

Monetary Policy and the Reserve Bank Balance Sheet – Transiting Through Demonetisation

Praggya Das¹

Monetary Policy Department, Reserve Bank of India

Final Version Received on 09.09.2017

Abstract

The Reserve Bank Act amendment in June 2016 brought in a modern monetary policy framework with the primary objective of maintaining price stability while keeping in mind the objective of growth. While a monetary policy committee determines the policy rate required to achieve the inflation target, the Reserve Bank's balance sheet remains the best place to understand policy implementation.

This essay looks at the structure of Reserve Bank's balance sheet; how operations of monetary policy get reflected in the changes in the balance sheet; how demonetisation, where nearly 87 per cent of Reserve Bank's currency liabilities ceased to be legal tender impacted the Reserve Bank's balance sheet; and finally how the primary goal of monetary policy implementation was pursued through this turbulent phase.

1. Introduction

A central bank's balance sheet is an interesting document that is watched closely by analysts and observers not only within the country but the world over. As noted by Bindseil (2004), 'whenever a central bank transacts with the rest of the world – that is when it issues currency, conducts foreign exchange operations, invests its own funds, engages in emergency liquidity assistance, and, last but not least conducts monetary policy operations – all of these operations affect its balance sheet'. The migration of major central banks from quantity to price targets had somewhat diminished the interest of balance sheet 'watchers'. However, use of quantity measures as a result of responses to the global financial crisis and the implementation of unconventional monetary policy, led to huge increases in many central bank's balance sheets and renewed interest regarding their structure and main components [Rule (2015)]. European Central Bank's asset purchase programmes have also marked a more active use of the Eurosystem balance sheet in pursuit of the ECB's price stability mandate [ECB's Economic Bulletin (2015)]. The post global financial crisis literature on the subject is very vast.

In India, the balance sheet of the Reserve Bank of India (RBI) is diligently observed by policy makers, academicians and analysts. With currency in circulation and commercial bank reserves forming the main liabilities on its Balance Sheet, the Reserve Bank plays a critical role in the functioning of the Indian economy. These liabilities are the final means of settlement of all transactions in the economy and the functions carried out by the RBI

¹The views expressed in this article are those of the author only and not of the organization to which she belongs.

including the liquidity operations conducted for implementing monetary policy are finally reflected in its balance sheet.

Until recently the RBI conducted monetary policy by drawing implicit power from the preamble of the RBI Act that stated that the RBI was constituted to “regulate the issue of Bank notes and the keeping of reserves with a view to securing monetary stability in India and generally to operate the currency and credit system of the country to its advantage”. In June 2016, the RBI Act was amended to give the RBI the explicit mandate to operate a modern monetary policy framework with the primary objective of maintaining price stability.

Like most central banks of the world, the Reserve Bank of India has moved from quantitative targets of money to interest rate targets for implementation of monetary policy, yet the RBI’s balance sheet remains the best place to understand policy implementation. An understanding of the structure of the RBI’s balance sheet can also provide significant insights into the use of tools to achieve the goals of the Bank, be it flexible inflation targeting, or responding to a major event such as demonetisation, where 87 per cent of its currency liabilities were demonetised.

This essay discusses the structure of the RBI’s balance sheet; how operations of monetary policy get reflected in the changes in the balance sheet; how demonetisation impacted the RBI’s balance sheet; and finally how the primary goal of monetary policy was pursued through this turbulent phase.

The rest of the discussion is organised as follows. Section 2 discusses the structure of the Reserve Bank’s balance sheet; the monetary policy function of the Reserve Bank is discussed in Section 3; Section 4 discusses the impact of demonetisation on RBI’s balance sheet; the conduct of monetary policy function through this turbulent time is discussed in Section 5. Finally, Section 6 concludes the discussions.

2. The Reserve Bank Balance Sheet

Given the fact that pretty much all aggregate monetary operations in the economy are reflected on the RBI’s balance sheet, the RBI Act requires that a ‘weekly statement of affairs’ be prepared and transmitted to Government every week. Drawing from the weekly statement of affairs, the RBI also publishes a weekly statement of its liabilities and assets on its website as on every Friday with a lag of a week. An annual report by the Central Board on the working of the Bank during the year, together with the audited annual accounts is also prepared by the Bank and submitted to the Central Government.

The broad structure of the RBI’s balance sheet can be described as under:

On the liability side of the RBI’s balance sheet lie two major components – notes in circulation, *i.e.* the currency the RBI has printed and put in circulation; and bank reserves, which includes the statutory reserves as also some excess reserves maintained by banks with the RBI. The bank reserves (statutory as also excess) *i.e.*, the deposits of banks with the RBI are used for meeting their intra-day payment obligations. By statute, the Reserve Bank is both banker to the banks and to the government. Accordingly, the Government also maintains its deposits with the RBI. Other liabilities includes *inter alia* (i) the capital – as per the RBI Act, the capital of the Bank is Rs. 5 crore; (ii) provisions made by the Bank for currency, gold and investment revaluation account, contingency fund and other accounts; and (iii) other deposits held by the Bank.

Largest component on the asset side of the RBI's balance sheet is foreign currency assets, followed by investment in government securities and gold coins and bullion. Other major assets include loans and advances extended by the Bank as also bills purchased and discounted by it.

