

Asset - Liability Management System in banks - Guidelines

Over the last few years the Indian financial markets have witnessed wide ranging changes at fast pace. Intense competition for business involving both the assets and liabilities, together with increasing volatility in the domestic interest rates as well as foreign exchange rates, has brought pressure on the management of banks to maintain a good balance among spreads, profitability and long-term viability. These pressures call for structured and comprehensive measures and not just ad hoc action. The Management of banks has to base their business decisions on a dynamic and integrated risk management system and process, driven by corporate strategy. Banks are exposed to several major risks in the course of their business - credit risk, interest rate risk, foreign exchange risk, equity / commodity price risk, liquidity risk and operational risks.

2. This note lays down broad guidelines in respect of interest rate and liquidity risks management systems in banks which form part of the Asset-Liability Management (ALM) function. The initial focus of the ALM function would be to enforce the risk management discipline viz. managing business after assessing the risks involved. The objective of good risk management programmes should be that these programmes will evolve into a strategic tool for bank management.

3. The ALM process rests on three pillars:

- ALM information systems
 - => Management Information System
 - => Information availability, accuracy, adequacy and expediency
- ALM organisation
 - => Structure and responsibilities
 - => Level of top management involvement
- ALM process
 - => Risk parameters
 - => Risk identification
 - => Risk measurement
 - => Risk management
 - => Risk policies and tolerance levels.

4. ALM information systems

Information is the key to the ALM process. Considering the large network of branches and the lack of an adequate system to collect information required for ALM which analyses information on the basis of residual maturity and behavioural pattern it will take time for banks in the present state to get the requisite information. The problem of ALM needs to be addressed by following an ABC approach i.e. analysing the behaviour of asset and liability products in the top branches accounting for significant business and then making rational assumptions about the way in which assets and liabilities would behave in other branches. In respect of foreign exchange, investment portfolio and money market operations, in view of the centralised nature of the functions, it would

be much easier to collect reliable information. The data and assumptions can then be refined over time as the bank management gain experience of conducting business within an ALM framework. The spread of computerisation will also help banks in accessing data.

5. ALM organisation

5.1 a) The Board should have overall responsibility for management of risks and should decide the risk management policy of the bank and set limits for liquidity, interest rate, foreign exchange and equity price risks.

b) The Asset - Liability Committee (ALCO) consisting of the bank's senior management including CEO should be responsible for ensuring adherence to the limits set by the Board as well as for deciding the business strategy of the bank (on the assets and liabilities sides) in line with the bank's budget and decided risk management objectives.

c) The ALM desk consisting of operating staff should be responsible for analysing, monitoring and reporting the risk profiles to the ALCO. The staff should also prepare forecasts (simulations) showing the effects of various possible changes in market conditions related to the balance sheet and recommend the action needed to adhere to bank's internal limits.

5.2 The ALCO is a decision making unit responsible for balance sheet planning from risk - return perspective including the strategic management of interest rate and liquidity risks. Each bank will have to decide on the role of its ALCO, its responsibility as also the decisions to be taken by it. The business and risk management strategy of the bank should ensure that the bank operates within the limits / parameters set by the Board. The business issues that an ALCO would consider, inter alia, will include product pricing for both deposits and advances, desired maturity profile of the incremental assets and liabilities, etc. In addition to monitoring the risk levels of the bank, the ALCO should review the results of and progress in implementation of the decisions made in the previous meetings. The ALCO would also articulate the current interest rate view of the bank and base its decisions for future business strategy on this view. In respect of the funding policy, for instance, its responsibility would be to decide on source and mix of liabilities or sale of assets. Towards this end, it will have to develop a view on future direction of interest rate movements and decide on a funding mix between fixed vs floating rate funds, wholesale vs retail deposits, money market vs capital market funding, domestic vs foreign currency funding, etc. Individual banks will have to decide the frequency for holding their ALCO meetings.

5.3 Composition of ALCO

The size (number of members) of ALCO would depend on the size of each institution, business mix and organisational complexity. To ensure commitment of the Top Management, the CEO/CMD or ED should head the Committee. The Chiefs of Investment, Credit, Funds Management / Treasury (forex and domestic), International Banking and Economic Research can be members of the Committee. In addition the Head of the Information Technology Division should also be an invitee for building up of MIS and related computerisation. Some banks may even have sub-committees.

