

Report of the Internal Group on Liquidity Adjustment Facility

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Executive Summary

The mid-term Review of Monetary and Credit Policy for 2003-04 released on November 3, 2003 indicated that an Internal Group reviewed the operations of the Liquidity Adjustment Facility in a cross-country perspective keeping in view recent developments in the financial market as well as in technology. The draft Report of the Internal Group was discussed both in the Technical Advisory Committee on Money and Government Securities Markets (TAC) and the Financial Markets Committee (FMC) of RBI. Taking into account the comments made by TAC and FMC members, the Report has been revised and is now placed in the public domain for wider comment and debate.

2. The operations of the LAF need to be seen in the context of changes in the transmission channels of monetary policy. Since the early 1990s, the monetary targeting approach in the conduct of monetary policy came under stress with increasing interplay of market forces in the determination of interest rates and exchange rate as a consequence of deregulation. In addition, the excess liquidity engendered by capital flows imparted an upward pressure on money supply. There was also increasing evidence on changes in the underlying transmission mechanism of monetary policy. The Third Working Group on Money Supply (Chairman: Dr.Y.V.Reddy) which submitted its Report in June 1998, found that the output response to monetary policy

operating through the interest rate tends to be stronger and more persistent than that through the credit channel. With pricing decisions left increasingly to market forces, the interest rate and exchange rate gained in importance vis-à-vis quantity variables. Accordingly, on a review of the monetary policy framework, RBI gradually switched over to a more broad-based multiple indicator approach.

3. In a quantity based monetary targeting framework, Reserve Money (RM) was used as the operating target and bank reserves as the operating instrument with broad money (M_3) being the intermediate target. In the current monetary operating framework, reliance on direct instruments of monetary policy has been reduced and the liquidity management in the system is carried out through open market operations (OMO) in the form of outright purchases/sales of government securities and repo and reverse repo operations under Liquidity Adjustment Facility (LAF). The OMO are supplemented by access to the Reserve Bank's standing facilities combined with direct interest rate signals through changes in the Bank Rate/repo rate. In this direction, the LAF introduced in June 2000 has now emerged as the principal operating instrument of monetary policy. The LAF enables the Reserve Bank to modulate short-term liquidity under varied financial market conditions in order to ensure stable conditions in the overnight (call) money market. The LAF operates through daily repo and reverse repo auctions thereby setting a corridor for the short-term interest rate consistent with policy objectives. Although there is no formal targeting of overnight interest rates, LAF operation has enabled the Reserve Bank to de-emphasize the targeting of bank reserves and focus increasingly on interest rates. This has also helped in reducing CRR without engendering liquidity pressure.

4. While the LAF has emerged as the principal instrument in the monetary policy operating framework of the Reserve Bank, its operation in the present form in conjunction with other supporting instruments has given rise to certain conceptual and operational issues which need to be addressed to enhance the efficacy of monetary operations. The Group identified a number of major issues. First, is the issue concerning the role of the Bank Rate and the repo rate in signalling the stance of monetary policy. While the Bank Rate was envisaged to provide the medium-term signal and the repo rate as the marginal liquidity management rate, there is an increasing market acceptance of the repo rate as the signalling rate. Thus, there is a need to clarify the relative role of the Bank Rate and the repo rate to impart transparency to monetary operations. Second, at present, there is a multiplicity of rates at which liquidity is absorbed/injected. In an interest rate corridor framework, with the system being in surplus mode, it is generally witnessed that there are normally two rates through which liquidity is absorbed and one rate through which liquidity is injected, and *vice versa* when the system is in deficit mode. Keeping this perspective in view, there is a need to rationalize the existing corridor. Third, since the repo rate has emerged as the policy signalling rate, its relative position within the corridor becomes important. Normally, cross-country experiences show that the policy signalling rate is placed in the middle of the corridor. However, in the present framework, the repo rate has been acting as both the policy rate as well as the rate for passive sterilization of excess liquidity emanating from capital flows. Hence, the LAF repo rate is placed at the bottom of the corridor which compromises its role as an exclusive policy signalling rate. Fourth, there is merit in conceptually, though not operationally, distinguishing the sterilisation objectives of the LAF repo facility which is supposed to sterilize surplus funds of a "temporary" nature as opposed to a facility which should be capable of handling surplus funds of a somewhat "enduring" nature. Keeping this in view, it would be desirable to de-emphasize the passive sterilization attribute of the LAF repo facility so that it could emerge as the exclusive policy signalling rate. There is, therefore, a need for adequate instruments of sterilisation in addition to the liquidity management facilities. Fifth, placement of funds under the LAF repo window should normally take place as a matter of last resort. However, with persistence of excess

liquidity the LAF window is treated as an absorber of funds of the first resort by market participants, thereby affecting adversely the balanced development of various segments of the money market as also the emergence of a proper rupee yield curve. Sixth, normally central banks have a standing deposit facility that provides the floor to the interest rate corridor and acts as the absorber of funds of the last resort. Such a facility is not available with Reserve Bank at present. In such a scenario, the remuneration of eligible cash balances under cash reserve ratio (CRR) at the Bank Rate is not compatible with the institution of a standing deposit facility. Thus, there is a need to rationalize the interest rate on eligible cash balances under CRR. In principle, no remuneration is appropriate to make CRR most effective. When remuneration is given, it should be at the rate at which liquidity is intended to be absorbed, either through LAF operations or through the standing deposit facility.

5. The monetary policy operating framework on the basis of a cross-country analysis shows that there are normally two standing facilities: (i) an unlimited collateralized marginal lending facility available throughout the day at a premium over the repo rate that provides the upper bound to the corridor, and (ii) a standing uncollateralised unlimited deposit facility available towards the closure of the market hours at a discount to the official repo rate that provides the lower bound. Within this corridor, the repo rate (equivalent to the reverse repo rate in India) as a discretionary instrument for providing liquidity is generally placed in the middle of the corridor in major developed countries so that both the floor rate and the ceiling rates are linked with the repo rate in a well defined and transparent manner.

6. In order to address the set of issues listed above, the Group reviewed the present LAF framework drawing upon experiences in a cross-country perspective. While in the current market conditions, there is surplus liquidity, the Group examined the operations of LAF under alternate scenarios of the system for both surplus and deficit modes. The major recommendations of the Group both in respect of day to day liquidity management and in the context of sterilization are as follows:

I. Proposed Modifications in LAF in the Context of day to day Liquidity Management

- In the light of substantial technological developments, the objective of conducting LAF operation on real-time basis, particularly operationalisation of Negotiated Dealing System (NDS) (i.e., minimum time lag between the auction and communication of results to market participants) on LAF need to be pursued further.

With a view to achieving balanced development of various segments of the money market, introduction of a deposit facility becomes essential to afford more flexibility to RBI in using the repo facility as a signalling device while not sacrificing the objective of the provision of a floor to the movement of short-term interest rates. The deposit facility would also be useful in mopping up any surplus funds emanating from settlement balances of banks in an RTGS environment. Currently, the repo rate provides the lower bound to the interest rate corridor as the Bank Rate at which eligible cash balances under CRR is remunerated is higher than the repo rate. As the repo rate has emerged as the policy signalling rate, there is a need to have a lower rate linked to the repo rate which could provide a lower bound to the interest rate corridor. In this context, the Group explored the feasibility of instituting a standing deposit facility. However, the Reserve Bank of India Act, 1934 in its present form does not permit RBI to borrow on clean basis from banks and pay interest thereon. Therefore, institution of such a deposit facility distinct from CRR for banks would necessitate a suitable amendment to the RBI Act. The Group learnt that the Reserve Bank has already made proposals to the Government to have the flexibility to change CRR even below the current statutory minimum of 3.0 per cent as also

to pay interest on such balances actually maintained with it by scheduled banks. The Group noted that such amendments are required in the light of the evolving monetary policy framework.

The Group felt that pending amendments to the RBI Act, the Reserve Bank should explore possibilities of modifying the current CRR provision to accommodate a standing deposit type facility for scheduled banks within its ambit which could achieve the same objective as a standing deposit facility. The Group recommends that banks may be permitted to place deposits with the Reserve Bank at their discretion over and above the required CRR deposits. Such deposits may be treated as being placed under standing deposit type facility and be deemed as a part of CRR with a flexible interpretation of the extant provisions of the RBI Act. The distinguishing feature of the proposed standing deposit type facility is that the placement of deposits under this facility is at the discretion of banks unlike CRR which is applicable to all banks irrespective of their liquidity position. Thus, the standing deposit type facility as a tool for residual liquidity management is more efficient as it distinguishes between banks having surplus cash balances from those that are in deficit.

In the context of LAF, the remuneration of cash balances maintained by banks with the Reserve Bank under the standing deposit type facility becomes an important issue. Since the interest rate on standing deposit type facility is designed to provide a floor to the interest rate corridor, the remuneration of such deposits should be at a rate lower than the repo rate. A related issue is remuneration of eligible cash balances maintained under required CRR for all scheduled banks. It is felt that with substantial scaling down of CRR coupled with marked decline in overall interest rate structure in the economy and increasing liquidity needs of participants in the wake of higher interlinkages among different segments of the market, the degree to which CRR had been impacting banks as an implicit taxation earlier is considerably less in recent period. On balance, the Group, therefore, recommends that in principle, the interest rate on CRR may be aligned with the desired interest rate on the proposed standing deposit type facility. Accordingly, the Group felt that remuneration of eligible cash balances at the Bank Rate is no longer justifiable and hence, recommends that the remuneration of CRR, if any, be delinked from the Bank Rate and placed at a rate lower than the repo rate.

- The minimum tenor of the repo/reverse repo operations under LAF facility should be changed from overnight to 7 days to be conducted on daily basis to enable balanced development of various segments of money market. To facilitate a smooth transition to a system of 7-day LAF repo, both the overnight and 7-day repo auctions may be conducted on daily basis for a period. Even when the overnight repo is phased out, the Reserve Bank should have the option of conducting overnight repo if the situation so warrants.

- As regards the method of LAF auction, it needs to be appreciated that though the LAF repo rate emerges from a variable price auction, experience so far indicates that the LAF has turned out to be a de facto fixed rate auction as market participants do not tend to bid at different rates. As a result, the Reserve Bank had to conduct fixed rate LAF auctions as and when the repo rate was to be changed. In the proposed framework, the Group recommends that the LAF auction could be a fixed rate auction enhancing its policy signalling rate. However, the Reserve Bank should have the flexibility to use the variable price auction format if the situation so warrants.

- If in future the underlying situation changes from the existing surplus mode to a shortage mode on a more enduring basis, the LAF corridor would need to be redefined within the basic parameters. In such a scenario, there would be two rates at which liquidity would need to be injected and a single rate at which liquidity would be absorbed. Accordingly, the reverse repo rate would be placed within the corridor around which the overnight interest rates are expected to

fluctuate. As a result, the reverse repo rate (i.e., repo rate by international parlance) would become the policy signalling rate. The standing deposit facility would continue to remain as the window for absorbing residual liquidity. However, the interest rate on the standing deposit facility would have to be determined at a rate lower than the reverse repo policy rate and would continue to give the lower bound to the interest rate corridor. The upper bound to the corridor would be provided by a marginal lending facility in the nature of our existing standing refinance facility at a rate higher than the reverse repo rate. In essence, while the shape of the corridor would not change, reverse repo rate would replace the repo rate and would become the policy signalling rate around which the overnight call money rates would be expected to fluctuate in the event the financial market turns into a shortage mode. In such a scenario, the Bank Rate should under normal circumstance be aligned to the marginal lending rate (i.e., standing refinance rate).

- In the international parlance, while “repo” denotes injection of liquidity by the central bank against eligible collateral, “reverse repo” denotes absorption of liquidity by the central bank against eligible collateral. On the contrary, in the Indian context, “repo” denotes liquidity absorption by the Reserve Bank and “reverse repo” denotes liquidity injection. In order to achieve uniformity and facilitate international comparison, it would be useful to follow international practice in the usage of the terms “repo” and “reverse repo”.
- The current practice of the minimum bid amount of Rs.5 crore and multiples thereof may continue.
- In the recent period, with the economy remaining in surplus mode coupled with discretionary liquidity being provided at the reverse repo rate as and when required, the importance of the Bank Rate as a signalling rate seems to have reduced. It would be desirable that liquidity injection should take place at a single rate. Accordingly, it would be desirable that the Bank Rate is under normal circumstance aligned to the reverse repo rate and, therefore, the entire liquidity support including refinance should be made available at the reverse repo rate/Bank Rate. The Bank Rate/reverse repo rate would, therefore, provide the upper bound to the interest rate corridor. The Group, however, recommends that the Reserve Bank may continue to announce the Bank Rate independently as at present, but the Bank Rate should under normal circumstances stay aligned to the reverse repo rate.
- With intra-day liquidity (IDL) available under the RTGS system, the timing of LAF could be shifted to the middle of the day, say, 12 noon to ensure that marginal liquidity is kept in the system for longer time in an environment of RTGS system and low CRR before coming on to RBI's repo window.
- To take care of unforeseen contingencies in mismatches, RBI may consider discretionary announcement of timing of both repo auctions and reverse repo auctions at late hours. RBI should not hold any regular reverse repo auction under LAF towards late hours so as to prevent participants to fund themselves under this window to extinguish their liability towards IDL availed earlier during the course of the day from RBI. RBI should, however, keep the deposit facility open towards the end of RTGS system operating hours to absorb any excess fund remaining in the system.
- RBI should strengthen its liquidity forecasting model so as to provide a more scientific basis to the decision making process for LAF operations.