Table 1: A Simplified Structure of the RBI's Balance Sheet

Liabilities	Assets
Notes in Circulation	Net Domestic Assets
Bank Reserves	Foreign Currency Assets
Government Deposits	Gold
Other Liabilities	Other Assets

On November 4, 2017, the last Friday preceding demonetisation, the Reserve Bank balance sheet looked as under:

Table 2: The RBI's Balance Sheet as on November 4, 2017

(Rs. Billion)

Liabilities		Assets	
Notes in Circulation	17742	Government Securities	7562
Bank Deposits	4366	Foreign Currency Assets	23156
Government Deposits	1	Gold	1368
Other Deposits	1376	Other Assets	615
Other Liabilities	9217		
Total Liabilities	32702	Total Assets	32702

The functions of the Reserve Bank impact its balance sheet. For instance while performing currency management functions, when new currency is injected, the balance sheet expands, and when soiled currency notes are received back for destruction, the balance sheet contracts. As the banker to banks, the RBI maintains the accounts of banks. Banks maintain balances in their current accounts with the RBI for meeting statutory reserve requirements and for inter-bank payment settlement. Inter-bank transactions, *i.e.* transactions amongst banks ultimately get reflected in the RBI's balance sheet. Similarly, as the banker to the government, the RBI maintains the accounts of government. It undertakes receipts and payments operations for the government either directly or through agency banks. Each of these transactions ultimately get reflected on the RBI's balance sheet. As a debt manager, it manages public debt of the government. Here too, each transaction leaves a print on the RBI's balance sheet. The activities undertaken by the RBI for managing the foreign exchange reserves of the country and for managing volatility in foreign exchange market also impact the RBI's balance sheet.

Similarly, one of the most important functions of the RBI is formulation of monetary policy. Monetary policy deals with the use of various policy instruments for influencing the cost and availability of money in the economy. Each liquidity management operation undertaken by the RBI in pursuance of its monetary policy objective affects its balance sheet. This relationship is discussed in detail in the following section. We will also discuss how the size and composition of the RBI's balance sheet changed through the phase of demonetisation later in this paper. We focus now on the monetary policy making in India.

3. Monetary policy

3.1. The Historic Perspective

The monetary policy framework in India has evolved to the present form through several transformations over the years. The Report of the Expert Committee to Revise and Strengthen the Monetary Policy Framework (Chairman: Dr. Urjit Patel), summarises this transformation – starting from the early years of exchange rate anchor based system to the proportional reserve system and later to the minimum reserve system where credit aggregates were the nominal anchor for monetary policy and bank rate and cash reserve ratio (CRR) were the main instruments. In 1985, following the recommendations of the Committee to Review the Working of the Monetary System (Chairman: Dr. Sukhamoy Chakravarty) a monetary policy framework based on monetary targeting was adopted with reserve money as one of the main operating instruments and broad money as the intermediate target.

In April 1998, the RBI adopted a ‘multiple indicator approach’ with greater emphasis on the monetary policy signals getting transmitted through the interest rate channels. Under this approach, a number of quantity variables such as money, credit, output, trade, capital flows and fiscal position as well as rate variables such as inflation rate, interest rate and exchange rate were analysed for drawing monetary policy perspectives. In the early 2000s, the multiple indicator approach was augmented by forward looking indicators drawn from the RBI’s business surveys (industrial outlook, credit conditions, capacity utilisation); household surveys (inflation expectations and consumer confidence); and the survey of professional forecasters. The multiple indicator approach worked fairly well from 1998-99 to 2008-09 with inflation anchored and growth stable. Thereafter, however, the Indian economy suffered persistently high inflation along with weakening growth.

Several committees setup by government, *inter alia*, recommended changes in the monetary policy framework. The Report of the High Powered Expert Committee on Making Mumbai an International Financial Centre, 2007 (Chairman: Percy S. Mistry) emphasised that the gold standard for a monetary policy framework is a transparent, independent, inflation-targeting central bank. The Report of the Committee on Financial Sector Reforms, 2009 (Chairman: Raghuram G. Rajan) was of the view that the RBI can best serve the cause of growth by focusing on controlling inflation. The Committee was of the view that the RBI should formally have a single objective to stay close to a low inflation number, or within a range, in the medium term, and move steadily to a single instrument – the short-term interest rate to achieve it. The Financial Sector Legislative Reforms Commission, 2013 (Chairman: B.N. Srikrishna) recommended that price stability is a desirable goal in its own right, particularly in India where inflation is known to hurt the poor and therefore the central bank must be given a quantitative monitorable objective by the Central Government for its monetary policy function. The Expert Committee to Revise and Strengthen the Monetary Policy Framework, (Chairman: Urjit R. Patel) that submitted its report in January 2014, recommended that headline CPI inflation, with the target of 4 (+/-) 2 per cent, should be the nominal anchor for the monetary policy framework; and suggested a glide path to bring down inflation from the then elevated double digit levels to 8 per cent in one year and 6 per cent in two years before formally adopting the recommended target of 4 per cent inflation with a band of +/- 2 per cent.

3.2. The Present Monetary Policy Framework

As mentioned earlier, in 2016 the RBI Act was amended to provide a legislative mandate for the monetary policy framework in India. The amended Act came into force on June 27, 2016. The amendments envisaged that “it is essential to have a modern monetary

policy framework to meet the challenge of an increasingly complex economy; that the primary objective of the monetary policy is to maintain price stability while keeping in mind the objective of growth; and that the monetary policy framework in India shall be operated by the Reserve Bank of India”.