5.4 Committee of Directors

Banks should also constitute a professional Managerial and Supervisory Committee consisting of three to four directors which will oversee the implementation of the system and review its functioning periodically.

5.5 ALM process:

The scope of ALM function can be described as follows:

- Liquidity risk management
- Management of market risks
(including Interest Rate Risk)
- Funding and capital planning
- Profit planning and growth projection
- Trading risk management

The guidelines given in this note mainly address Liquidity and Interest Rate risks.

6. Liquidity Risk Management

6.1 Measuring and managing liquidity needs are vital activities of commercial banks. By assuring a bank's ability to meet its liabilities as they become due, liquidity management can reduce the probability of an adverse situation developing. The importance of liquidity transcends individual institutions, as liquidity shortfall in one institution can have repercussions on the entire system. Bank management should measure not only the liquidity positions of banks on an ongoing basis but also examine how liquidity requirements are likely to evolve under crisis scenarios. Experience shows that assets commonly considered as liquid like Government securities and other money market instruments could also become illiquid when the market and players are unidirectional. Therefore liquidity has to be tracked through maturity or cash flow mismatches. For measuring and managing net funding requirements, the use of a maturity ladder and calculation of cumulative surplus or deficit of funds at selected maturity dates is adopted as a standard tool. The format of the Statement of Structural Liquidity is given in Annexure I.

6.2 The Maturity Profile as given in Appendix I could be used for measuring the future cash flows of banks in different time buckets. The time buckets given the Statutory Reserve cycle of 14 days may be distributed as under:

- i) 1 to 14 days
- ii) 15 to 28 days
- iii) 29 days and upto 3 months
- iv) Over 3 months and upto 6 months
- v) Over 6 months and upto 12 months
- vi) Over 1 year and upto 2 years
- vii) Over 2 years and upto 5 years
- viii) Over 5 years

6.3 Within each time bucket there could be mismatches depending on cash inflows and outflows. While the mismatches upto one year would be relevant since these provide early warning signals of impending liquidity problems, the main focus should be on the short-term mismatches viz., 1-14 days and 15-28 days. Banks, however, are expected to monitor their cumulative mismatches (running total) across all time buckets by establishing internal prudential limits with the approval of the Board / Management Committee. The mismatch during 1-14 days and 15-28 days should not in any case exceed 20% of the cash outflows in each time bucket. If a bank in view of its asset -liability profile needs higher tolerance level, it could operate with higher limit sanctioned by its Board / Management Committee giving reasons on the need for such higher limit. A copy of the note approved by Board / Management Committee may be forwarded to the Department of Banking Supervision, RBI. The discretion to allow a higher tolerance level is intended for a temporary period, till the system stabilises and the bank is able to restructure its asset -liability pattern.

6.4 The Statement of Structural Liquidity (Annexure I) may be prepared by placing all cash inflows and outflows in the maturity ladder according to the expected timing of cash flows. A maturing liability will be a cash outflow while a maturing asset will be a cash inflow. It would be necessary to take into account the rupee inflows and outflows on account of forex operations including the readily available forex resources (FCNR (B) funds, etc) which can be deployed for augmenting rupee resources. While determining the likely cash inflows / outflows, banks have to make a number of assumptions according to their asset - liability profiles. For instance, Indian banks with large branch network can (on the stability of their deposit base as most deposits are renewed) afford to have larger tolerance levels in mismatches if their term deposit base is quite high. While determining the tolerance levels the banks may take into account all relevant factors based on their asset-liability base, nature of business, future strategy etc. The RBI is interested in ensuring that the tolerance levels are determined keeping all necessary factors in view and further refined with experience gained in Liquidity Management.

6.5 In order to enable the banks to monitor their short-term liquidity on a dynamic basis over a time horizon spanning from 1-90 days, banks may estimate their short-term liquidity profiles on the basis of business projections and other commitments. An indicative format (Annexure III) for estimating Short-term Dynamic Liquidity is enclosed.

7. Currency Risk

7.1 Floating exchange rate arrangement has brought in its wake pronounced volatility adding a new dimension to the risk profile of banks' balance sheets. The increased capital flows across free economies following deregulation have contributed to increase in the volume of transactions. Large cross border flows together with the volatility has rendered the banks' balance sheets vulnerable to exchange rate movements.