II. Proposed Modifications in LAF in the Context of Sterilisation

- In order for the LAF to function as the principal monetary policy instrument for signalling the Reserve Bank's stance on interest rates, it is desirable that LAF operates to primarily manage liquidity at the margin on a day-to-day basis. However, in the recent period, the LAF repo facility has also operated as an instrument of sterilisation. While operationally it is difficult to distinguish between the sterilisation operations and liquidity management operations under LAF, conceptually there is need to distinguish surplus liquidity of "temporary" nature from surplus liquidity of a somewhat "enduring" nature. In order to enhance the effectiveness of LAF, the Group recommends that additional instruments of sterilisation may be explored so as to reduce the liquidity pressure on the LAF window. The Group proposes that as and when the RBI Act is amended, the Standing Deposit Facility could provide an additional instrument of sterilisation. In the meantime, the Group proposes that a "Standing Deposit Type Facility" could be explored within the extant provisions of the Act, without prejudice to the proposed amendment. As proposed by the *RBI Working Group on Instruments of Sterilisation*, setting up of a Market Stabilisation Fund (MSF) will be useful as an option which can be operationalised whenever considered necessary.

In view of the finite stock of government securities available with the Reserve Bank for sterilisation, particularly, as the option of issuing central bank securities is neither permissible under the Act nor considered desirable by the *RBI Working Group on Instruments of Sterilisation*, the Government may consider setting up of a Market Stabilisation Fund (MSF) to be created in the Public Account. This Fund could issue a new instrument called Market Stabilisation Bills/Bonds (MSBs) for mopping up enduring surplus liquidity from the system over and above the amount that could be absorbed under the day to day repo operations of LAF. MSBs may be raised through auctions and permitted to be actively traded in the secondary market. The amounts raised would be credited to the Market Stabilisation Fund (MSF). The Fund account would be maintained with and managed by the Reserve Bank. The maturity, amount, and timing of issue of MSBs may be decided by the Reserve Bank in consultation with the Government depending, *inter alia*, on the expected duration and quantum of capital inflows, and the extent of sterilisation of such inflows.

Introduction

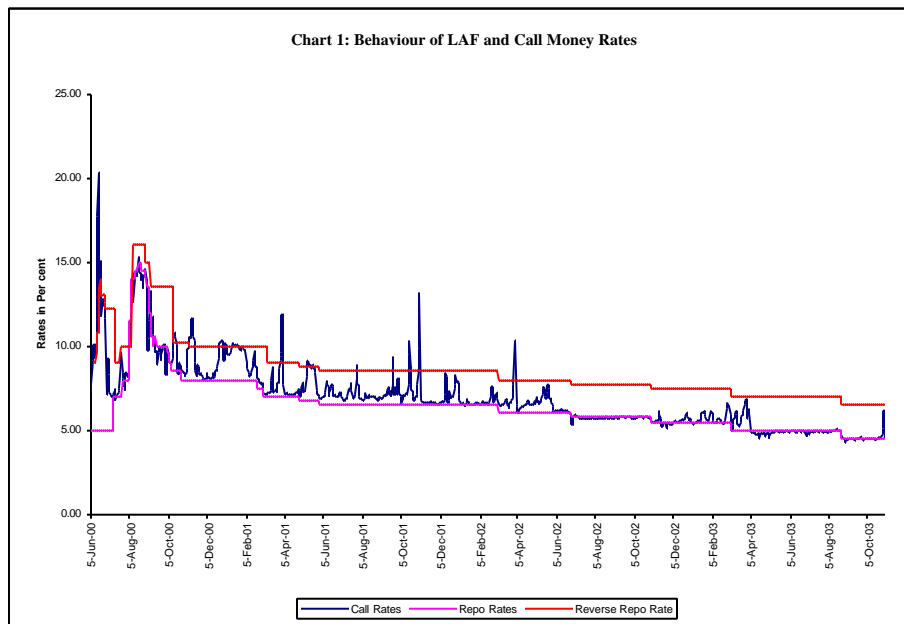
The mid-term Review of Monetary and Credit Policy for 2003-04 released on November 3, 2003 indicated that an Internal Group reviewed the operations of the Liquidity Adjustment Facility in a cross-country perspective keeping in view recent developments in the financial market as well as in technology. The draft Report of the Internal Group was discussed both in the Technical Advisory Committee on Money and Government Securities Markets (TAC) and the Financial Markets Committee (FMC) of RBI. The revised Report after taking into account the comments made by TAC and FMC members is now placed in public domain for wider comment and debate.

2. In an effort to migrate from direct instruments of monetary control to indirect instruments in a market-based economy, a fundamental change in the conduct of monetary policy in India was effected through the introduction of Liquidity Adjustment Facility (LAF) on June 5, 2000. The LAF operations are conducted through daily and 14-day repo/reverse repo auctions. The rates arising out of daily repo and reverse repo auctions have imparted an informal corridor to movement of call/notice money rates (Chart 1). Thus, LAF as a liquidity management tool has achieved one of the basic monetary policy objectives of stabilising the short-term interest rates.

3. Since the introduction of LAF, a number of developments have taken place which necessitate a fresh look into the operations of LAF. Banks' cash reserve ratio (CRR) has come

down markedly from 8.5 percent in early April 2000 to 4.5 percent by June 2003. Alongside, standing facilities have also been rationalized substantially: most of the sector-specific refinance facilities, e.g., food credit refinance, 182-day treasury bill refinance etc., have been phased out; Collateralised Liquidity Facility (CLF) was also phased out by October 2002. Export credit refinance (ECR) facility is the only sector-specific standing facility that is presently available. However, the actual operations under ECR have been negligible in recent months.

4. On the technology front, the ensuing operationalisation of real-time gross settlement (RTGS) system, centralised funds management system (CFMS), centralised public debt office (PDO) system, frequent net settlement batches etc., in an environment of low CRR are expected to influence the liquidity requirement of participants in a significant manner. The implementation of prudential limits on call/notice money transactions coupled with phasing out of non-banks from this market and the operationalisation of intra-day liquidity (IDL) facility under RTGS system would also increase the overall demand for collateral in the system.



5. Against this background, as desired by the Governor, an Internal Group was constituted to review the operations of LAF with the following members:

1. Shri D. Anjaneyulu, Principal Monetary Policy Adviser
2. Dr. Narendra Jadhav, Principal Adviser, DEAP
3. Dr. T.C. Nair, Chief General Manager, DEIO
4. Shri H.R. Khan, Chief General Manager-in-Charge, IDMD
5. Shri Deepak Mohanty, Adviser, MPD
6. Shri Amitava Sardar, Director, MPD (Co-ordinator and Secretary)

The Group benefitted from discussions with Smt. Usha Thorat, Executive Director, Shri N.V. Deshpande, Principal Legal Adviser, Legal Department, Dr.D.V.S. Sastry, Consultant, Monetary Policy Department, Shri Himadri Bhattacharya, CGM, Department of External Investments and Operations (DEIO), Dr. Michael D. Patra, Adviser, Department of Economic Analysis and Policy (DEAP) and S/Shri Muneesh Kapur, Dhritidyuti Bose and Indranil Sengupta, Assistant Advisers, DEAP. The Group is also grateful to the members of the Technical Advisory

Committee on Money and Government Securities Markets (TAC) for their valuable comments during their deliberations on October 14, 2003.

6. The Group's Report is organised into three Sections: Section I reviews the major recommendations of the earlier two Groups on LAF. Section II examines the current status of LAF operations and suggests modifications to the LAF framework keeping in view select cross-country experiences. This section also analyses the operations of LAF in the context of sterilisation of capital inflows. Section III gives recommendations of the Report. An executive summary has also been given at the beginning of the Report.

Section I

Review of Recommendations of Earlier Groups on LAF

7. As a prelude to the introduction of LAF, an Interim Liquidity Adjustment Facility (ILAF) was introduced in April 1999. In that context, the first internal Group was constituted in May 1999 to examine the "Role of the Bank Rate". The Group underlined the need for switching over to a full fledged Liquidity Adjustment Facility (LAF) in three stages. Accordingly, the monetary policy Statement of April 2000 announced the introduction of the LAF through a system of repo and reverse repo auctions. The system was operationalised on June 5, 2000.

8. With the experience gained in the operation of the LAF and taking into consideration the feedback obtained from the market participants at a seminar organised by the Fixed Income Money Market and Derivatives Association of India (FIMMDA) in January 2001, the operational aspects of the LAF was reviewed by the second internal Group set up for this purpose. The recommendations of the second internal Group encompassing the new operating procedure and auction system were announced in the monetary policy Statement of April 2001.

9. A summary of recommendations of the earlier Groups and their current status are provided in Annex I. While almost all recommendations of these two internal Groups have been implemented in phases, the proposal for LAF operations on a real-time basis (i.e., minimum time lag between the auction and communication of results to market participants) is yet to be implemented. It was envisaged that following PDO computerisation and operationalisation of RTGS system, LAF could be conducted on a real-time basis which would include electronic receipt of bids, automated processing of bids, simultaneous settlement of bids and instantaneous announcement of results. The Group recommends that in the light of substantial technological developments, particularly operationalisation of the Negotiated Dealing System (NDS), the objective of conducting LAF operations on a real-time basis need to be pursued further.

Section II

II.1 Current Monetary Operating Procedure

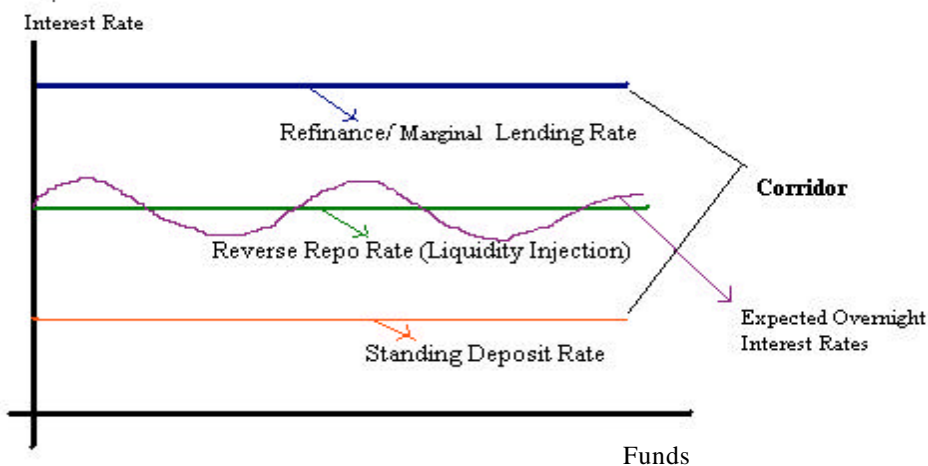
10. As highlighted in recent monetary policy statements, "the Bank Rate changes combined with CRR and repo rate changes, have emerged as important tools of monetary and liquidity management". While the Bank Rate changes were aimed to reflect changes in the medium-term stance of policy (given the expected growth in real GDP, rate of inflation and demand for money), variations in LAF rates were expected to facilitate short-term liquidity management in the financial market on a day-to-day basis. Consequently, variations in the Bank Rate were expected to be of lesser frequency reflecting relative stability of medium-term policy stance. Variations in LAF rates on the contrary *could* be more frequent reflecting day-to-day pressure on marginal liquidity in the system. However, in practice, since repo and reverse repo rates as part of LAF operations constitute the interest rate corridor, any variation in these rates is perceived by

the market as short-term interest rate signals arising from change in stance of RBI even when the Bank Rate has remained unchanged.

11. This brings to the fore the issue as to which of the rates, viz. the Bank Rate and the repo/reverse repo rates under LAF reflects the policy signalling rate of RBI. In this context, experiences of major developed economies and select emerging markets are given in Annex II. Very briefly stated, the monetary policy operating frameworks in a number of countries show that it is the standing facilities which provide the corridor within which short-term interest rates are expected to fluctuate.

12. The monetary policy operating framework on the basis of a cross-country analysis shows that there are normally two standing facilities: (i) an unlimited collateralised marginal lending facility available throughout the day at a rate higher than the repo rate that provides the upper bound to the corridor, and (ii) a standing uncollateralised unlimited deposit facility available towards the closure of the market hours at a rate lower than the official repo rate that provides the lower bound. Within this corridor, the repo rate (equivalent to the reverse repo rate in India) as a discretionary instrument for providing liquidity is generally placed in the middle of the corridor in major developed countries so that both the floor rate and the ceiling rates are linked with the repo rate in a well defined and transparent manner. This operating framework is illustrated in Chart 2.

Chart 2: LAF Corridor when System is in Enduring Deficit Mode



Note: Reverse Repo in Indian context is equivalent to repo in international parlance.