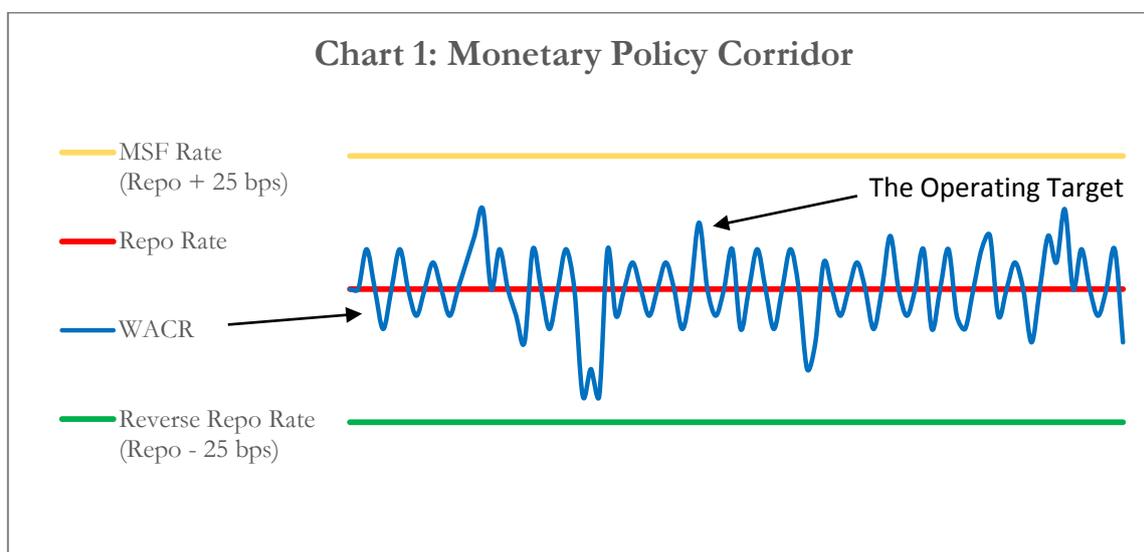
According to the amended Act, the Central Government, in consultation with the RBI, will determine the inflation target in terms of the Consumer Price Index (CPI), once in every five years. The first such inflation target was notified by the Government for the period beginning August 5, 2016 and ending March 31, 2021 as 4 per cent, with an upper tolerance level of 6 per cent and a lower tolerance level of 2 per cent. The Government also notified the following factors that constitute failure to achieve the inflation target on June 27, 2016 in the Official Gazette:

- a) average inflation is more than the upper tolerance band of the notified inflation target for any three consecutive quarters; or
- b) average inflation is less than the lower tolerance band of the notified inflation target for any three consecutive quarters.

The Government has constituted a Monetary Policy Committee (MPC) consisting of the (a) the Governor of the RBI - Chairperson, *ex officio*; (b) the Deputy Governor of the RBI in charge of monetary policy - Member, *ex officio*; (c) one officer of the RBI to be nominated by the Central Board - Member, *ex officio*; and (d) three persons to be appointed by the Central Government - Members. The present MPC was constituted on September 29, 2016 and as mandated determines the monetary policy rate required to achieve the inflation target.

3.2.1 The Operating Procedure of Monetary Policy

The operating procedure of monetary policy is the mechanism through which the central banks implement monetary policy. As per the extant operating procedure, the fixed overnight repurchase (repo) rate under the Liquidity Adjustment Facility (LAF) is the single monetary policy rate. This is the rate at which the RBI provides liquidity to the eligible market players against the security of good quality collateral (government securities). The weighted average call money rate (WACR), *i.e.* the rate at which uncollateralised inter-bank borrowing takes place, is the operating target of monetary policy. Once the policy rate is announced by the MPC, the operating procedure aims at modulating liquidity conditions so as to anchor the WACR around the policy rate (Chart 1).



The main features of the present liquidity management framework include: (i) assured liquidity access to the banks of one per cent of banks' net demand and time liabilities – of which, 0.25 per cent is provided daily at the policy repo rate through overnight fixed rate repo auctions, and 0.75 per cent is provided through 14-day variable rate term repo auctions; (ii) liquidity adjustments for frictional requirement by fine-tuning operations through variable rate repo/reverse repo auctions of different maturities; (iii) outright open market sale/purchase operations through auctions to manage durable liquidity mismatches; (iv) a marginal standing facility (MSF) for banks to access liquidity at the end of the day at 25 basis points above the policy rate; and (v) a fixed rate daily overnight reverse repo window to allow market participants to deposit surplus liquidity with the RBI at 25 basis points below the policy rate. The MSF rate and the fixed overnight reverse repo rate define a corridor for limiting intra-day variations in the call rate.

In case of deficit liquidity conditions, the tools used are repos (both fixed rate and variable rate) – through committed as also through fine tuning operations, injection by way of the marginal standing facility at the end of day, and open market operations (OMOs) for providing durable liquidity to the system by purchase of government securities.

In case of surplus liquidity conditions, the primary tools are reverse repo operations (both fixed rate and variable rate) – through the committed end-of-day reverse repo window as also through fine tuning operations, and open market for sale of government securities from the RBI's portfolio for removing lingering surplus from the system. In addition to the above tools, securities issued by the Government of India under market stabilisation scheme (MSS) are also an important instrument to absorb surplus liquidity from the system. The MSS securities are usually a means of sterilising liquidity arising from surges in capital flows.