7.2 Dealing in different currencies brings opportunities as also risks. If the liabilities in one currency exceed the level of assets in the same currency, then the currency mismatch can add value or erode value depending upon the currency movements. The simplest way to avoid

currency risk is to ensure that mismatches, if any, are reduced to zero or near zero. Banks undertake operations in foreign exchange like accepting deposits, making loans and advances and quoting prices for foreign exchange transactions. Irrespective of the strategies adopted, it may not be possible to eliminate currency mismatches altogether. Besides, some of the institutions may take proprietary trading positions as a conscious business strategy.

7.3 Managing Currency Risk is one more dimension of Asset- Liability Management.

Mismatched currency position besides exposing the balance sheet to movements in exchange rate also exposes it to country risk and settlement risk. Ever since the RBI (Exchange Control Department) introduced the concept of end of the day near square position in 1978, banks have been setting up overnight limits and selectively undertaking active day time trading. Following the introduction of "Guidelines for Internal Control over Foreign Exchange Business" in 1981, maturity mismatches (gaps) are also subject to control. Following the recommendations of Expert Group on Foreign Exchange Markets in India (Sodhani Committee) the calculation of exchange position has been redefined and banks have been given the discretion to set up overnight limits linked to maintenance of additional Tier I capital to the extent of 5 per cent of open position limit.

7.4 Presently, the banks are also free to set gap limits with RBI's approval but are required to adopt Value at Risk (VaR) approach to measure the risk associated with forward exposures. Thus the open position limits together with the gap limits form the risk management approach to forex operations. For monitoring such risks banks should follow the instructions contained in Circular A.D (M. A. Series) No.52 dated December 27, 1997 issued by the Exchange Control Department.

8. Interest Rate Risk (IRR)

8.1 The phased deregulation of interest rates and the operational flexibility given to banks in pricing most of the assets and liabilities have exposed the banking system to Interest Rate Risk. Interest rate risk is the risk where changes in market interest rates might adversely affect a bank's financial condition. Changes in interest rates affect both the current earnings (earnings perspective) as also the net worth of the bank (economic value perspective). The risk from the earnings' perspective can be measured as changes in the Net Interest Income (Nil) or Net Interest Margin (NIM). In the context of poor MIS, slow pace of computerisation in banks and the absence of total deregulation, the traditional Gap analysis is considered as a suitable method to measure the Interest Rate Risk. It is the intention of RBI to move over to modern techniques of Interest Rate Risk measurement like Duration Gap Analysis, Simulation and Value at Risk at a later date when banks acquire sufficient expertise and sophistication in MIS. The Gap or Mismatch risk can be measured by calculating Gaps over different time intervals as at a given date. Gap analysis measures mismatches between rate sensitive liabilities and rate sensitive assets (including off-balance sheet positions). An asset or liability is normally classified as rate sensitive if:

- i) within the time interval under consideration, there is a cash flow;
- ii) the interest rate resets/reprices contractually during the interval;

- iii) RBI changes the interest rates (i.e. interest rates on Savings Bank Deposits, advances upto Rs.2 lakhs, DRI advances, Export credit, Refinance, CRR balance, etc.) in cases where interest rates are administered ; and
- iv) it is contractually pre-payable or withdrawable before the stated maturities.

8.2 The Gap Report should be generated by grouping rate sensitive liabilities, assets and off-balance sheet positions into time buckets according to residual maturity or next repricing period, whichever is earlier. The difficult task in Gap analysis is determining rate sensitivity. All investments, advances, deposits, borrowings, purchased funds etc. that mature/reprice within a specified timeframe are interest rate sensitive. Similarly, any principal repayment of loan is also rate sensitive if the bank expects to receive it within the time horizon. This includes final principal payment and interim instalments. Certain assets and liabilities receive/pay rates that vary with a reference rate. These assets and liabilities are repriced at pre-determined intervals and are rate sensitive at the time of repricing. While the interest rates on term deposits are fixed during their currency, the advances portfolio of the banking system is basically floating. The interest rates on advances could be repriced any number of occasions, corresponding to the changes in PLR. The Gaps may be identified in the following time buckets:

- i) upto 1 month
- ii) Over one month and upto 3 months
- iii) Over 3 months and upto 6 months
- iv) Over 6 months and upto 12 months
- v) Over 1 year and upto 3 years
- vi) Over 3 years and upto 5 years
- vii) Over 5 years
- viii) Non-sensitive

The various items of rate sensitive assets and liabilities in the Balance Sheet may be classified as explained in Appendix - II and the Reporting Format for interest rate sensitive assets and liabilities is given in Annexure II.