13. In this framework, the repo (reverse repo in the Indian context) rate acts as the policy rate and signals the stance of the central bank. This rate is decided and announced explicitly by the central bank from time to time. Therefore, when the repo (reverse repo) rate is changed, the entire corridor shifts as other rates are linked to the repo (reverse repo) rate.

14. In India, on the liquidity absorption side, cash reserve ratio (CRR) has been acting as a passive approximation of standing deposit facility and cash balances between the statutory minimum level of 3.0 per cent and the required level are remunerated at the Bank Rate. However, there are a number of differences between deposits maintained under CRR and standing deposit facilities prevailing in other major market economies. First, in India, the CRR is mandated under a statutory provision at the discretion of the Reserve Bank whereas the standing deposit facility is utilised at the discretion of eligible market participants. Second, the standing deposit facility is more efficient than CRR in the context that only entities with surplus resources can only avail of this facility wherein CRR applies to all scheduled banks uniformly.

irrespective of their liquidity position. Third, eligible CRR balances are currently remunerated at the Bank Rate which is higher than the repo policy rate whereas standing deposit facility should ideally be available at a rate lower than the repo rate.

15. On the liquidity injection side, the sector-specific export credit refinance facility for banks and liquidity support to PDs act as a form of marginal lending facility. A portion of these facilities are available at the Bank Rate (normal facility) and the remainder at the reverse repo rate (back-stop facility). In essence, there are two rates at which currently liquidity injection takes place viz., the Bank Rate and the reverse repo rate.

II. 2 Review of Current LAF Operations

16. The operations of the LAF need to be seen in the context of changes in the transmission channels of monetary policy. Since the early 1990s, the monetary targeting approach in the conduct of monetary policy came under stress with increasing interplay of market forces in the determination of interest rates and exchange rate as a consequence of deregulation. In addition, the excess liquidity engendered by capital flows imparted an upward pressure on money supply. There was also increasing evidence on changes in the underlying transmission mechanism of monetary policy. The Third Working Group on Money Supply (Chairman: Dr.Y.V.Reddy) which submitted its Report in June 1998, found that the output response to monetary policy operating through the interest rate tends to be stronger and more persistent than that through the credit channel. With pricing decisions left increasingly to market forces, the interest rate and exchange rate gained in importance vis-à-vis quantity variables. Accordingly, on a review of the monetary policy framework, RBI gradually switched over to a more broad-based multiple indicator approach.

17. In a quantity based monetary targeting framework, Reserve Money (RM) was used as the operating target and bank reserves as the operating instrument with broad money (M_3) being the intermediate target. In the current monetary operating framework, reliance on direct instruments of monetary policy has been reduced and the liquidity management in the system is carried out through open market operations (OMO) in the form of outright purchases/sales of government securities and repo and reverse repo operations under Liquidity Adjustment Facility (LAF). The OMO are supplemented by access to the Reserve Bank's standing facilities combined with direct interest rate signals through changes in the Bank Rate/repo rate. In this direction, the LAF introduced in June 2000 has now emerged as the principal operating instrument of monetary policy. The LAF enables the Reserve Bank to modulate short-term liquidity under varied financial market conditions in order to ensure stable conditions in the overnight (call) money market. The LAF operates through daily repo and reverse repo auctions thereby setting a corridor for the short-term interest rate consistent with policy objectives. Although there is no formal targeting of overnight interest rates, LAF operation has enabled the Reserve Bank to de-emphasize the targeting of bank reserves and focus increasingly on interest rates. This has also helped in reducing CRR without engendering liquidity pressure.

18. While the LAF has emerged as the principal instrument in the monetary policy operating framework of the Reserve Bank, its operation in the present form in conjunction with other supporting instruments has given rise to certain conceptual and operational issues which need to be addressed to enhance the efficacy of monetary operations. The Group identified a number of major issues. First, is the issue concerning the role of the Bank Rate and the repo rate in signalling the stance of monetary policy. While the Bank Rate was envisaged to provide the medium-term signal and the repo rate as the marginal liquidity management rate, there is an increasing market acceptance of the repo rate as the signalling rate. Thus, there is a need to clarify the relative role of the Bank Rate and the repo rate to impart transparency to monetary operations. Second, at present, there is a multiplicity of rates at which liquidity is

absorbed/injected. In an interest rate corridor framework, with the system being in surplus mode, it is generally witnessed that there are normally two rates through which liquidity is absorbed and one rate through which liquidity is injected, and *vice versa* when the system is in deficit mode. Keeping this perspective in view, there is a need to rationalize the existing corridor. Third, since the repo rate has emerged as the policy signalling rate, its relative position within the corridor becomes important. Normally, cross-country experiences show that the policy signalling rate is placed in the middle of the corridor. However, in the present framework, the repo rate has been acting as both the policy rate as well as the rate for passive sterilization of excess liquidity emanating from capital flows. Hence, the LAF repo rate is placed at the bottom of the corridor which compromises its role as an exclusive policy signalling rate. Fourth, there is merit in conceptually, though not operationally, distinguishing the sterilisation objectives of the LAF repo facility which is supposed to sterilize surplus funds of a “temporary” nature as opposed to a facility which should be capable of handling surplus funds of a somewhat “enduring” nature. Keeping this in view, it would be desirable to de-emphasize the passive sterilization attribute of the LAF repo facility so that it could emerge as the exclusive policy signalling rate. There is, therefore, a need for adequate instruments of sterilization in addition to the liquidity management facilities. Fifth, placement of funds under the LAF repo window should normally take place as a matter of last resort. However, with persistence of excess liquidity the LAF window is treated as an absorber of funds of the first resort by market participants, thereby affecting adversely the balanced development of various segments of the money market as also the emergence of a proper rupee yield curve. Sixth, normally central banks have a standing deposit facility that provides the floor to the interest rate corridor and acts as the absorber of funds of the last resort. Such a facility is not available with Reserve Bank at present. In such a scenario, the remuneration of eligible cash balances under cash reserve ratio (CRR) at the Bank Rate is not compatible with the institution of a standing deposit facility. Thus, there is a need to rationalize the interest rate on eligible cash balances under CRR. In principle, no remuneration is appropriate to make CRR most effective. When remuneration is given, it should be at the rate at which liquidity is intended to be absorbed, either through LAF operations or through the standing deposit facility.

19. In order to address the above set of issues, the Group reviewed the present LAF framework drawing upon the experiences in a cross-country perspective. While in the current market conditions, there is surplus liquidity, the Group examined the operations of LAF under alternate scenarios of the system being in both surplus and deficit modes.

20. A distinguishing feature of monetary operations in most developed markets is that the financial markets at the margin are short in central bank money. Hence, the repo rate (equivalent to reverse repo rate in India) at which liquidity is provided by the central bank has become an important benchmark within the corridor. While LAF in our context broadly resembles the framework obtaining in developed markets, the principal underlying difference has been surplus liquidity in our system during much of the period since June 2000. Consequently, the repo rate as the liquidity absorption instrument has become very dominant.

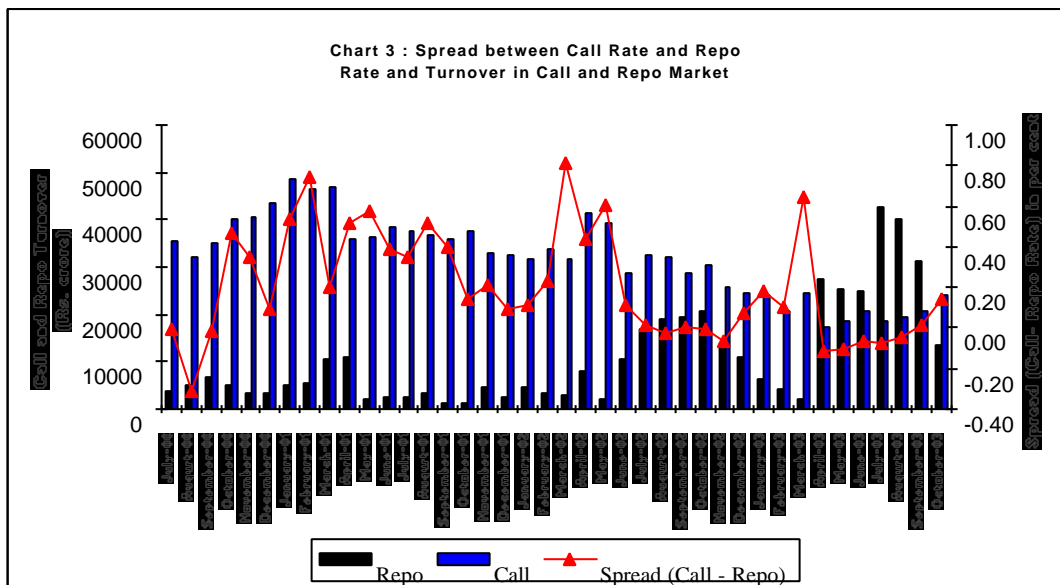
21. As the repo rate provides the floor for call rates, it has created some infirmities in the system. It has been observed that RBI's LAF repo operations have the tendency to substitute market activities in call/notice money, term money and market repo operations. Banks may have less incentive to lend fully in call/notice market in a scenario of narrow spread between call rate and repo rate. In fact, after taking into account relative credit risk, banks may prefer to lend even at a marginally lower rate by repoiing with RBI than lending in call. This trend has accentuated since April 2003 with spread turning negative. This combined with substantial improvement in liquidity has caused call/notice money turnover to shrink from Rs.35,144 crore during 2001-02 to Rs.19,920 crore during April-October 2003. Concomittantly, the average amount of repo

outstanding with RBI (taking into account both one day and 14-day repo) has increased from Rs.3,503 crore during 2001-02 to Rs.11,196 crore during 2002-03 and further to Rs.29,290 crore during April- October 2003. The repo amount has witnessed marked upturn particularly from April 2003 onwards following call rates falling below the repo rate (Chart 3 and Table 1).

Table 1 : Relative Volumes in Call, Repo (RBI) and Term Money Markets

(Rs. Crore)

Month	2001-02			2002-03			2003-04		
	Call Turnover	Avg. Repo Outst.	Term Money	Call Turnover	Avg. Repo Outst.	Term Money	Call Turnover	Avg. Repo Outst.	Term Money
April	35785	10968		41616	8119	225	17338	27372	604
May	36458	2132	199	39326	1924	123	18725	25223	455
June	38606	2458	283	28905	10420	135	20544	24805	610
July	37793	2350	320	32386	17092	108	18698	42690	573
August	36891	3243	264	32269	19046	1179	19556	39996	644
September	36100	1139	208	28883	19483	247	20584	31373	772
October	37539	1325	117	30469	20653	117	23998	13569	543
November	32836	4553	125	25821	13859	392			
December	32681	2469	65	24305	10911	454			
January	31693	4821	90	24034	6325	288			
February	33677	3590	290	20682	4259	281			
March	31667	2986	185	24357	2265	546			
Average	35144	3503	195	29421	11196	341	19920	29290	608



22. At the same time, it needs to be also recognised that because of LAF repo facility, RBI has been in a position to hold the rates and provide a floor to call rates. It is, however, desirable that RBI becomes an absorber of funds of last resort rather than an absorber of funds of first resort for achieving proper market development and pricing of resources yet providing a firm floor to the call rates.

23. There is also some perception that banks may use the repo window because of the limit under call/notice market which came into effect from October 2002. In this regard, the Group examined the position of select major lenders in both call market and RBI's repo window. The select banks account for 36 percent of aggregate lending in call/notice market and 37 percent of

repo amount outstanding with RBI. It was found that lending limit in call/notice money market was not a constraint, on average, for these banks as a part of their call limit remained unutilised (Table 2).

Table 2: Relative Position of Select Surplus Banks' Transactions in Call/Notice Market and RBI's Repo

(Rs. Crore)

Month	A Bank		B Bank		C Bank		D Bank	
	Call lending	Repo	Call lending	Repo	Call lending	Repo	Call lending	Repo
	as % of limit		as % of limit		as % of limit		as % of limit	
Dec-02	79	4507	86	1044	60	503	74	1193
Jan-03	64	2944	76	400	62	875	74	1063
Feb-03	38	3150	103	451	46	183	73	1005
Mar-03	68	3788	89	1033	74	506	85	1575
Apr-03	43	8821	41	1286	31	2226	57	1231
May-03	54	5156	72	1789	23	2112	57	1140
Jun-03	66	6336	73	1587	25	2626	66	717
Jul-03	48	7605	58	2280	16	2202	56	1420
Aug-03	57	5763	75	1523	14	1796	67	1392

The Group felt that a part of call money transactions seems to be migrating to RBI LAF window thereby adversely affecting the price discovery process in call/notice, term money and repo markets.

24. Like substitution of call money transactions, the present arrangement may also be contributing to shifting a part of market repo transactions to the repo window of RBI. It was also seen that some banks have been purchasing securities under repo with RBI on regular basis to comply with their SLR requirement after borrowing from call market (Table 3). While such operations are not prohibited, it needs to be recognised that LAF is a privileged facility extended to banks to meet, *inter alia*, temporary unforeseen mismatches. The desired objective is defeated when banks use the RBI window to meet their SLR needs on regular basis in preference to market.