The cash reserve ratio is another tool that augments standard liquidity management tools. This is a blunt tool that immediately impacts system level liquidity. An increase in CRR impounds surplus liquidity while a decrease in CRR works the other way. CRR is usually applied on the overall net demand and time liabilities (NDTL) of the banking system and since the reserves are not remunerated by the RBI, CRR is a cost that is borne by banks.

Thus, the RBI has several instruments in its tool kit to manage liquidity in the system and keep it consistent with its monetary policy stance. All these monetary policy operations impact the size and/or composition of the RBI balance sheet. For example, an increase in repo volume, *i.e.* an increase in lending to banks, increases the size of the RBI's balance sheet by increasing 'loans to banks' on the asset side and 'bank deposits' on the liability side. On the other hand, an increase in CRR to manage an existing surplus liquidity situation changes the composition of liabilities by increasing 'bank deposits' and reducing 'other deposits' that reflect, *inter alia*, liquidity absorbed under the reverse repo window.

3.3. Monetary Policy Transmission

Monetary policy transmission is the process through which change in the RBI's policy rate transmits to the entire spectrum of interest rates. Using its liquidity operations, the RBI manages the first leg of transmission to the short term money market rates. This, at the margin affects the banks' cost of funds. Banks, thereafter transmit the monetary policy signals to the economy through changes in their deposit and lending rates.

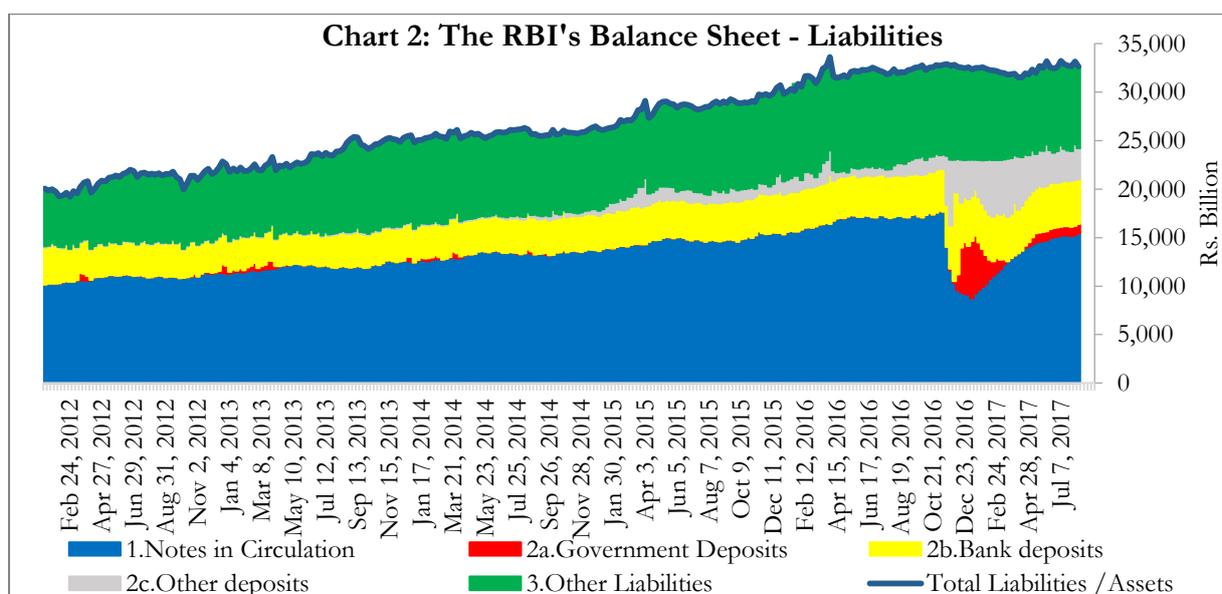
In the current environment, few factors continue to impede transmission. First, savings deposit interest rates, even though deregulated, have been stubborn notwithstanding the recent changes by major banks. These, along with current account deposits, constitute more than third of total deposits, thereby making transmission to this large component slow.

Second, banks hold term deposits that were contracted at higher rates and are yet to mature. Term deposits are largely offered by banks at fixed rates and do not get re-priced with change in short term rates. Third, interest rates on small savings that have been linked to the yields on government securities have not been adjusted in sync with the notable changes in government security yields. Fourth, the demand for bank credit has generally been sluggish as seen in the low credit growth numbers. Fifth, stressed assets of banks and pricing of risk premium inhibits downward adjustment in the rates at the current juncture.

4. The RBI's Balance Sheet Transiting Through Demonetisation

On November 8, 2016, the Government of India announced demonetisation of specified bank notes (SBNs) of the two highest denomination of Rs.1000 and Rs. 500 with immediate effect. These currency notes ceased to be legal tender except for a few specified purposes and time limits, such as payment of utility bills. A fixed 50-day window up to December 30, 2016 was provided to domestic residents to deposit SBNs in their bank accounts or swap them over the counter at bank branches. Additional time up to end-March was given to the resident Indians who were not in the country during the 50-day window, and to the non-resident Indians up to end-June 2017. Since availability of currency was less, restrictions were placed on cash withdrawals. This led to a deluge of deposits with the banking system as people flocked to banks to deposit and exchange SBNs. The aim of the action was fourfold: to curb corruption, counterfeiting, the use of high denomination notes for terrorist activities; and especially the accumulation of 'black money', generated by income that has not been declared to the tax authorities².