8.3 The Gap is the difference between Rate Sensitive Assets (RSA) and Rate Sensitive Liabilities (RSL) for each time bucket. The positive Gap indicates that it has more RSAs than RSLs whereas the negative Gap indicates that it has more RSLs. The Gap reports indicate whether the institution is in a position to benefit from rising interest rates by having a positive Gap ($RSA > RSL$) or whether it is in a position to benefit from declining interest rates by a negative Gap ($RSL > RSA$). The Gap can, therefore, be used as a measure of interest rate sensitivity.

8.4 Each bank should set prudential limits on individual Gaps with the approval of the Board/Management Committee. The prudential limits should have a bearing on the total assets, earning assets or equity. The banks may work out earnings at risk, based on their views on interest rate movements and fix a prudent level with the approval of the Board/Management Committee.

8.5 RBI will also introduce capital adequacy for market risks in due course.

9. The classification of various components of assets and liabilities into different time buckets for preparation of Gap reports (Liquidity and Interest Rate Sensitivity) as indicated in Appendices I & II is the benchmark. Banks which are better equipped to reasonably estimate the behavioural pattern, embedded options, rolls-in and rolls-out, etc of various components of assets and liabilities on the basis of past data / empirical studies could classify them in the appropriate time buckets, subject to approval from the ALCO / Board. A copy of the note approved by the ALCO / Board may be sent to the Department of Banking Supervision.

APPENDIX - I **Maturity Profile - Liquidity**

Heads of Accounts	Classification into time buckets
<u>A. Outflows</u>	
1. Capital, Reserves and Surplus	Over 5 years bucket.
2. Demand Deposits (Current and Savings Bank Deposits)	Demand Deposits may be classified into volatile and core portions. 25% of deposits are generally withdrawable on demand. This portion may be treated as volatile. While volatile portion can be placed in the first time bucket i.e., 1-14 days, the core portion may be placed in 1 - 2 years bucket.
3. Term Deposits	Respective maturity buckets.
4. Certificates of Deposit, Borrowings and Bonds (including Sub-Ordinated Debt)	Respective maturity buckets.
5. <u>Other Liabilities and Provisions</u>	
(i) Bills Payable	(i) 1-14 days bucket.
(ii) Inter-office Adjustment	(ii) As per trend analysis. Items not representing cash payables, may be placed in over 5 years bucket.
(iii) Provisions for NPAs	(iii)
a) Sub-standard	a) 2-5 years bucket.
b) Doubtful and Loss	b) Over 5 years bucket.
(iv) Provisions for depreciation in investments	(iv) Over 5 years bucket.
(v) Provisions for NPAs in investments	(v)

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|---|---|
| <ul style="list-style-type: none"> a) Sub-standard b) Doubtful and Loss | <ul style="list-style-type: none"> a) 2-5 years bucket. b) Over 5 years bucket. |
| <ul style="list-style-type: none"> (vi) Provisions for other purposes | <ul style="list-style-type: none"> (vi) Respective buckets depending on the purpose. |
| <ul style="list-style-type: none"> (vii) Other Liabilities | <ul style="list-style-type: none"> (vii) Respective maturity buckets. Items not representing cash payables (i.e. income received in advances etc.) may be placed in over 5 years bucket. |
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B. Inflows