Table 3 : Select Banks' Transactions In Call/Notice Market And RBI's Repo Under LAF

(Rs. Crore)

Month	E Bank		F Bank		G Bank		H Bank		I Bank	
	Net Borr'ng	Repo	Net Borr'ng	Repo	Net Borr'ng	Repo	Net Borr'ng	Repo	Net Borr'ng	Repo
Apr-02	36	0	406	100	868	0	594	0	210	0
May-02	8	0	308	0	601	0	567	0	241	0
Jun-02	21	0	140	0	635	0	337	0	38	0
Jul-02	64	0	210	0	691	0	431	0	165	0
Aug-02	-14	0	140	0	866	0	284	0	141	0
Sep-02	-172	40	293	96	459	195	178	0	59	0
Oct-02	-82	173	539	0	593	0	348	0	56	0
Nov-02	-68	130	335	0	270	504	119	133	14	60
Dec-02	-38	117	101	60	88	233	217	78	0	72
Jan-03	-54	96	-58	115	81	50	131	0	57	0
Feb-03	-47	85	77	0	-84	228	-87	355	15	41
Mar-03	41	100	244	0	147	0	53	241	-6	0
Apr-03	57	74	245	28	52	862	56	291	0	90
May-03	17	58	34	185	-64	684	-51	194	-21	102
Jun-03	-20	105	15	230	-240	754	197	350	-3	96

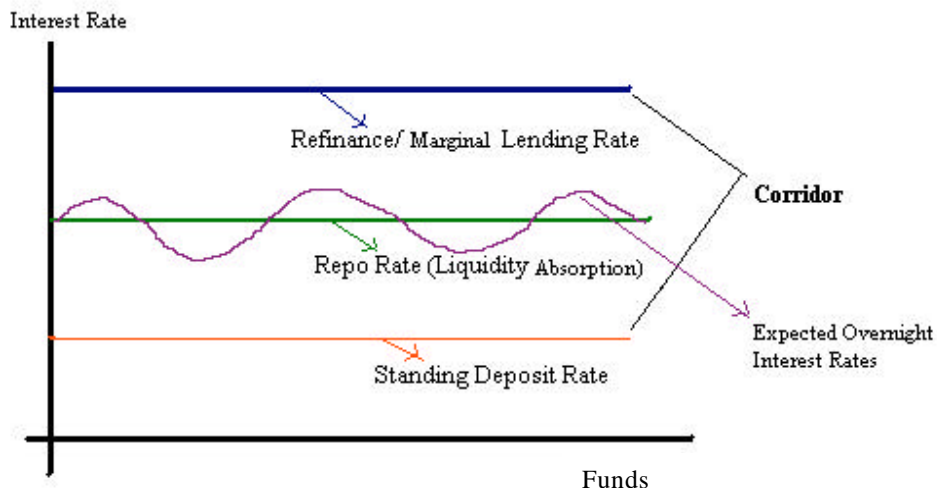
Jul-03	0	156	37	227	-30	450	24	352	-12	225
Aug-03	0	224	-21	149	-31	0	-29	355	-27	266

Net Borrowing = Borrowing minus Lending in Call/Notice Market.

25. Though LAF has been effective in modulating system liquidity at the margin on a day to day basis, the LAF repo rate has become the benchmark rate for the financial market. However, LAF repo rate providing the floor to the movement of short-term interest rates has the disadvantage of hindering market developments as it provides a safe haven to market participants.

26. With a view to achieving a balanced development of various segments of money market coupled with the need to mop up any surplus funds that may remain in the system at the end of the day in an environment of RTGS system and low CRR, the Group felt that introduction of a standing deposit facility becomes necessary. This would give RBI more flexibility in using the repo facility in the matter of accepting/rejecting the bids as well as providing a floor for movement of short-term interest rates. The proposed operating procedure is illustrated in Chart 4.

Chart 4: LAF Corridor when System is in Enduring Surplus Mode



Note: Repo rate in Indian context is equivalent to reverse repo rate in international parlance.

II.3 Proposed Modifications to LAF Framework

27. The Group was of the view that it would be desirable that liquidity injection should take place at a single rate in order to enhance the efficiency of monetary operations. The Group noted that the Reserve Bank has already taken steps in this direction by aligning the back-stop refinance rate with the reverse repo rate in the annual monetary policy Statement for 2003-04. Further, the proportion of entitlement under back-stop facility in total refinance has also been raised to 67 per cent in the Mid-term Review of November 2003. The Group recommends that the entire refinance should be made available at the reverse repo rate so that the refinance window operates as a marginal lending facility, and along with the Bank Rate/reverse repo rate, it would provide the upper bound to the interest rate corridor.

28. Currently, the repo rate provides the lower bound to the interest rate corridor as the eligible cash balances under CRR is remunerated at the Bank Rate which is higher than the repo rate. As the repo rate has emerged as the policy signalling rate, there is a need to have a lower rate linked to the repo rate which could provide a lower bound to the interest rate corridor. In this context, the Group explored the feasibility of instituting a standing deposit facility.

However, the Reserve Bank of India Act, 1934 in its present form does not permit RBI to borrow on clean basis from banks and pay interest thereon. Therefore, institution of such a deposit facility distinct from CRR for banks would necessitate suitable amendment to the RBI Act. The Group learnt that the Reserve Bank has already made proposals to the Government to have the flexibility to change CRR even below the current statutory minimum of 3.0 per cent as also to pay interest on such balances actually maintained with it by scheduled banks. The Group noted that such amendments are required in the light of the evolving monetary policy framework.

29. In this context, it needs to be appreciated that the special deposit facility would be in the nature of an uncollateralised standing facility. However, the apprehension that unlimited amount of funds could be placed with RBI under this facility which might dampen the lending activities of banks would be unfounded provided the call rates are kept around the policy repo rate. In such a scenario, there would be an incentive on the part of market participants to deploy resources first in the market on account of higher return that it would fetch and come to RBI only when they would not be in a position to deploy funds around the targeted rate. In the process, the special deposit facility rate would provide a firm floor to the behaviour of call rates while the repo rate would continue to provide the signalling stance from RBI.

30. The Group felt that pending amendments to RBI Act, the Reserve Bank should explore possibilities of modifying the current CRR provision to accommodate a standing deposit type facility for scheduled banks within its ambit which could achieve the same objective as a standing deposit facility. The Group recommends that banks may be permitted to place deposits with the Reserve Bank at their discretion over and above the required CRR deposits. Such deposits may be treated as being placed under standing deposit type facility and be deemed as a part of CRR with a flexible interpretation of the extant provisions of the RBI Act. The distinguishing feature of the proposed standing deposit type facility is that the placement of deposits under this facility is at the discretion of banks unlike CRR which is applicable to all banks irrespective of their liquidity position. Thus, the standing deposit type facility as a tool for residual liquidity management is more efficient as it distinguishes between banks having surplus cash balances from those that are in deficit.

31. In the context of LAF, the remuneration of cash balances maintained by banks with the Reserve Bank under the standing deposit type facility becomes an important issue. Since the interest rate on standing deposit type facility is designed to provide a floor to the interest rate corridor, the remuneration of such deposits should be at a rate lower than the repo rate.

32. In this context, a related issue is remuneration of eligible cash balances maintained under required CRR for all scheduled banks. If eligible cash balances under CRR are not remunerated, it has the distortive impact of implicit "tax" on the banking system and creates a bias in favour of financial intermediaries that are not required to maintain such balances. At the same time, excessive remuneration attenuates the effectiveness of reserve requirement as a monetary instrument. It is felt that with substantial scaling down of CRR coupled with marked decline in overall interest rate structure in the economy and increasing liquidity needs of participants in the wake of higher interlinkages among different segments of the market, the degree to which CRR had been impacting banks as an implicit taxation earlier is considerably less in recent period. In fact, many banks have been using almost their entire CRR balances during the course of the day for meeting their payments need. To that extent, such cash balances are maintained more in the nature of a current account. On balance, the Group, therefore, recommends that there is a need to rationalize the interest rate on eligible cash balances under CRR. In principle, no remuneration is appropriate to make CRR most effective. When remuneration is given, it should be at the rate at which liquidity is intended to be absorbed, either through LAF operations or through the standing deposit facility. Accordingly, the Group felt that remuneration of eligible

cash balances at the Bank Rate is no longer justifiable and hence, recommends that the remuneration of CRR, if any, be delinked from the Bank Rate and placed at a rate lower than the repo rate.

33. With regard to the spread, the Group felt that it should be asymmetric in the sense that while reverse repo rate may be fixed at a higher margin (say, 150 basis points (bps)) on top of the repo rate, the deposit facility rate may be set lower (say, 100 bps) than the repo rate. Thus, the corridor would have a spread of, say, 250 basis points with the policy repo rate being placed within the corridor. The Group recommends that the overnight interest rates should fluctuate around the repo rate in the corridor.

34. With regard to the minimum tenor of the repo/reverse repo operations under LAF facility, the Group recommends that it should be changed from overnight to 7 days to be conducted on daily basis to enable balanced development of various segments of money market. In order to facilitate a smooth transition to a system of 7-day LAF repo, both the overnight and 7-day repo auctions may be conducted on daily basis for a brief period. Even when the overnight repo is phased out, the Reserve Bank should have the option of conducting overnight repo if the situation so warrants.

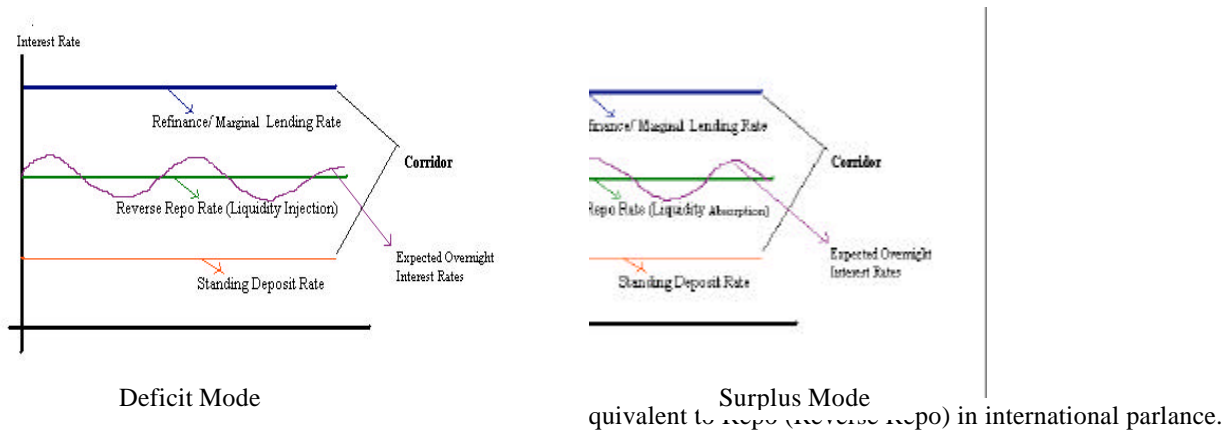
35. As regards the method of LAF auction, it needs to be appreciated that though LAF repo rate should emerge from a variable price auction, experience so far indicates that LAF has turned out to be a de facto fixed rate auction as market participants do not tend to bid at different rates. As a result, the Reserve Bank had to conduct fixed rate LAF auctions as and when the repo rate was to be changed. In the proposed framework, the Group recommends that the LAF auction could be conducted at a fixed rate auction enhancing its policy signalling rate. However, the Reserve Bank should have the flexibility to use the variable price auction format if the situation so warrants.

36. The distinction between the proposed framework and that obtaining in major developed markets is that while only one liquidity injection facility and two liquidity absorption facilities are proposed, it is the reverse for developed markets. This reflects the current liquidity condition which has been in surplus mode and hence, the need for two liquidity absorption facilities as opposed to that prevailing in major developed markets where the money market generally operates on a shortage mode. Further, the ceiling rate is given by a discretionary facility (i.e., reverse repo rate) as opposed to a standing facility rate (i.e. marginal lending rate) in operation in developed markets. Also, the proposed spread is not uniform on either side of the repo rate with lower spread on the deposit rate. The spread reflects only the prevailing liquidity conditions and may need to be changed if the situation so warrants in future. The advantage of the system is that once the spread is explicitly announced, a policy decision to change only the repo rate would induce a corresponding change in the whole corridor automatically.