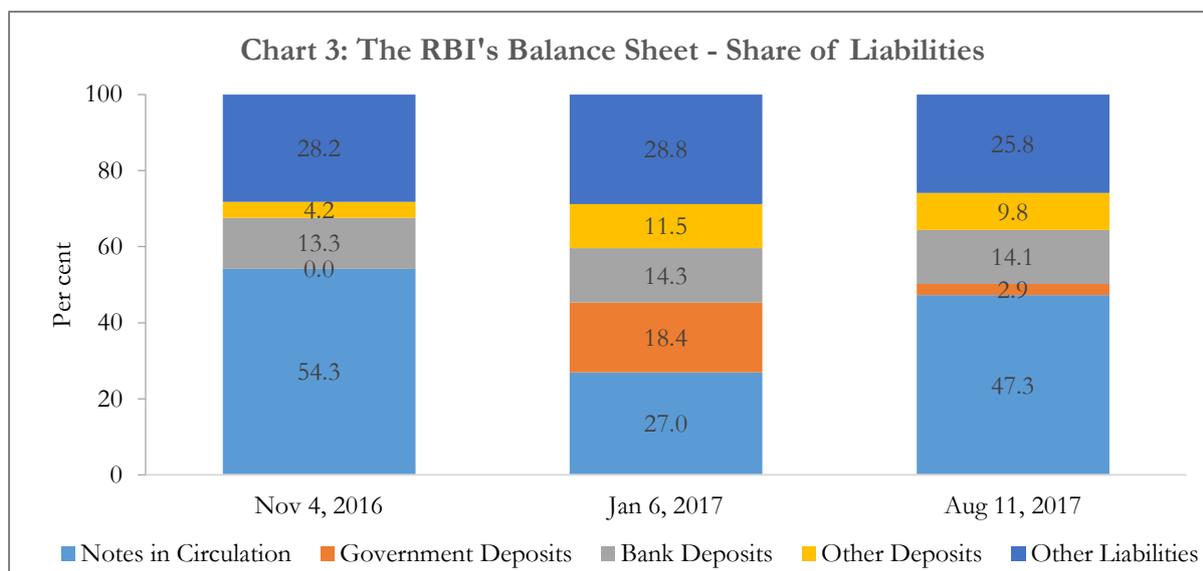
Currency notes in circulation around the time of demonetisation were Rs. 17.7 trillion with the SBNs constituting 87 per cent of the stock. As a substantial chunk of currency was demonetised, there was an unprecedented change in the liability structure of the RBI's balance sheet even as overall balance sheet size remained unchanged. The growth in the balance sheet over the last five years shows how glaring the change in the liability structure was (Chart 2).



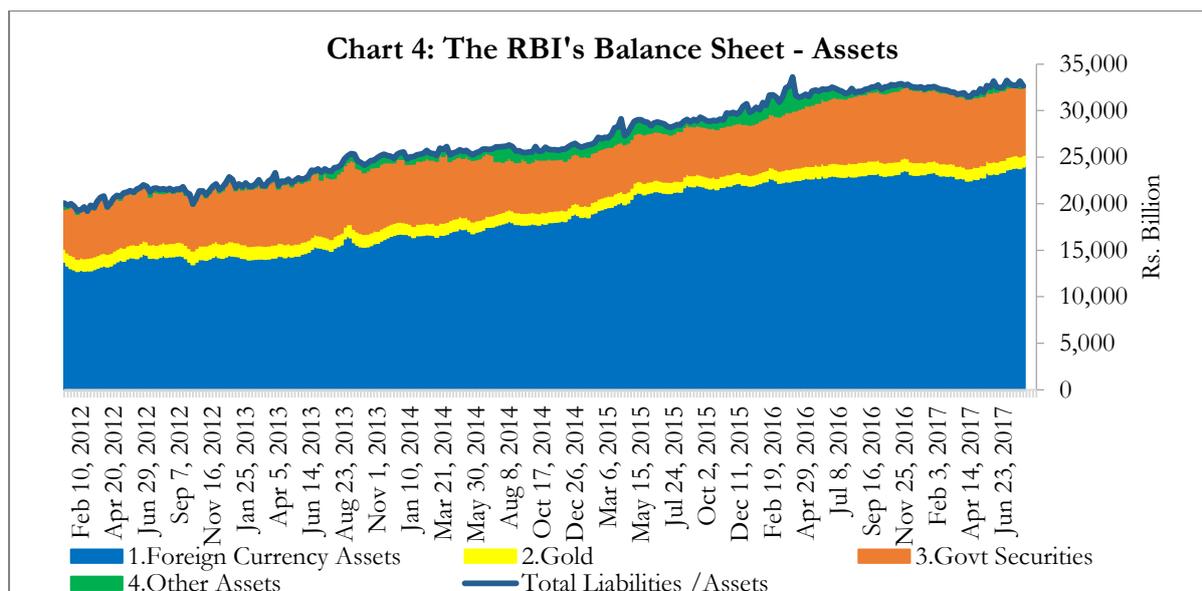
² Economic Survey 2016-17, January 2017

Currency notes put out in circulation by the RBI formed more than half of its liabilities on the balance sheet before demonetisation. With people depositing their SBNs, the deposits with banks swelled. The large deposits collected by banks eventually showed up on the RBI's balance sheet – initially as excess reserves. The excess reserves were absorbed by the RBI through overnight and term reverse repos and reflected as increase in 'other deposits' on the RBI's balance sheet. A substantial portion of these deposits also got absorbed through issuance of securities under the market stabilisation scheme and reflected in the RBI's balance sheet as an increase in the government deposits.

