI will be in a better position to address exchange rate volatility and, hence, the impossible trinity. This should be the most important doing by learning from the current episodes of market volatility.

*Comments are welcome at views@livemint.com*



**Estimation of sterilization coefficient**

| Author | Period | Sterilization coefficient |
|---|---|---|
| Ila Pattanaik (2004) | April 1993-December 2003 | −0.82 |
| RBI Report on Currency and Finance, 2002-03 (2004) | April 1994-September 2003<br>October 1995-September 2003 | −0.92 |
| Soumya Kanti Ghosh (2004) | FY1994-2004 | −0.65 |
| Ouyang, Alice Y. and Ramkishen S Rajan (2008) | Q1 1990–Q4 2004 | −0.73 |
| Abhijit Sen Gupta and Rajeshwari Sengupta (2013) | April 1993-December 2003 | (-0.21) to (-0.61) |
| Janak Raj, Sitikantha Pattanaik, Indranil Bhattacharya and Abhilasha (2018) | July 1997-<br>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 to initiate this debate

Source: SBI Research

PHOTOGRAPH BY ABHIJIT BHATLEKAR/MINT; GRAPHIC BY NAVEEN KUMAR SAINI/MINT

**Sterilized intervention raises interest payments and revenue expenditure, squeezing out capital expenditure in the process**