37. If, however, in future the underlying situation changes from the existing surplus mode to a shortage mode on a more enduring basis, the LAF corridor would need to be redefined within the basic parameters. In such a scenario, as discussed earlier, there would be two rates at which liquidity would need to be injected and a single rate at which liquidity would be absorbed. Accordingly, the reverse repo rate would be placed within the corridor around which the overnight interest rates are expected to fluctuate. Accordingly, the reverse repo rate (i.e., repo rate by international parlance) would become the policy signalling rate. The standing deposit facility would continue to remain as the window for absorbing residual liquidity. However, the interest rate on the standing deposit facility would have to be determined at a rate lower than the reverse repo policy rate and would continue to give the lower bound to the interest rate corridor. The upper bound to the corridor would be provided by a marginal lending facility in the nature of standing refinance facility at a rate higher than the reverse repo rate. In essence, therefore, while

the shape of the corridor would not change, reverse repo rate would replace the repo rate and would become the policy signalling rate around which the overnight call money rates would be expected to fluctuate in the event the financial market turns into a shortage mode. In such a scenario, the Bank Rate should under normal circumstance be aligned to the marginal lending rate (i.e., standing refinance rate). The relative structure of the corridor under shortage mode and surplus mode and the respective policy signalling rate are illustrated in Chart 5.

Chart 5: LAF Corridor



38. Another issue is the usage of the terminology “repo/reverse repo” as being used in India now vis-à-vis those used in advanced economies. In the international parlance, while “repo” denotes injection of liquidity by the central bank against eligible collateral, “reverse repo” denotes absorption of liquidity by the central bank against eligible collateral. “The sale and repurchase transactions (reverse repo), are sales of assets by the central bank under a contract providing for their repurchase at a specified price on a given future date; they are used to absorb liquidity” (*Instruments of Monetary Management, Issues and Country Experiences*, Balino T.J.T., and Zamalloa L.M., eds., 1997, IMF). On the contrary, in the Indian context, “repo” denotes liquidity absorption by the Reserve Bank and “reverse repo” denotes liquidity injection. In order to achieve uniformity and facilitate international comparison, the Group recommends that it would be useful to follow international practice in the usage of the terms “repo” and “reverse repo”.

II.4 Minimum Quantum Under LAF

39. Given the tendency on the part of some participants to place very small amount of funds of the order of Rs.5-10 crore on RBI repo window, the Group examined the desirability of raising the current minimum amount of Rs.5 crore for both repo and reverse repo window. In this context, it may be mentioned that for the European Central Bank (ECB) also, minimum bid amount for its counterparties has been placed at €1 million for its main refinancing operations.

40. For this purpose, the Group examined the lending operations of select small banks in call/notice money market vis-a-vis their limits and their placements in RBI repo (Table 4). It was found that generally banks with smaller lending limit in call/notice market have been coming to RBI repo to relieve themselves of such limit. Increasing the minimum amount from Rs.5 crore would bar those banks to participate in LAF. The Group, therefore, recommends that the current practice of the minimum bid amount of Rs.5 crore and multiples thereof may continue.

Table 4: Select Banks’ Placement in RBI Repo vis-à-vis Lending Operations in Call/Notice Market

		(Rs.Crore)							
	Parameter	G Bank	H Bank	I Bank	J Bank	K Bank	L Bank	M Bank	N Bank
I.	Lending Limit in Call/Notice Market	51	10	99	63	55	38	29	35
II.	Average lending in Call/Notice mkt (April-Sept.2003)	30	9	39	53	15	5	19	12
III.	Average Amount in RBI Repo (Sept 2003)	27	28	22	32	37	27	22	50

II.5 Role of the Bank Rate in Future

41. In recent period, the economy remaining in surplus mode coupled with discretionary liquidity being provided at the reverse repo rate as and when required, the importance of the Bank Rate as a signalling rate seems to have reduced. Bank Rate was used to signal the stance of policy in association with other supporting instruments. The same objective is broadly achieved now through changing the repo rate which is viewed by the market as the benchmark rate signalling the stance of RBI in the financial market.

Table 5 : Changes in Bank Rate, Cash Reserve Ratio and Repo Rate under LAF

(In Per cent)					
Date	Bank Rate	Date	CRR	Date	Repo
22.7.2000	8.00	29.7.2000	8.25	10.10.2000	8.50
17.2.2001	7.50	12.8.2000	8.50	24.10.2000	8.25
2.3.2001	7.00	24.2.2001	8.25	25.10.2000	8.00
23.10.2001	6.50	10.3.2001	8.00	20.2.2001	7.50
29.10.2002	6.25	19.5.2001	7.50	2.3.2001	7.00
29.4.2003	6.00	3.11.2001	5.75	27.4.2001	6.75
		29.12.2001	5.50	28.5.2001	6.50
		1.6.2002	5.00	5.3.2002	6.00
		16.11.2002	4.75	27.6.2002	5.75
		14.6.2003	4.50	30.10.2002	5.50
				28.2.2003	5.00
				25.8.2003	4.50

42. It needs to be appreciated here that though LAF volumes reflect the daily marginal liquidity conditions in the system, in effect, the repo rate has started gaining the broader market acceptance as signal on interest rates from RBI. This is reflected in market participants bidding at a single rate though the LAF auction is a variable price auction. Consequently, the LAF repo rate could change only with a direct signal from the RBI. In such a scenario, the repo rate is acquiring the attributes of the Bank Rate. This is also corroborated from international experiences in changes in policy rates. For example, the Fed Funds rate - the policy rate of the Federal Reserve, was changed on 13 occasions between October 2000 and October 2003. Similarly, the main refinancing operations (MRO) repo rate - the policy rate of the ECB, was changed on 8 occasions during the same period. In India, the repo rate was changed on 12 occasions over the same period to achieve the desired objective. In contrast, changes in the Bank Rate were less frequent. The frequency of changes in the Bank Rate, CRR and repo rate is illustrated in Table 5. A significant message coming out of this Table is that while earlier, changes in the repo rate were preceded by the changes in the Bank Rate, in recent period, the

Bank Rate is being changed after the changes in repo rate. In view of these developments, the Group felt that the repo rate has started reflecting the medium-term stance of RBI and is partly assuming the role of the Bank Rate. In the process, the repo rate has gained wider acceptance in the market as a policy signalling rate. Accordingly, it would be desirable that the Bank Rate is aligned to the reverse repo rate and, therefore, the entire liquidity support including refinance should be made available at the reverse repo rate/Bank Rate. The Bank Rate/reverse repo rate would, therefore, provide the upper bound to the interest rate corridor. The Group, however, felt that while the Bank Rate may continue to be linked to certain specific operations of RBI such as CRR/SLR defaults and General Line of Credit (GLC) to NABARD, its policy signalling effect may decline in future. The role of the Bank Rate would thus be a liquidity injection rate from the Reserve Bank similar to the reverse repo rate. This will also reinforce the upper band of the interest rate corridor and would enhance the effectiveness of interest rate channel of monetary transmission. The Group, therefore, recommends that the Reserve Bank may continue to announce the Bank Rate independently as at present. However, the Bank Rate should under normal circumstance stay aligned to the reverse repo rate in a liquidity surplus scenario and to the marginal lending (refinancing) rate in a liquidity deficit scenario.

II.6 Timing of Operations and Future Challenges

43. The emerging financial environment would pose greater challenges to RBI in its conduct of monetary policy. This is because coupled with progressive scaling down of CRR to unbinding level, the upgradation of payment system infrastructure in the form of operationalisation of CCIL and NDS, the computerisation of PDO and DAD, the expected completion of RTGS system etc., would not only make funds transfer faster and more efficient, call money market may turn more active.

44. The developments in the financial market may call for more rigorous liquidity forecasting as well as conduct of LAF operations at an appropriate time by RBI to smoothen the behaviour of short-term interest rates. Whereas under RTGS system, intra-day liquidity (IDL) would be available to eligible market participants, the Group felt that the timing of LAF could be shifted to the middle of the day, say at 12 noon from the present timing at 10.30 a.m. In fact, PDAI and FIMMDA in the context of their responses to RTGS system issues recently, also desired that LAF be conducted around 12 noon. This would ensure that marginal liquidity is available in the system for longer time for proper adjustment in an environment of RTGS system and low CRR before coming on to RBI's repo window.

45. At the same time, the Group appreciated that there could be occasion when the system may require liquidity at late hours to take care of unforeseen contingent mismatches. Keeping this in view, the Group recommended that RBI may consider discretionary announcement of timing of both repo auctions and reverse repo auctions at late hours. However, the IDL that RBI would provide for RTGS transactions at nominal cost should not result in overnight rollovers. In exceptional cases, rollover may be permitted at a very high penal rate. This is the main reason for which RBI should not hold any regular reverse repo auction under LAF towards late hours so as to prevent participants to fund themselves under this window to extinguish their liability towards IDL availed earlier during the course of the day from RBI. As a matter of general practice, RBI should, however, keep the deposit facility open towards the end of the RTGS system operating hours to absorb any excess fund remaining in the system.

46. As regards the forecasting of liquidity for smooth operation of the LAF, daily liquidity forecast would form an important component as indicated in the annual Monetary and Credit Policy Statement for 2003-04. The Reserve Bank has already developed short-term liquidity forecasting model, the results of which are used by RBI for policy analysis and assessment from

November 2002. The Group recommended that RBI should strengthen its liquidity forecasting model so as to provide a more scientific basis to the decision making process for LAF operations. In this regard, steps may need to be taken to make available the key variables such as currency in circulation, government's cash position with RBI and banks' cash balances with RBI almost on a real-time basis. The Reserve Bank should also improve the timeliness of its dissemination of cash balances maintained by banks with it from the current lag of 3 days following the implementation of CFMS for the banking sector. In this connection, the Group recommended that RBI may disseminate the figure for required reserves to be maintained during the remaining part of the fortnight to provide more certainty to the market so long as CRR remains binding. Once the liquidity forecasting model is fine tuned, LAF auctions may be conducted on straight-through-process (STP) basis after putting in place the necessary technological infrastructure.

II.7 Operations of LAF in the context of Sterilisation

47. In order for the LAF to function as the principal monetary policy instrument for signalling the Reserve Bank's stance on interest rates, it is desirable that LAF operates to primarily manage liquidity at the margin on a day-to-day basis. However, in the recent period, the LAF repo facility has also operated as an instrument of sterilisation. While operationally it is difficult to distinguish between the sterilisation operations and liquidity management operations under LAF, conceptually there is need to distinguish surplus liquidity of "temporary" nature from surplus liquidity of a somewhat "enduring" nature. In order to enhance the effectiveness of LAF, the Group recommends that additional instruments of sterilisation may be explored so as to reduce the liquidity pressure on the LAF window. The Group proposes that as and when the RBI Act is amended, the Standing Deposit Facility could provide an additional instrument of sterilisation. In the meantime, the Group proposes that a "Standing Deposit Type Facility" could be explored within the extant provisions of the Act, without prejudice to the proposed amendment. As proposed by the *RBI Working Group on Instruments of Sterilisation*, setting up of a Market Stabilisation Fund (MSF) will be useful as an option which can be operationalised whenever considered necessary.

48. In view of the finite stock of government securities available with the Reserve Bank for sterilisation, particularly as the option of issuing central bank securities is neither permissible under the Act nor considered desirable by the *RBI Working Group on Instruments of Sterilisation*, the Group considered whether the Government could issue a special variety of bills/bonds for sterilisation purposes. Unlike in the case of central bank securities where the cost of sterilisation is indirectly borne by the fisc, given the consolidated balance sheet approach, the cost of issuance of such instruments by the Government would be directly and transparently borne by the fisc. To operationalise such a new instrument of sterilisation and ensure fiscal transparency, the Group recommends that the Government may consider setting up of a Market Stabilisation Fund (MSF) to be created in the Public Account. This Fund could issue a new instrument called Market Stabilisation Bills/Bonds (MSBs) for mopping up enduring surplus liquidity from the system over and above the amount that could be absorbed under the day to day repo operations of LAF. Issuance of such bills/bonds by the Government will obviate any confusion that may arise if RBI also issues its own securities. To impart liquidity to these bills/bonds, they may be raised through auctions and permitted to be actively traded in the secondary market. The amounts raised would be credited to the Market Stabilisation Fund (MSF). The Fund account would be maintained with and managed by the Reserve Bank. The maturity, amount and timing of issue of MSBs may be decided by the Reserve Bank in consultation with the Government depending, *inter alia*, on the expected duration and quantum of capital inflows, and the extent of sterilisation of such inflows. As the funds raised through MSBs would remain immobilized in the RBI books, it would not entail any redemption pressure

on Government at the time of maturity. As inflows raised through such bills/bonds will not enter the Consolidated Fund of the Central Government, it would not form part of the fiscal deficit. Though such bills temporarily add to the Government's "other liabilities", the cost of servicing such bills would be offset to an extent by larger surplus transfer from the Reserve Bank. (For a detailed account of the issues relating to sterilisation options, please see the Summary of the *Report of the Working Group on Instruments of Sterilisation* placed on the RBI website.)

Section III

Recommendations

49. The operations of the LAF need to be seen in the context of changes in the transmission channels of monetary policy. While LAF has emerged at the principal instrument in the monetary policy operating framework of the Reserve Bank, its operation in the present form in conjunction with other supporting instruments has given rise to certain conceptual and operational issues which need to be addressed to enhance the efficacy of monetary operations. Against this background, the Group reviewed the present LAF framework drawing upon the experiences in a cross-country perspective. The Group has examined the operations of LAF under alternate scenarios of the system being both in surplus and deficit made. The major recommendations of the Group both in respect of day to day liquidity management and in the context of sterilisation are as follows:

III.1 Proposed Modifications in LAF in the Context of day to day Liquidity Management

· In the light of substantial technological developments, the objective of conducting LAF operations on a real-time basis need to be pursued further.