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|--|---|
| <ul style="list-style-type: none"> 1. Cash | <ul style="list-style-type: none"> 1-14 days bucket |
| <ul style="list-style-type: none"> 2. Balances with RBI | <ul style="list-style-type: none"> While the excess balance over the required CRR/SLR may be shown under 1-14 days bucket, the Statutory Balances may be distributed amongst various time buckets corresponding to the maturity profile of DTL with a time-lag of 14 days. |
| <ul style="list-style-type: none"> 3. <u>Balances with other Banks</u> | |
| <ul style="list-style-type: none"> (i) Current Account | <ul style="list-style-type: none"> (i) Non-withdrawable portion on account of stipulations of minimum balances may be shown under 1-2 years bucket and the remaining balances may be shown under 1-14 days bucket. |
| <ul style="list-style-type: none"> (ii) Money at Call and Short Notice, Term Deposits and other placements | <ul style="list-style-type: none"> (ii) Respective maturity buckets. |
| <ul style="list-style-type: none"> 4. <u>Investments</u> | |
| <ul style="list-style-type: none"> (i) Approved securities | <ul style="list-style-type: none"> (i) Respective maturity buckets excluding the amount required to be reinvested to maintain SLR corresponding to the DTL profile in various time buckets. |
| <ul style="list-style-type: none"> (ii) Corporate debentures and bonds, PSU bonds, CDs and CPs, Redeemable preference Shares, Units of Mutual Funds (close ended), etc. | <ul style="list-style-type: none"> (ii) Respective maturity buckets. Investments classified as NPAs should be shown under 2-5 years bucket (sub-standard) or over 5 years bucket (doubtful and loss). |

(iii) Shares / Units of Mutual Funds (open ended)	(iii) Over 5 years bucket.
(iv) Investments in Subsidiaries/Joint Ventures	(iv) Over 5 years bucket.
5. <u>Advances (Performing)</u>	
(i) Bills Purchased and Discounted (including bills under DUPN)	(i) Respective maturity buckets.
(ii) Cash Credit/Overdraft (including TOD) and Demand Loan component of Working Capital.	(ii) Banks should undertake a study of behavioural and seasonal pattern of availments based on outstandings and the core and volatile portion should be identified. While the volatile portion could be shown in the respective maturity buckets, the core portion may be shown under 1-2 years bucket.
(iii) Term Loans	(iii) Interim cash flows may be shown under respective maturity buckets.
6. <u>NPAs</u>	
(i) Sub-standard	(i) 2-5 years bucket.
(ii) Doubtful and Loss	(ii) Over 5 years bucket.
7. Fixed Assets	Over 5 years bucket
8. <u>Other Assets</u>	
(i) Inter-office Adjustment	(i) As per trend analysis. Intangible items or items not representing cash receivables may be shown in over 5 years bucket.
(ii) Others	(ii) Respective maturity buckets. Intangible assets and assets not representing cash receivables may be shown in over 5 years bucket.

C. Contingent Liabilities / Lines of Credit committed / available and other Inflows / Outflows

1. (i) Lines of Credit committed to Institutions (outflow)	(i) 1-14 days bucket.
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(ii) Unavailed portion of Cash Credit / Overdraft / Demand loan component of Working Capital limits (outflow)	(ii) Banks should undertake a study of the behavioural and seasonal pattern of potential availments from the accounts and the amounts so arrived at may be shown under relevant maturity buckets upto 12 months.
2. Letters of Credit / Guarantees (outflow)	Historical trend analysis ought to be conducted on the devolvments and the amounts so arrived at in respect of outstanding Letters of Credit / Guarantees (net of margins) should be distributed amongst various time buckets.
3. Repos / Bills Rediscounted (DUPN) / Swaps INR / USD, maturing forex forward contracts etc. (outflow / inflow)	Respective maturity buckets.
4. Interest payable / receivable (outflow / inflow)	Respective maturity buckets.

Note :

- (i) Liability on account of any other contingency may be shown under respective maturity buckets.**
- (ii) All overdue liabilities may be placed in the 1-14 days bucket.**
- (iii) Interest and instalments from advances and investments, which are overdue for less than one month may be placed in the 3-6 months, bucket. Further, interest and instalments due (before classification as NPAs) may be placed in the 6-12 months bucket without the grace period of one month if the earlier receivables remain uncollected.**

D. Financing of Gap:

In case the negative gap exceeds the prudential limit of 20% of outflows, the bank may show by way of a foot note as to how it proposes to finance the gap to bring the mismatch within the prescribed limits. The gap can be financed from market borrowings (call / term), Bills Rediscounting, Refinance from RBI / others, Repos and deployment of foreign currency resources after conversion into rupees (unswapped foreign currency funds) etc.

