

## **Drivers and Determinants of Liquidity across Sectors and Implications for Systemic Risk - A Central Bank Perspective**

1. Liquidity is a key focus of international policy debates as liquidity and its drivers are of major importance for financial stability. Throughout the global financial crisis which began in mid-2007, many banks struggled to maintain adequate liquidity. The crisis illustrated how quickly and severely liquidity risks can crystallize and certain sources of funding can evaporate, compounding concerns related to the valuation of assets and capital adequacy. Essentially, financial crisis highlighted the lack of sound liquidity risk management at financial institutions.
2. We all agree that the complex nature of interrelationships among different markets and the uncertainty in the behavior of markets render the task of identifying the drivers and therefore the management of liquidity difficult. In the wake of accentuated integration, liquidity conditions in one financial market get transgressed to another financial market, create systemic liquidity stress and eventually affect the macroeconomic stability.
3. There are deep interdependencies between solvency and liquidity. However, it is liquidity risk which arises without warning and can be stressful. This is where the basic principles of liquidity management are expected to be active and effective. However, liquidity risk emanating from any sector, be it from a large corporate or arising in equity, G-Sec, money, commodity or forex market, it almost invariably culminates in banking sector affecting the macroeconomic liquidity. The enduring stress may lead to the loss of confidence and choke inter-bank lending due to risk aversion. The adverse impact on monetary conditions drives up stress further with systemic implications.
4. Banks are special in the financial system given their ability for multiple credit creation. They essentially drive the liquidity in real and financial markets and can impact the monetary conditions simultaneously in various sectors. Keeping this in view, I would restrict my discussion on drivers of banking liquidity from the perspective of a central banker.
5. We all are aware that liquidity problems in some banks can create stress in the funding liquidity in the financial markets. To safeguard from such eventualities, BCBS strengthened its liquidity framework by developing two minimum standards for funding liquidity: (i) the Liquidity Coverage Ratio (LCR) to ensure that FI has sufficient high-quality liquid assets to survive a significant stress scenario lasting for one month; and (ii) the Net Stable Funding Ratio (NSFR) with the time horizon of one year to provide a sustainable maturity structure of assets and liabilities.
6. In India interestingly, we have a somewhat unique instrument of Statutory Liquidity Reserve (SLR) which requires Banks to hold 23% of the net demand and time

liabilities (NDTL) in risk free sovereign bonds or in low risk State government bonds, it serves the role of a liquidity ratio. Consequently, banks in India seldom face liquidity problems. Interestingly, banks are holding almost 30% of their liabilities in SLR form as against the mandated 23%. While any excess CRR and SLR gets included in LCR, how much of mandatory SLR can be included in LCR is a current debate in India. Since SLR is essentially a statutory liquidity reserve, it is justifiable to count a large proportion of it towards liquid assets.

7. This also means that in India, banks and financial institutions (FIs) hold a large part of their assets in Government bonds. As a result, liquidity in Government bonds markets becomes central from systemic liquidity perspective. Let me elaborate, liquidity in Government bonds market is conditioned by host of factors, viz. debt management strategy, product design, instrument diversification, market microstructure (including trade execution systems, transactions costs) and transparency of markets and extending investors' base. Other drivers that affect liquidity are securities that are held to maturity (HTM) by investors, the amounts outstanding of benchmark issues, taxes, arrangements for repurchase, clearing and settlement practices, as well as development of other allied segments of the market such as repo, when issued, short-sale, etc. More importantly, during stressed times, the counterparty risks and cash liquidity constraints become important negative bearing on trading and liquidity. These are being taken care through CCPs and putting in place the appropriate implementation of PFMI. **(Here we may provide some data on diversified investor base, instruments etc.)**
8. Macroeconomic factors also affect liquidity in Government bonds market, as the size of bond market increases with the size of the economy and small size of the market limits the range of marketable instruments and their effective tradability. We undertake active and passive consolidation of securities to impart liquidity in the market. We also have a network of very active primary dealers (PDs) in place which impact the liquidity through their market making activities.
9. Reserve money which includes currency in circulation and reserves, plays a crucial role in the determination of liquidity. Currency in circulation that comprises currency with the public and cash in hand with banks, is another autonomous driver of banking liquidity. While the public's demand for currency is driven by a number of factors such as real income, price level, the opportunity cost of holding currency and the availability of alternative instruments of transactions, the demand for reserves by banks depends on the requirements for the maintenance of daily CRR and to meet payment obligations.
10. Other autonomous drivers of liquidity include government cash management and foreign exchange management. In its role as the banker to the government, the Reserve Bank's cash management operations involve provision of liquidity to tide over temporary deficit of the government as also facilitate investment of the temporarily surplus cash balances of the government. Big ticket borrowings, bunchy