· Currently, the repo rate provides the lower bound to the interest rate corridor as the eligible cash balances under CRR is remunerated at the Bank Rate which is higher than the repo rate. As the repo rate has emerged as the policy signalling rate, there is a need to have a lower rate linked to the repo rate which could provide a lower bound to the interest rate corridor. In this context, the Group explored the feasibility of instituting a standing deposit facility. However, the Reserve Bank of India Act, 1934 in its present form does not permit RBI to borrow on clean basis from banks and pay interest thereon. Therefore, institution of such a deposit facility distinct from CRR for banks would necessitate suitable amendment to the RBI Act. The Group learnt that the Reserve Bank has already made proposals to the Government to have the flexibility to change CRR even below the current statutory minimum of 3.0 per cent as also to pay interest on such balances actually maintained with it by scheduled banks. The Group noted that such amendments are required in the light of the evolving monetary policy framework.

· The Group felt that pending amendments to RBI Act, the Reserve Bank should explore possibilities of modifying the current CRR provision to accommodate a standing deposit type facility for scheduled banks within its ambit which could achieve the same objective as a standing deposit facility. The Group recommends that banks may be permitted to place deposits with the Reserve Bank at their discretion over and above the required CRR deposits. Such deposits may be treated as being placed under standing deposit type facility and be deemed as a part of CRR with a flexible interpretation of the extant provisions of the RBI Act. The distinguishing feature of the proposed standing deposit type facility is that the placement of deposits under this facility is at the discretion of banks unlike CRR which is applicable to all banks irrespective of their liquidity position. Thus, the standing deposit type facility as a tool for residual liquidity management is more efficient as it distinguishes between banks having surplus cash balances from those that are in deficit.

· In the context of LAF, the remuneration of cash balances maintained by banks with the Reserve Bank under the standing deposit type facility becomes an important issue. Since the interest rate on standing deposit type facility is designed to provide a floor to the interest rate corridor, the remuneration of such deposits should be at a rate lower than the repo rate. A related issue is remuneration of eligible cash balances maintained under required CRR for all scheduled banks. It is felt that with substantial scaling down of CRR coupled with marked decline in overall interest rate structure in the economy and increasing liquidity needs of participants in the wake of higher interlinkages among different segments of the market, the degree to which CRR had been impacting banks as an implicit taxation earlier is considerably less in recent period. On balance, the Group, therefore, recommends that there is a need to rationalize the interest rate on eligible cash balances under CRR. In principle, no remuneration is appropriate to make CRR most effective. When remuneration is given, it should be at the rate at which liquidity is intended to be absorbed, either through LAF operations or through the standing deposit facility. Accordingly, the Group felt that remuneration of eligible cash balances at the Bank Rate is no longer justifiable and hence, recommends that the remuneration of CRR, if any, be delinked from the Bank Rate and placed at a rate lower than the repo rate.

· It would be desirable that liquidity injection should take place at a single rate in order to enhance the efficiency of monetary operations. Accordingly, the entire refinance should be made available at the reverse repo rate so that the refinance window operates as a marginal lending facility, and along with the Bank Rate/reverse repo rate, it would provide the upper bound to the interest rate corridor.

· With regard to the spread, the Group felt that it should be asymmetric. The corridor would have a spread of, say, 250 basis points with the policy repo rate being placed within the corridor. The overnight interest rates should fluctuate around the repo rate in the corridor.

· The minimum tenor of the repo/reverse repo operations under LAF facility should be changed from overnight to 7 days to be conducted on daily. Even when the overnight repo is phased out, the Reserve Bank should have the option of conducting overnight repo if the situation so warrants.

· In the proposed framework, the LAF could be conducted at a fixed rate auction enhancing its policy signalling rate. However, the Reserve Bank should have the flexibility to use the variable price auction format if the situation so warrants.

· In future, if the underlying situation changes from the existing surplus mode to a shortage mode on a more enduring basis, the LAF corridor would need to be redefined within the basic parameters. In such a scenario, while the shape of the corridor would not change, reverse repo rate would replace the repo rate and would become the policy signalling rate around which the overnight call money rates would be expected to fluctuate. In that situation, the Bank Rate should under normal circumstance be aligned to the marginal lending rate (i.e., standing refinance rate).

· In order to achieve uniformity and facilitate international comparison, the Group recommends that it would be useful to follow international practice in the usage of the terms “repo” and “reverse repo”.

· The current practice of the minimum bid amount of Rs.5 crore and multiples thereof may continue.

· In recent period, the economy remaining in surplus mode coupled with discretionary liquidity being provided at the reverse repo rate as and when required, the importance of the Bank Rate as a signalling rate seems to have reduced. Accordingly, it would be desirable that the Bank Rate is aligned to the reverse repo rate and, therefore, the entire liquidity support including refinance should be made available at the reverse repo rate/Bank Rate. The Bank

Rate/reverse repo rate would, therefore, provide the upper bound to the interest rate corridor. The Bank Rate may continue to be linked to certain specific operations of RBI such as CRR/SLR defaults and General Line of Credit (GLC) to NABARD, though its policy signalling effect may decline in future. The role of the Bank Rate would thus be a liquidity injection rate from the Reserve Bank similar to the reverse repo rate. The Reserve Bank may continue to announce the Bank Rate independently as at present. However, the Bank Rate should under normal circumstance stay aligned to the reverse repo rate in a liquidity surplus scenario and to the marginal lending (refinancing) rate in a liquidity deficit scenario.

- The developments in the financial market may call for more rigorous liquidity forecasting as well as conduct of LAF operations at an appropriate time by RBI to smoothen the behaviour of short-term interest rates. Whereas under RTGS system, intra-day liquidity (IDL) would be available to eligible market participants, the timing of LAF could be shifted to the middle of the day, say at 12 noon, from the present timing at 10.30 a.m.

- RBI may consider discretionary announcement of timing of both repo auctions and reverse repo auctions at late hours. RBI should, however, keep the deposit facility open towards the end of the RTGS system operating hours to absorb any excess fund remaining in the system.

- RBI should strengthen its liquidity forecasting model so as to provide a more scientific basis to the decision making process for LAF operations. The Reserve Bank should also improve the timeliness of its dissemination of cash balances maintained by banks. Once the liquidity forecasting model is fine tuned, LAF auctions may be conducted on straight-through-process (STP) basis after putting in place the necessary technological infrastructure.

III.2 Proposed Modifications in LAF in the Context of Sterilisation

- In order for the LAF to function as the principal monetary policy instrument for signalling the Reserve Bank's stance on interest rates, it is desirable that LAF operates to primarily manage liquidity at the margin on a day-to-day basis. However, in the recent period, the LAF repo facility has also operated as an instrument of sterilisation. While operationally it is difficult to distinguish between the sterilisation operations and liquidity management operations under LAF, conceptually there is need to distinguish surplus liquidity of "temporary" nature from surplus liquidity of a somewhat "enduring" nature. In order to enhance the effectiveness of LAF, the Group recommends that additional instruments of sterilisation may be explored so as to reduce the liquidity pressure on the LAF window. The Group proposes that as and when the RBI Act is amended, the Standing Deposit Facility could provide an additional instrument of sterilisation. In the meantime, the Group proposes that a "Standing Deposit Type Facility" could be explored within the extant provisions of the Act, without prejudice to the proposed amendment. As proposed by the *RBI Working Group on Instruments of Sterilisation*, setting up of a Market Stabilisation Fund (MSF) will be useful as an option which can be operationalised whenever considered necessary.

- In view of the finite stock of government securities available with the Reserve Bank for sterilisation, particularly as the option of issuing central bank securities is neither permissible under the Act nor considered desirable by the *RBI Working Group on Instruments of Sterilisation*, the Government may consider setting up of a Market Stabilisation Fund (MSF) to be created in the Public Account. This Fund could issue a new instrument called Market Stabilisation Bills/Bonds (MSBs) for mopping up enduring surplus liquidity from the system over and above the amount that could be absorbed under the day to day repo operations of LAF. MSBs may be raised through auctions and permitted to be actively traded in the secondary market. The amounts raised would be credited to the Market Stabilisation Fund (MSF). The Fund account would be maintained with and managed by the Reserve Bank. The maturity, amount

and timing of issue of MSBs may be decided by the Reserve Bank in consultation with the Government depending, *inter alia*, on the expected duration and quantum of capital inflows, and the extent of sterilisation of such inflows.

Annex I

**Recommendations/Action Taken on Report of the Internal Group on
Operationalising the Liquidity Adjustment Facility (LAF) - March 2000**

	Recommendations	Status
(i)	<p>Summary of Recommendations</p> <p>Liquidity Adjustment Facility (LAF) in the form of overnight repos/reverse repos on auction basis for settlement on the same day may be introduced in phases. Auction may be held on variable interest rate tender basis. Uniform price system may be followed for making allotment to the successful bidders so that on any day Bank would announce only one Repo Rates/Reverse Repo rate.</p> <p>RBI may conduct "Hold-in-Custody" type of repos for absorbing liquidity. For injecting liquidity, the existing reverse repo procedure may be modified. The procedural refinements as suggested by the Group may be adopted for the purpose.</p> <p>The transfers of securities under LAF as per the procedure recommended by the Group should be invariably based on DVP.</p> <p>Switch over from the existing Interim Liquidity Adjustment Facility (LAF) to LAF in three phases.</p> <p>In Stage I, the Additional CLF and Level II could be replaced by a variable interest rate reverse repos auction for next day settlement simultaneously the fixed rate repos could be replaced by the variable interest rate repos auction again for next day settlement.</p> <p>In Stage II, CLF and liquidity support to PDs may be through variable rate repos/reverse repos auctions for settlement on the same day. The cut-off time may be such that any post auction adjustment required may be effective in the market. This stage would require installation of an electronic bidding and processing system as also transfer of securities through constituent SGL accounts. Stage II could be introduced with effect from April 1, 2000. If absolutely felt necessary export refinance may be continued in parallel.</p> <p>In Stage III, RBI can consider Real Time Operations. It is expected that PDO computerisation and RTGS would be ready by them and it should become simple to operate a collateralised LAF even on real time basis. The system</p>	<p>LAF introduced w.e.f. June 5,2000 with uniform price system</p> <p>Repo/reverse repo conducted under LAF are 'Hold-in-Custody' type.</p> <p>Being followed.</p> <p>Implemented</p> <p>A part (1/3rd) of ECR, CLF and liquidity support is being made available at variable daily rate linked to LAF cut-off rates.</p> <p>Proposed to be implemented with PDO computerisation and</p>

	<p>envisaged would include electronic receipt of bids, automation of bid processing, instantaneous result announcements after auctions and electronic link with the securities settlement system on real time basis.</p> <p>Minimum assured liquidity support to PDs may be continued without any assurance on the rate at which the same is available.</p>	<p>operationalisation of RTGS system.</p> <p>Back-stop facility introduced.</p>
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Recommendations/Action Taken on the Report of the Internal Group on Review of the Liquidity Adjustment Facility (LAF) – March 2001

	Recommendations	Status
	<p data-bbox="272 421 894 488">Discriminatory Price Based Auction for Reverse Repos</p> <p data-bbox="272 546 919 909">The existing system of uniform price based overnight reverse repos auctions (except Saturdays and Holidays) could be replaced with discriminatory price based overnight reverse repos auctions with a view to making the market more sensitive to trades while bidding. In fact, the varying rates offered on reverse repo are expected to encourage the market participants to go in for aggressive bidding to reduce their costs rather than going by the bandwagon effect.</p> <p data-bbox="272 969 797 1003">Fixed Rate Repo Auctions as Alternative</p> <p data-bbox="272 1061 919 1458">With a view to providing interest rate signals, RBI could also have the option to switch over to fixed rate volume tender repos on overnight basis as and when felt necessary. For the purpose of such repos the rates of interest tended to be offered could be announced in advance, a day before. These modifications are expected to bring about further flexibility to liquidity management on the one hand and at the same time facilitate providing signals on interest rates to the market, on the other.</p> <p data-bbox="272 1518 500 1552">Backstop Facility</p> <p data-bbox="272 1610 919 2033">A backstop facility could be made available to the banks and Primary Dealers. This facility will be available on the basis of bank-wise and PD-wise limits. The norms fixed for working out the limits will be same as those used for arriving at liquidity support under CLF and Level I. The rate fixed could be 1% over the reverse repo rate at which funds were injected earlier during the day and where no reverse repos bid was accepted at 3% over repos rate of the day. In case no bids were accepted earlier during the day at either repo or reverse repo auctions, the rate could be fixed</p>	<p data-bbox="943 421 1425 488">Implemented (Multiple price auction) with effect from May 8, 2001.</p> <p data-bbox="943 1061 1430 1205">The option has not been frequently used; however the fixed rate repo option is exercised at the time of change in repo rate.</p> <p data-bbox="943 1610 1430 1928">Back stop facility to banks and PDs is 1/2 of their entitlement and the rate is the same as the reverse repo rate on that day; when there is no rep/reverse repo auction, then the rate is fixed by RBI on an ad hoc basis keeping in view the relevant factors like previous days repo rate, NSE-MIBOR rate, liquidity condition etc.</p>