APPENDIX - II

Interest Rate Sensitivity

<u>Heads of Accounts</u>	<u>Rate sensitivity and time bucket</u>
<u>Liabilities</u>	
1. Capital, Reserves and Surplus	Non-sensitive.
2. Current Deposits	Non-sensitive.
3. Savings Bank Deposits	Sensitive to the extent of interest paying (core) portion. This may be included in the 3-6 months bucket. The non-interest paying portion may be shown in non-sensitive bucket.
4. Term Deposits and Certificates of Deposit	Sensitive and reprices on maturity. The amounts should be distributed to different buckets on the basis of remaining maturity. However, in case of floating term deposits, the amounts may be shown under the time bucket when deposits contractually become due for repricing.
5. Borrowings - Fixed	Sensitive and reprices on maturity. The amounts should be distributed to different buckets on the basis of remaining maturity.
6. Borrowings - Floating	Sensitive and reprices when interest rate is reset. The amounts should be distributed to the appropriate bucket which refers to the repricing date.
7. Borrowings - Zero Coupon	Sensitive and reprices on maturity. The amounts should be distributed to the respective maturity buckets.
8. Borrowings from RBI	Upto 1 month bucket.
9. Refinances from other agencies.	(a) Fixed rate : As per respective maturity.

(b) Floating rate : Reprices when interest rate is reset.

10. Other Liabilities and Provisions

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|------------------------------|----------------------|
| (i) Bills Payable | (i) Non-sensitive. |
| (ii) Inter-office Adjustment | (ii) Non-sensitive. |
| (iii) Provisions | (iii) Non-sensitive. |
| (iv) Others | (iv) Non-sensitive. |

11. Repos/Bills Re-discounted (DUPN), Swaps (Buy / Sell) etc.

Reprices only on maturity and should be distributed to the respective maturity buckets.

Assets

1. Cash

Non - sensitive.

2. Balances with RBI

Interest earning portion may be shown in 3 - 6 months bucket. The balance amount is non-sensitive.

3. Balances with other Banks

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|--|---|
| (i) Current Account | (i) Non-sensitive. |
| (ii) Money at Call and Short Notice, Term Deposits and other placements. | (ii) Sensitive on maturity. The amounts should be distributed to the respective maturity buckets. |

4. Investments (Performing)

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|------------------------------|---|
| (i) Fixed Rate / Zero Coupon | (i) Sensitive on maturity. |
| (ii) Floating Rate | (ii) Sensitive at the next repricing date |

5. Shares / Units of Mutual Funds

Non-sensitive.

6. Advances (Performing)

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|--|--|
| (i) Bills Purchased and Discounted (including bills under DUPN) | (i) Sensitive on maturity |
| (ii) Cash Credits / Overdrafts (including TODs) / Loans repayable on demand and Term Loans | (ii) Sensitive only when PLR/risk premium is changed. Of late, frequent changes in PLR have been noticed. Thus, each bank should foresee the direction of interest rate movements and capture the amounts in the respective maturity buckets by which time PLR would be revised. |

7. NPAs (Advances and Investments) *

ANNEXURE - III

Name of the Bank _____

Statement of Short-term Dynamic Liquidity as on _____

(Amounts in Crores of Rupees)

<u>A. Outflows</u>			
	1 - 14 days	15-28 Days	29-90 days
1	Net increase in loans and advances		
2	Net increase in investments:		
	i) Approved securities		
	ii) Money market instruments (other than Treasury bills)		
	iii) Bonds/Debentures/shares		
	iv) Others		
3	Inter-bank obligations		
4	Off-balance sheet items (Repos, swaps, bills discounted, etc.)		
5	Others		
TOTAL OUTFLOWS			
<u>B. Inflows</u>			
1	Net cash position		
2	Net increase in deposits (less CRR obligations)		
3	Interest on investments		
4	Inter-bank claims		
5	Refinance eligibility (Export credit)		
6	Off-balance sheet items (Reverse repos, swaps, bills discounted, etc.)		
7	Others		
TOTAL INFLOWS			
<u>C. Mismatch (B - A)</u>			
<u>D. Cumulative mismatch</u>			
<u>E. C as a % to total outflows</u>			