redemptions and sudden large changes in government cash flows due to quarterly/annual budget tax receipts/spending can cause sudden changes in liquidity conditions. If central bank does not support the smoothening of liquidity, it can result in money market tightness. If left unaddressed, it can lead to systemic risk.

11. Further, in order to prevent the excessive volatility of the exchange rate, the Reserve Bank, at times, intervenes in the forex market which has, in the same way, implications for domestic rupee liquidity.
12. The stress in liquidity conditions is also reflected in market liquidity indicators like bid-ask spread, turnover, impact cost and average number of trades **(Table on market liquidity indicators may be provided)**.
13. In India, the key indicators of macroeconomic liquidity include LAF and monetary and credit aggregates. In terms of price, they include policy interest rates and the term structure of interest rates. Keeping in view the availability and growth of macroeconomic liquidity and its impact on the Reserve Bank's policy objectives of price stability, growth and financial stability, the Reserve Bank tighten or ease the price of liquidity under the LAF at which commercial banks can fund their liquidity requirements. Macroeconomic liquidity is closely related to balance sheet liquidity in India since the Reserve Bank accepts only SLR securities for the purpose of LAF repo operations. Market liquidity is also an important consideration in the provision of liquidity under LAF as the securities chosen for overnight liquidity management need not necessarily be liquid; being eligible for LAF, imparts liquidity to these securities.
14. In a nutshell, the unanticipated liquidity drain from the banking system which could have implications for systemic risk arising out of government uneven cashflows/ capital flows/ currency is offset by the provision of central bank liquidity through LAF on a day-to-day basis. Over and above, LAF framework is ably supported by open market operations, market stabilization schemes, and cash reserve ratio to maintain orderly liquidity conditions in the money market in times of significant volatility emanating from autonomous flows so as to facilitate effective monetary transmission.
15. The period of the onset of the financial crisis in September 2008 presents an example from the Indian experience on the interaction between macroeconomic and funding liquidity. Initially, the banking sector in India was not affected by the global turmoil as it hardly had any direct exposure to the US subprime assets. However, with the drying up of the external sources of funding for corporates, mutual funds that depended on corporates for bulk funding faced redemption pressures from the corporates. This, in turn, translated into funding liquidity problems for NBFCs as mutual funds were important source of funds for NBFCs. Thus, the pressure for funding liquidity needs of corporates, NBFCs and mutual funds came to rest on the banks. To ensure systemic stability and meet credit demand, the Reserve Bank had

to step in with liquidity augmenting measures such as cuts in CRR, open market purchases, unwinding of MSS and increase in refinance facilities. Unlike advanced economies such as the US and the UK, that had direct exposure to non-bank market participants, the Reserve Bank channelized the central bank money to meet funding requirements of non-bank players entirely through the banking system. This helped the market participants to meet their liquidity requirements.

16. In conclusion, I must emphasize that liquidity shortages arising in various sectors but culminating in banking sector have the potential to lead to failure of institutions. Through spill over and contagion effect this could give rise to concerns about systemic stability and impinge on the real economy. This necessitates injection of central bank liquidity. As I explained, macroeconomic liquidity and funding liquidity are closely related through the central bank's role in the provision of settlement balances.
17. High public debt, large sized government borrowing programs and uncertain government cash flows exacerbate volatility in liquidity conditions. It becomes essential for public policy to ensure that public finances are better managed, sound debt management strategies are adopted to avoid liquidity spikes and buffers are built by financial institutions to cope with sharp changes in liquidity conditions and consequent systemic risk.

Thank You.