As the December 30 deadline for deposit of SBNs by resident Indians closed, the January 6 print of the RBI's balance sheet showed that the share of deposits fell by half to 27 per cent of total liabilities. The Government deposits at this point of time formed nearly a fifth of the total liabilities, essentially reflecting the use of MSS securities for absorbing surplus liquidity. With rapid remonetisation, as fresh currency was pumped back, the balance sheet as on August 11, 2017 shows return to near normalcy with reduction in share of government deposits – the gap in the share of notes in circulation prior to demonetisation and at the present is reflected in the corresponding increase in government and bank deposits (Chart 3).



While the liability side of the RBI's balance sheet underwent significant change in composition, the asset side of the balance sheet broadly remained unchanged as demonetisation largely impacted composition of the liability structure. The decline in 'other assets', which largely comprise of lending to banks under the RBI's repo operations, prior to demonetisation indicated transition of liquidity management towards neutrality. Post demonetisation as system remained in surplus mode, other assets remained low (Chart 4).



5. Demonetisation and the Conduct of Monetary Policy

As mentioned earlier, the RBI implements monetary policy through its liquidity operations that keep the system level liquidity consistent with the stance of monetary policy. Having arrived at the level of repo rate on the basis of an assessment of the current and evolving macroeconomic situation, liquidity is managed by the RBI such that it keeps its operating target, the WACR, anchored to the policy repo rate. Before April 2016, the liquidity framework was designed to keep the system level liquidity in Reserve Bank's comfort zone of (+/-) one per cent of NDTL of banks and the overall liquidity largely remained in deficit mode. However, the extant liquidity management framework of April 2016 requires the RBI to continue to provide liquidity as required by the system but progressively lower the average *ex ante* liquidity deficit in the system from one per cent of NDTL to a position closer to neutrality, *i.e.*, there should be neither excessive surplus nor excessive deficit in the system on a sustained basis.

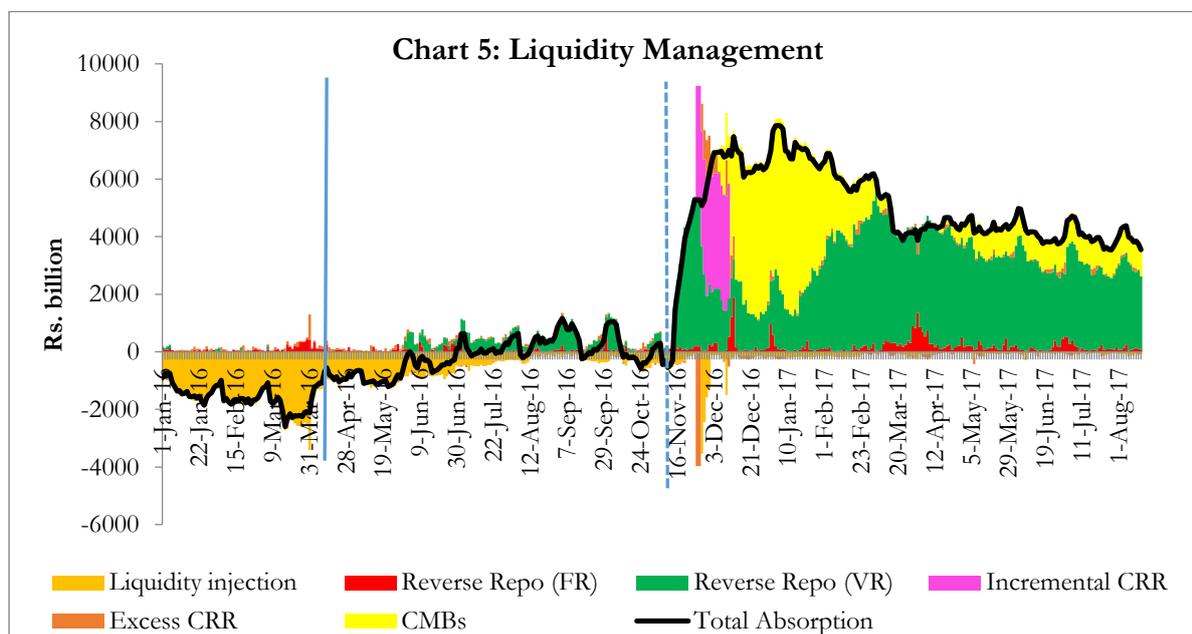
During the liquidity framework prior to demonetisation, the main instruments from the liquidity management tool kit used by the RBI were the open market purchase operations and repo/reverse repo operations to move the system gradually from deficit towards neutrality. The policy rate corridor was also reduced from +/-100 basis points to +/- 50 bps by reducing the MSF rate by 75 basis points and increasing the reverse repo rate by 25 basis points, with a view to ensure finer alignment of WACR with the repo rate.