<p>at 3% over NSE MIBOR as available at 2.30 p.m. This facility would enable Primary Dealers and banks to prepare themselves for a smooth transition from the existing system of assured liquidity support at BR to an environment where support is available only through LAF. PDs and banks would have to approach DAD each time for this facility. Rate will be communicated to DAD.</p> <p>Auction Timing to be Advanced</p> <p>The LAF auction timing could be advanced by 30 minutes to 10.30 a.m. for receipt of bids under the normal auctions and results will be announced by 12 noon. The bids for the additional reverse repo auction on reporting Fridays could be received by 12.15 p.m. and the results announced by 1 p.m. The backstop facility could be operated by Primary Dealers, till close of banking hours.</p> <p>Long Term Repos Not Desirable</p> <p>Since liquidity being mainly in the hands of a few entities by virtue of their large size and operational dimensions, it may not be desirable to facilitate them to lock in funds for longer duration through long term repos. Since RBI is aiming at a corridor, its releasing the funds to the market through overnight reverse repo may also not help much as the central bank in a sense would then only be recycling the funds thus mopped up.</p>	<p>Timing advanced from 11.00 A.M. to 10.30 A.M. and results are being announced at 12 o'clock.</p> <p>14 days repo i.e. on first Monday of the reporting fortnight, has since been introduced w.e.f. November 5, 2001. The rate has generally been same as the repo rate. The amounts to be accepted are decided keeping in view, inter alia., the liquidity condition that would prevail in the next 10-12 days.</p> <p>For a brief period, repo for 28 days was also conducted during October 20-24, 2003.</p>
<p>Minimum Bid Amount to be Rs. 5 Crore</p> <p>The minimum bid size for LAF could be reduced from the existing Rs.10 crore to Rs.5 crore to add further operational flexibility to the Scheme.</p> <p>Dissemination of Information</p> <p>The market could be provided with information on the scheduled commercial banks' balance cumulatively during the fortnight. Also the weighted average cut off yield in case of multiple price auction could be communicated to the market along with results.</p>	<p>Implemented with effect from May 8, 2001.</p> <p>Implemented .</p> <p>Efforts are being made to reduce the time lag in respect of dissemination of cash balances of banks' cash balances with RBI.</p>

		Auction results along with weighted average cut-off yield are being provided simultaneously.
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Annex II

International Experiences

The monetary policy operating procedures of select industrial economies viz., the European Central Bank, Bank of England and the Federal Reserve System, and select emerging market economies viz., Mexico, Thailand, China and Korea are reviewed below.

A. Industrial Economies

European Central Bank

The liquidity management policy of the ECB is governed by a monetary policy strategy and an operational framework. Monetary policy strategy is a coherent and structured description of all relevant information to provide a foundation for monetary policy decisions consistent with the ECB's final objective of price stability. The operational framework is a set of instruments and procedures with which ECB strives to maintain short-term interest rates in conformity with the monetary policy strategy.

Operational Framework

In order to achieve the objectives of the monetary policy strategy, the ECB conducts its monetary policy through three types of instruments, viz., open market operations (OMOs), standing facilities and minimum reserve requirement.

Open Market Operations (OMOs)

OMOs are conducted not only to maintain short-term interest rates within a well defined corridor and to manage liquidity on daily basis but also to provide signal of the stance of monetary policy to the market. OMOs can be classified into four categories viz., main refinancing operations, longer term refinancing operations, fine-tuning operations and structural operations.

First, the main refinancing operations (MROs) which are liquidity injecting (i.e., reverse repo) in nature are held every week in multiple price auctions format with a maturity of two weeks. MROs constitute the core of the OMOs by which ECB not only provides bulk of the refinancing to the financial sector, the minimum bid rate accepted also reflect the stance of the monetary policy and serves as the benchmark for deciding the rates on standing facilities which in turn provide corridor to overnight interest rates. Though the MROs are conducted on weekly basis, the 12 national central banks (NCBs) are required to provide their daily forecast of liquidity for individual autonomous factors, viz., currency in circulation, government deposits and other autonomous factors (net) to the ECB by 9.30 a.m. which are consolidated by the latter for the whole of the Eurosystem. Subsequently, forecast errors are worked out on a daily basis by the ECB. It has been estimated that government deposits cause the largest amount of forecast error. In order to alleviate the impact of uncertainty arising from fluctuations in autonomous factors in the overall liquidity situation in the Eurosystem, the ECB publishes, each time an MRO is announced, a forecast of autonomous factors upto the day preceding the settlement of the subsequent MRO. In fact, except for the forecast of excess reserves, all other relevant information is provided to the market by the ECB-the most important being the estimate for reserve requirements published a few days after the start of the monthly maintenance period. The assessment of liquidity condition for the entire banking system constitutes the key element for estimating the benchmark allotment rate of each MRO, i.e., minimum bid rate. Since this rate also reflects the monetary policy stance of the ECB, its proper estimation is very crucial for the ECB. This rate is set by the Governing Council.

The longer term refinancing operations are conducted on a monthly frequency with a maturity of three months. These operations represent only a limited part of the aggregate refinancing volume of the ECB. The ECB does not send signals to the market through these operations and normally acts as a rate taker. Further, fine-tuning operations which are mainly in the nature of liquidity injecting operations are aimed at smoothing out interest rate fluctuations that may arise out of unexpected liquidity needs in the economy e.g., millenium changeover, 9/11 events etc. Accordingly, their frequency of operations and maturity period are not standardised. In addition, structural operations are carried out through issuance of debt certificates, reverse transactions and outright transactions. These are aimed at adjusting the structural position of the Eurosystem vis-à-vis the financial sector. Their frequency can be regular or irregular.

Standing Facilities

The standing facilities facilitate injection and absorption of overnight liquidity at the initiative of market participants. The rates on standing facilities impart a corridor within which overnight rates are allowed to fluctuate. Standing facilities are of two types - marginal lending facility and deposit facility. Under normal circumstances, ECB provides unlimited credit under marginal lending facility, the interest rate of which provides a ceiling to the overnight market interest rates. Such interest rate is set at 100 basis points (bps) over the minimum bid rate accepted under main refinancing operations (MROs). Such a rate forces participants to fund their positions from overnight market and/or from MROs of ECB in the first place and turn to the marginal lending facility only as matter of last resort. These are granted either in the form of overnight repurchase agreements or as overnight collateralised loan. The deposit facility on the other hand enables participants to deposit unlimited amount to their accounts in respective national central banks. The interest rate on this facility which is set at 100 bps lower than the minimum bid rate accepted under MROs normally provides a floor to overnight market interest rates. No collateral is given to counterparty in exchange for these deposits. It is worthwhile to note that though unlimited standing facilities are extended by the ECB, its utilisation remains very limited.

Bank of England

The primary aim of the Bank of England's operations in sterling money market is to implement the Monetary Policy Committee's interest rate decisions while meeting the liquidity needs and so contributing to the stability of the banking system as a whole. In its money market operations, the Bank of England satisfies the marginal liquidity demand of the banking system as a whole through open market operations conducted transparently in high quality market instruments.

Settlement banks are obliged to maintain a minimum balance of zero on their Bank of England settlement accounts at the end of each day (i.e. there is, in effect, a one-day maintenance requirement in the United Kingdom, and unlike some other countries' systems, no positive reserve requirement and no reserve averaging over a maintenance period are required). In its money market operations, the Bank of England provides the liquidity needed by the banking system for same-day settlement and enables the settlement banks to achieve positive end-of-day balances on these accounts. In this way, it acts as the marginal supplier of money to the banking system enabling effective system-wide liquidity management under normal market conditions.

The short-term nature of the refinancing provided by the Bank of England ensures that the banking system almost always has a net shortage of funds each day. This refinancing is largely, although not entirely, conducted via repo transactions which usually have a maturity of

two weeks (ten working days) by which the Bank of England provides liquidity to market participants. It seeks to provide the system's daily liquidity requirement at its principal rounds of operations at 9.45 a.m. and 2.30 p.m. at the official repo rate set by the Monetary Policy Committee (MPC). If it is required that liquidity may need to be provided later in the day, further rounds of operations conducted at 3.30 p.m. and 4.20 p.m. are designed to square-off any remaining imbalance in the banking system in an orderly manner, usually at a penal rate of interest.

While conducting these operations, the Bank of England closely monitors various flows across its balance sheet in order to know how much liquidity to supply to market participants each day. To facilitate this process, the Bank of England publishes a forecast of the daily system liquidity shortage (the expected amount of refinancing likely to be required) on its wire service pages each day.

If, as is normally the case, the market is forecast to be short of liquidity and if the forecast shortage exceeds a minimum threshold, the Bank of England invites its counterparties to submit offers for repos and/or outright sales of bills. The Bank of England also states the interest rate at which it is prepared to operate (the repo rate) and the maturity dates for the repos. Counterparties willing to participate in the round have five minutes to bid for the funds that they wish to obtain through repo and/or outright sales of bills. No single counterparty is permitted to bid for more than the total amount of the forecast shortage. The Bank of England normally announces the results within 15 minutes of the start of the round, publishing the total amounts allotted via repos and through outright purchase.

At the 9.45 a.m. round, the Bank of England normally does not relieve all of the forecast shortage (even if this amount is fully bid for) since it may need to revise slightly its forecast during the course of the day in the light of updated information. A similar process is repeated at the next round of operations at 2.30 p.m. The Bank of England publishes an update of the day's forecast shortage as well as the residual shortage after allowing for liquidity supplied at the 9.45 a.m. round. If there is still a residual shortage, a further round of bids is invited. By the completion of the 2.30 p.m. round, the Bank of England aims to have supplied the market with enough liquidity to enable all of the settlement banks to maintain positive balances on their operational accounts at the end of the day. In practice, however, further operations later in the day at 3.30 p.m. and 4.20 p.m. are sometimes required to achieve this because market participants do not always bid for enough funds at 2.30 p.m. to relieve the residual shortage, or there may be a late revision to the liquidity forecast.

The techniques described above are employed when the banking system is forecast to be short of liquidity but very occasionally, a surplus of liquidity is forecast. If the forecast surplus exceeds a minimum threshold, tenders are held at both 9.45 a.m. and 2.30 p.m. or a single tender is held at 2.30 p.m. The Bank of England makes an overnight lending facility available at 3.30 p.m. if there is still a residual market shortage. The rate applied to these overnight repos is set normally at 100 basis points above the official repo rate. This margin is intended to encourage the market to participate fully in the principal rounds of two-week operations at 9.45 a.m. and 2.30 p.m. At 3.30 p.m., the Bank of England makes available a daily overnight deposit facility. This provides counterparties the opportunities to place collateralised overnight deposits with the Bank of England. It helps to moderate undue softness in overnight market interest rates at the end of the day. To ensure that this facility does not discourage active trading among market participants, interest rate paid on overnight deposits is set normally at 100 basis points below the official repo rate. However, on days when there is a remaining shortage but there has been no late change to the forecast (and, therefore, the settlement banks should reasonably have been able

to draw the necessary funds from the Bank of England earlier in the day) funds are provided at a higher rate, normally 150 basis points above the official repo rate.

Federal Reserve System (USA)

In January 2003, the Federal Reserve replaced two of its discount window programmes – adjustment credit and extended credit – with new primary credit and secondary credit programmes.

Primary Credit Programme

Under the new primary credit programme, Reserve Banks may extend short-term credit to eligible depository institutions at a rate of 100 basis points above the Federal Open Market Committee's target for the Federal Funds rate. This spread may change in the light of experience with the new programme. The Board noted that an appreciable spread between the primary credit and target Federal Funds rate is necessary to prevent its inappropriate use at the expense of open market and also to do away with the need for administration of this window. An important goal of the primary credit programme is to reduce institutions' reluctance to use the window as a source of back-up, short-term liquidity. The primary credit programme acts as the Federal Reserve's principal safety valve for ensuring adequate liquidity in the banking system. Generally, primary credit is extended on a very short-term basis, usually overnight. In some cases, primary credit may be extended for up to a few weeks to small institutions that meet eligibility requirements. In general, there are no restrictions on the use of primary credit. The primary credit programme does not require institutions to seek alternative sources of funds before requesting occasional short-term advances. Except in unusual circumstances, Reserve Banks will not question depository institutions about their reason for borrowing primary credit. The institution must have the necessary collateral arrangements in order to utilize the primary credit programme. An institution's supervisory examination rating and capital status largely determine its eligibility for primary credit. Given the confidential nature of CAMELS and Strength of Support Assessment (SOSA) ratings, regulators do not permit depository institutions to disclose publicly their primary credit eligibility.