Demonetisation created an extraordinary surge in system level liquidity as banks were flushed with deposits of SBNs. The RBI used a mix of tools to manage this flood of liquidity. The first instrument used to absorb liquidity was the reverse repo operations. These operations involve acceptance of surplus cash from banks with an exchange of government securities held with the RBI. Obviously, size of such operations will be bound by the stock of such securities with the RBI. With the flood of liquidity in the banking system and given the stance of monetary policy, there was an urgent need to get more tools for absorbing liquidity. MSS securities could have proved handy at such a time. However, the budget for 2016-17 had a provision of only Rs. 300 billion MSS securities. With demonetisation of currency of Rs 15.4 trillion and given the capacity to print and supply fresh currency notes, the surplus liquidity in the system rose sharply (close to Rs. 8 trillion, as we look back). To manage this

size of liquidity, the government was approached to augment the limit of securities issuable under MSS to Rs. 6 trillion.

Before the government's approval was received, as a purely temporary measure, an incremental cash reserve ratio (ICRR) of 100 per cent on the increase in NDTL of banks between September 16 and November 11, 2016 was applied for one fortnight. This measure immediately impounded liquidity of Rs. 4 trillion from the system. Since banks' reserves with the RBI are not remunerated, the cost of this interim measure was borne by the banks. The ICRR was withdrawn after the government enhanced the limit of issuing securities under MSS. Rs. 6 trillion cash management bills (CMBs) were issued under the MSS between December 2016 and mid-January 2017. This was the first time the MSS securities were used to manage liquidity resulting other than from surges in capital flows. All the MSS securities matured by end-March 2017. With gradual maturing of the MSS securities, the reliance was back on the RBI's reverse repo operations (both fixed and variable rates). The absorption of liquidity surplus using reverse repos peaked above Rs. 5 trillion in early March 2017.

In the current financial year, the mix of instruments being used include open market sale operations to move the system level liquidity close to neutrality. The RBI has already conducted operations of Rs. 0.3 trillion under OMOs up to August 2017. Surplus liquidity of Rs. 1 trillion has also been absorbed under MSS through sale of treasury bills of tenors above 300 days but less than a year. Additionally, net average absorption of liquidity under the LAF by reverse repo of overnight to longer tenors up to a month reduced from the peak of above Rs. 5 trillion to less than Rs. 3 trillion by end-August 2017 (Chart 5).



Note: Blue line is the beginning of new liquidity management framework

Blue broken line is the announcement date of demonetisation.

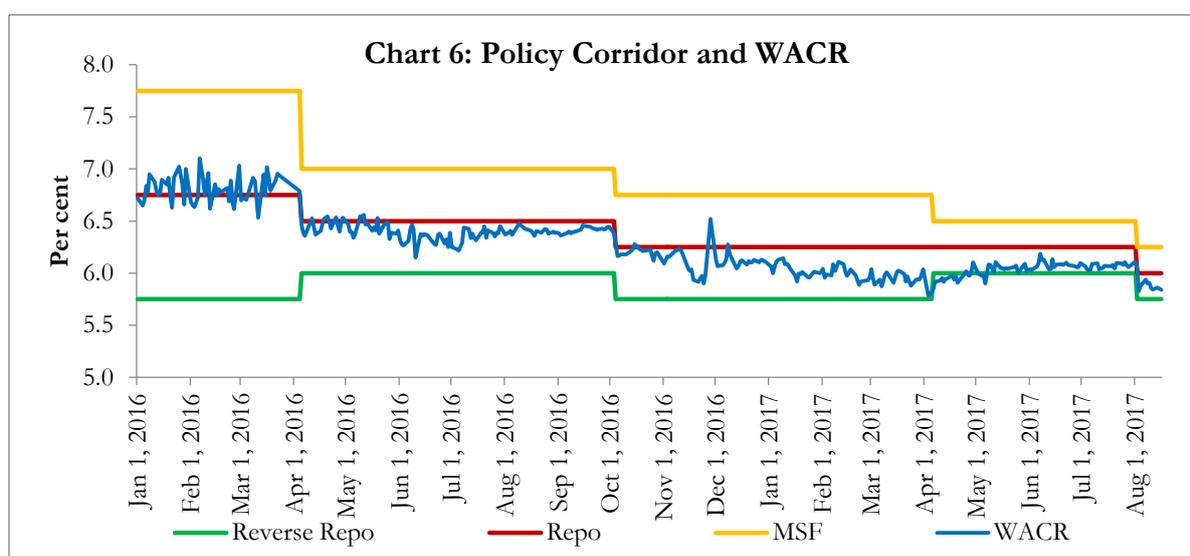
FR stands for fixed rate and VR for variable rate.

Each tool used for absorption of liquidity has different advantages and disadvantages (Annex Table).

As mentioned earlier, the policy rate corridor was narrowed from +/-100 bps to +/- 50 bps in April 2016, with a view to ensuring finer alignment of WACR, the operating target of

monetary policy, with the policy repo rate. Even with the huge overhang of surplus liquidity, liquidity absorption measures by the RBI were of such unprecedented magnitude that the operating target of monetary policy, the WACR, traded close to the policy repo rate, though with a soft bias. It was mentioned in the April 2017 Statement on Developmental and Regulatory Policies of the RBI that “In either extremely tight liquidity conditions or in situations of persistent excess liquidity, when most market participants are on one side of the market for overnight liquidity, a narrower corridor can contribute to finer alignment of the operating target with the policy rate.” Accordingly, the monetary policy corridor around the policy repo rate was further reduced to +/-25 bps in April 2017 from +/- 50 bps.

Thus with the active liquidity management by the RBI, including by way of adjusting the width of the policy corridor, WACR traded closer to repo rate than it did earlier in the current year (Chart 6).



6. Conclusions

This essay discusses the structure of the RBI’s balance sheet and shows how every function of the RBI impacts it. One of the prime functions of the RBI, as the central bank of the country, is making and implementing monetary policy. The 2016 amendments to the RBI Act formalised the flexible inflation targeting framework for the conduct of monetary policy. The six member monetary policy committee (MPC) started making decisions on monetary policy from October 2016. Following the first policy announcement of MPC, the decision on withdrawal of SBNs by the government, demonetised, in terms of value, about every 9 out of 10 rupees in the economy. There was a deluge of deposits with the banks following demonetisation as people deposited the SBNs held by them in their bank accounts. This resulted in significant changes in the composition of the RBI’s balance sheet as large deposits with banks landed up with the RBI as excess balances of banks in their deposit accounts. The resultant surplus liquidity threw challenges in implementing monetary policy, *i.e.*, in ensuring that the operating target of monetary policy – the weighted average call money rate (WACR) – remains aligned to the policy repo rate. The RBI used a series of conventional (liquidity absorption by fixed and variable rate reverse repos transactions and open market sale of government securities) and unconventional tools (incremental cash reserve ratio and sale of

cash management bills under market stabilisation scheme) to ensure alignment of WACR to the repo rate successfully. As remonetisation progressed, the liquidity surplus has come down. Going forward, the Reserve bank is likely to return to the use of traditional instruments to manage the system level liquidity and to transit it to neutrality as per its extant objective of the liquidity management framework.

Acknowledgements

The author would like to place on record her gratitude towards Dr. O. P. Mall, Adviser and Shri Muneesh Kapur, Director, Reserve Bank of India for their comments on an earlier draft. The author also acknowledges with thanks Shri Rajesh Kavediya, Assistant Adviser, Reserve Bank of India, for his help on the data on liquidity management. In this paper all care has been taken to project the correct picture using the data sourced from the Reserve Bank of India web releases. Errors and omissions, if any, are inadvertent.

References

- Andrew, Brookes (1999). Monetary policy and the Reserve Bank Balance Sheet. *Reserve Bank of New Zealand, Bulletin*, Vol. **62** No. **4**.
- Bindseil, U. (2004). *Monetary Policy Implementation—Theory, Past and Present*, Oxford Press.
- European Central Bank, Economic Bulletin (2015). The role of the central bank balance sheet in monetary policy. June.
- Igan, Deniz, Alain, Kabundi, Francisco, Nadal De Simone and Natalia, Tamirisa (2013). Monetary Policy and Balance Sheets. Working Paper, WP/13/158, International Monetary Fund.
- Reserve Bank of India (2014). *Report of the Expert Committee to Revise and Strengthen the Monetary Policy Framework*. January.
- Reserve Bank of India (2017). Annual Report 2016-17.
- Rule, Garreth (2015). CCBS Handbook No. **32**, *Understanding the Central Bank Balance Sheet*, Centre for Central Banking Studies, Bank of England.
- Vasco, Curdia and Michael, Woodford (2010). The Central-Bank Balance Sheet as an Instrument of Monetary Policy. Working Paper No. 16208, National Bureau of Economic Research.

Annexure

Table: Advantages and Disadvantages of Instruments for Absorbing Surplus Liquidity

Instruments	Advantages	Disadvantages
Incremental cash reserve ratio	Most effective in absorbing any amount of surplus liquidity without being constrained by collateral.	Unremunerated and therefore a cost to the banking system; not a market based instrument.
Securities issued under the MSS	This is a market based instrument and suitable for absorbing liquidity for a longer period relative to reverse repos under the LAF. Market participants prefer this instrument <i>vis-à-vis</i> reverse repo because of liquidity of the underlying instrument.	Requires timely consent of the Government of India. Can bid up yields due to repetitive auctions.
Open market (outright) operations – sales	Key market based indirect instrument for absorbing durable surplus liquidity; most effective indirect instrument.	Requires adequate stock of domestic securities in the portfolio of the Reserve Bank; large scale operations can potentially influence yields that may not be consistent with the stance of monetary policy.
Term reverse repo auctions	Provide flexibility in terms of responding to fast changing liquidity conditions on a daily basis; rollover option; simultaneous auctions of multiple tenor; can aid the development of the term money market.	Inadequate market appetite for longer-term auctions; may not prevent significant easing of WACR under persistently high surplus liquidity conditions; domestic securities available with the Reserve Bank can limit the use of term reverse repo.
Fine tuning overnight reverse repo auctions	Robust market appetite because of the ease of rollover; ideal instrument for managing frictional surplus liquidity.	Not suitable for dealing with large durable surplus; most effective not in isolation but when used in conjunction with other instruments.
Fixed rate reverse repo window (the floor of the LAF corridor)	Provides certainty to market participants about the surplus liquidity to be parked overnight at a rate that is known in advance. As there is no limit on the amount that could be parked, it prevents WACR falling below the lower bound of the corridor.	Extensive use can lead to excessive easing of the WACR relative to the repo rate within the LAF corridor; domestic securities available with the Reserve Bank can limit the amount of absorption; can lead to 'lazy' liquidity management by banks and thus effectively shift the money market on to the Reserve Bank's balance sheet.

Source: Reserve Bank of India Annual Report, 2016-17