Secondary Credit Programme

Federal Reserve Banks may extend secondary credit to depository institutions that do not qualify for primary credit in order to assist in an institution's timely return to a reliance on traditional funding sources or in the resolution of its financial difficulties. This programme entails a higher level of Reserve Bank administration and oversight than primary credit. The secondary credit rate is set at 50 bps above the primary credit rate. This spread is necessary as less sound borrowers are riskier and might have an incentive to use discount window borrowings to expand their balance sheets in a manner that might distort resource allocation, and the higher rate on secondary credit is designed to reduce this incentive.

B. Emerging Market Economies

Mexico

The Banco de México is constitutionally mandated to ensure the stability of the national currency's purchasing power. The central bank targets an inflation rate, presently 3 per cent CPI inflation. Monetary policy decisions are announced on predetermined dates, accompanied by press releases explaining the reasons that motivate any changes to the monetary policy stance. While the Bank recognises that inflation is essentially determined by monetary expansion in the medium-term, the day-to-day monetary management essentially focuses on adjusting market liquidity to impact monetary conditions, consistent with the market outcome.

The Bank of Mexico follows a variant of the multiple indicator approach, monitoring a wide range of economic indicators are monitored as a fundamental part of the inflation targeting framework. Although it no longer targets base money, monthly forecasts of the monetary base are published monetary policy evaluation. The demand for the monetary base typically depends on a number of variables, such as economic activity, interest rates, the lags of the dependent variable, variables explaining the presence of remonetisation in a scenario of declining inflation, and a set of dummy variables that try to capture all seasonal effects.

The Bank of Mexico uses, as its primary operational target, the average level of the banks' settlement balances with itself – the so-called Zero-Average Reserve Requirement System - and leaves the market free to determine the equilibrium interest rates. In order to signal its monetary policy intentions, it announces, on a daily basis, the level of the accumulated balance of total daily balances held by commercial banks with it for the end of the computation period.

The Bank of Mexico participates in the money market every business day as of noon. The Bank has previous information on all operations affecting the balances of commercial banks' current accounts, except for cash deposits or withdrawals made by credit institutions. This is so because the central bank credits (or debits) banks' current accounts on the same day when, without prior notice, banks deposit the bills taken from the public in (or withdraw cash from) the Bank. Therefore, every day the Bank has to forecast changes in the demand for bills and coins in order to offset such changes by means of its intervention in the money market. In order to manage liquidity, the central bank intervenes in the money markets, offering credit, deposits or repurchase agreements, or carrying out direct purchases and sales of government securities through auctions.

The Bank's monetary policy signals are interpreted in terms of the accumulated balance projections rather than the actuals. For example, a zero accumulated balances objective indicates the Bank's intentions to fully satisfy the demand for currency at market interest rates, and therefore to supply the necessary resources for the entire banking sector so that the latter does not incur in overdrafts or accumulated unwanted positive balances at the end of the period. A negative accumulated balances objective, *i.e.*, a "short", reflects the policy intention not to supply the banking sector with all the funds requested at market interest rates. This action forces some credit institutions to obtain part of the funds required through an overdraft in their current accounts.

Disregarding the possible effects of other variables, such action leads to a rise in interest rates, as financial institutions attempt to avoid paying the high rate charged on overdrafts in their current accounts at the end of the period by obtaining the needed funds from the money market. This situation signals the market that the Bank has adopted a restrictive monetary policy. The Bank does not withdraw money from circulation when it adopts a negative accumulated balances objective as it always seeks to provide sufficient credit to satisfy the demand for bills and coins.

Thailand

Thailand switched its monetary policy framework from monetary targeting approach to inflation targeting (IT) approach with a target set for the core inflation, on a quarterly basis. Under the IT framework, the Bank of Thailand (BOT) implements its monetary policy by setting the 14-day repurchase rate as the key policy rate. BOT signals a shift in its monetary policy stance by an announcement of a change in the fortnightly repurchase rate. The BOT undertakes its financial market transactions for the purpose of the conduct of monetary policy through two instruments, *viz.*, (a) daily repurchase market operations, and (b) foreign exchange swaps.

Therefore, while the fortnightly repurchase rate acts as an interest rate signal, the daily repurchase rates are market determined. Thailand migrated from a pegged exchange rate regime to a managed floating exchange rate regime in 1997 which has provided the BOT a greater leeway for pursuing an independent domestic monetary policy. As there is no longer a need to defend specific exchange rate levels, direct foreign exchange intervention is thus limited. Whether and to what extent the monetary impact of such operations need to be sterilised depends on the assessment of overall liquidity and interest rate changes arising, *inter alia*, from Treasury account flows, banking system's reserve position and maturing obligations of BOT. BOT acts as a banker to the Government. A system of primary dealers and selected financial institutions play a key role in the auction and distribution of government securities thereby providing the BOT another channel of liquidity control.

Monetary conditions in Thailand during 2002 were influenced by continued increase in net foreign assets of the public sector due to foreign exchange acquisition by the authority, a lower cash deficit of the Government and a reduction in BOT borrowing through the repurchase market during the fourth quarter to facilitate liquidity adjustment following settlement of government saving bonds. As the BOT followed a floating exchange rate regime, the capital inflows into the Thai stock market, apart from other external factors, led to an appreciation of the Thai baht by 3.3 per cent in 2002. The appreciation of the Thai currency was persistent only in the first half of 2002, with the external factors driving the value down to some extent in September-October 2002 before stability was restored in the last two months of the year. The conduct of the monetary policy operations enabled the expansion of reserve money of Thailand in tune with the economic recovery. However, the money supply measures, M2A and M3 showed a lower expansion than the base money consistent with the low inflation environment.

The year 2002 commenced with the prevalence of easy liquidity conditions in the Thai financial system and, thus, quite appropriately the fortnightly repurchase rate was reduced by 25 basis points to 2 per cent in January 2002. This set the tone and pushed the overnight interbank rate down from 1.89 per cent in 2002 Q1 to 1.72 per cent in 2002Q2. The average one-day repurchase rate, which was below the overnight interbank rate, also decreased from 1.74 per cent to 1.62 per cent during the same period. The money market rates dipped in the third quarter of 2002 but the fortnightly repurchase rate was maintained at 2 per cent as the softening of the short-term rates were on account of commercial banks making preparations since August 2002 in anticipation of settlement of government saving bonds in early September 2002. Expectedly after the temporary event-driven dip, the money market rates resumed their previous trend. However, as Federal Funds rate was reduced in the US and domestic perception of an easy monetary policy took ground, the fortnightly repurchase rate was reduced by 25 basis points to 1.75 per cent in November 2002 so as to signal softer interest rate conditions and facilitate recovery. As the policy rate was lowered, the overnight interbank rate and one-day repurchase rate automatically adjusted downwards to average at 1.67 per cent and 1.61 per cent, respectively, in the fourth quarter of 2002. Currently, the fortnightly repo rate, at a further reduced rate of 1.25 per cent, is deemed to be low and a signal for an accommodative monetary policy stance. An important feature emerging from the BOT's conduct of liquidity management operations is that the BOT sets the 14-day repurchase rate and not the one-day repurchase rate; in fact, the latter along with the other money market rates automatically adjust synchronously with the policy rate. Furthermore, the overnight interbank rate remained above the one-day repurchase rate.

China

Although the Chinese economy has performed well, the main problem facing it has been an excessive expansion of its broad money at a year-on-year growth of 18.8 per cent in August

2003, outgrowing the sum of GDP and CPI increase by 12.8 percentage points in the first half of 2003. Liquidity prevailing in the Chinese financial system is reflective of an increase of foreign reserves. This has led to undue surge in credit growth of banks and financial institutions to a year-on-year growth of 23.9 per cent in August 2003, the highest since August 1996. The People's Bank of China (PBC)'s basic strategy in tackling the problem of excess liquidity has been by conducting "sterilisation operations" through the issuance of central bank bills, which are the short-term bonds issued by the PBC. Currently, financial institutions hold over RMB2 trillion yuan worth of government bonds and financial bonds and over RMB400 trillion yuan worth of central bank bills. Although the issuance of central bank bills has been the main instrument in managing short-term liquidity generated through foreign exchange inflows, the PBC recognises the 'sterilisation limit' of this instrument and therefore necessarily co-ordinates the issuance operation of central bank bills through an upward adjustment in the reserve requirements ratio. The reserve requirements came into existence in China in 1984 and has been adjusted on six occasions including a slashing down of the ratio by 5 percentage points in March 1998 and further by 2 percentage points to 6 per cent in September 1999. Recognising the sterilisation limit of the central bank bills in the context of ever increasing foreign exchange inflows, the PBC raised the reserve ratio by one percentage point to 7 per cent on September 21, 2003. Besides, these two instruments, the third instrument used by the PBC is the discount window. In the context of raising the reserve ratio, with a view to ensure that the rational credit requirements do not suffer, the PBC would expand its refinancing and rediscount to maintain a steady credit growth.

The PBC views that the increase in reserve ratio will not impact stability in the money market rates as the latter are set according to the demand and supply conditions and expectations of the money market participants. Furthermore, the assurance of the PBC to implement a sound and consistent monetary policy together with flexible conduct open market operations according to the conditions of liquidity to adjust the frequency of issuance of central bank bills would facilitate formation of stable expectations thereby fostering stable money market rates.

Korea

Under the revised Bank of Korea Act, effective April 1998, a paradigm shift in the monetary policy occurred when inflation targeting was introduced. The operating target shifted to an overnight call money interest rate from the hitherto framework based on bank reserves with broad money targeting. In the current scenario, broad money is now more of a monitoring variable and not an intermediate target. Moreover, OMOs have come to take the most important place in the monetary policy toolkit.

The shift of operating target from bank reserves to the overnight call rate was not undertaken at a specific point of time; rather, it evolved as a part of policy response in the aftermath of the 1997 financial crisis, when interest rates were hiked for the defence of the exchange rate. From early 1999, the call rate consolidated its position as the operating target as more stress began to be placed on the specific figure of the overnight call rate in the periodic "Monetary Policy Direction" statements.

Even as it transits to a purely market-based liquidity management framework, the Bank of Korea (BoK) continues to provide sector-specific refinance. To facilitate the signalling of its policy intentions as well as to stabilise the short-term interest rates, the BoK introduced Liquidity Adjustment Loan System in June 2000 with interest rate somewhat below the target overnight call rate.

The BoK has been lowering cash reserve requirements (CRR) in line with shift to indirect instruments. Current reserve requirements average 3.0 per cent (varying in the range of 1-5 per cent, depending on type of deposits); the Monetary Policy Committee is, however, empowered to raise CRR up to 50 per cent as well as impose marginal CRR of between 50% and 100%. Moreover, the BoK does not remunerate CRR balances (it used to do so till 1987), mainly on the ground that (since the CRR balances can be used as settlement funds by banks free of charge), the cost to banks of maintaining CRR can be viewed as payment for this service by the BoK.

Table : Central Bank Lending Facilities in Korea

Facility	Function	Ceiling	Rates	Maturity
Aggregate Credit Ceiling Loans	Inducing banks to expand loans to SMEs	9.6 trillion won	Below target call rates	One month
Liquidity Adjustment Loans	<ul style="list-style-type: none"> • Signalling of policy direction by flexibly adjusting lending rates in accordance with monetary policy direction • Stabilisation of the financial market by promptly providing financial support in cases where banks face temporary shortages of liquidity apply for borrowings 	3 trillion won	Below target call rates (but higher than that on Aggregate Credit Ceiling loans) #	No more than one month
Loans To Meet Temporary Shortages Of Funds	Supporting banks in meeting shortages of funds for payment and settlement or reserve requirements	Within the range of fund shortages	Target call rate + 200 bp	One business day
Intra-Day Overdrafts	Supporting banks having temporary shortage of funds for payment and settlement in the course of the day	200% of average reserve deposits balance with BoK	Interest free	Close of the business day @
Special Loans	Lender of last resort	Determined in each case		
#: An additional rate of 100 bp is levied on banks that borrow for 3 consecutive months. @: If a bank fails to redeem the borrowings by the close of the day, the BoK converts it into loans to meet temporary shortages of funds at a penalty rate.				

The BoK forecasts the supply of reserves vis-à-vis demand for reserves and undertakes OMOs accordingly. The OMOs are mainly in the nature of repos rather than outright sales/purchases. Since the volume of government and public bonds had been insufficient to permit OMOs, the BoK has been issuing its own bonds – Monetary Stabilisation Bonds (MSBs) – for more than four decades (since 1961). MSBs comprise a host of maturities (11 in all) starting from 14 days and going up to two years; the two years MSBs, however, dominate the total issuance, with a share of almost three-fourth in total. Outright sales have found little use since they have the same effect as the issuance of MSBs; outright purchases, on the other hand,

have been hampered by complex procedures relating to transfer of ownership. The ceiling on the MSBs has been progressively increased over time and, at present, these can be issued up to 50 per cent of M2. As regards repos, although the longest repurchase maturity stands at 91 days, the maturities, in practice, are mainly within 15 days (which is the period for CRR maintenance). Most OMOs are carried out through a process of competitive bidding while MSBs are also sold over the counter at a set price. The BoK sets its reserve price (a reserve interest rate) when it invites competitive tenders. When it sells repos or issues MSBs, the reserve price becomes the floor (ceiling in case of interest rates) and *vice versa* for repo purchases.