

**THE BERMUDA MONETARY AUTHORITY**

**BANKS AND DEPOSIT COMPANIES  
ACT 1999:**

**The Measurement and Monitoring of  
Liquidity**

## **Introduction**

1. This paper sets out the approach taken by the Bermuda Monetary Authority ('the Authority') in measuring and assessing the adequacy of liquidity for institutions licensed under the Banks And Deposit Companies Act 1999 ('the Act') and for ensuring their compliance with the minimum licensing criteria set out in the Act. It has been the subject of detailed consultation with the industry based on proposals set out in a consultation paper published in December 2006. This paper replaces the existing policy guidance set out in 'The Measurement and Monitoring of Liquidity', published in March 2000.

## **Background**

2. The minimum licensing criteria provide, within the general requirement for licensed institutions to conduct their business prudently, a specific requirement for institutions to maintain adequate liquidity. The Statement of Principles published by the Authority pursuant to section 9 of the Act sets out the factors which the Authority takes into account in assessing the adequacy of an institution's liquidity.

## **Approach to Liquidity**

3. The maintenance of an adequate cushion of liquidity to ensure an institution's ability to meet its liabilities as they fall due is a critical component in the prudent management of its operations. The Authority requires institutions to make a very prudent approach when determining their liquidity needs, and to ensure that they can meet their liabilities even in extreme market conditions. To that end, institutions must put in place appropriate policies and procedures for measuring and monitoring their net funding requirements, taking full account of the potential impact on their liquidity position of credit, market, operational and other risks confronting them. Their policies and procedures must have careful regard to the range and quality of the funding sources available to them, to the reputational and other risks that may impact on their funding, as well as to factors such as the degree of asset concentration in their business. Institutions must analyze their funding requirements under alternative stress scenarios, reviewing regularly the continuing appropriateness of the assumptions employed, and assess the steps available to them to reduce their vulnerability to a crisis scenario.
4. The Authority recognizes that the assessment of liquidity involves complex judgments, with both quantitative and qualitative elements. Institutions will have a variety of types of obligations: to repay deposits, to provide committed funds; to make interest payments; and to meet cash flows in respect of off-balance sheet instruments, expenses etc. And they can meet these obligations in a number of ways: by holding immediately available cash and demand deposits with other institutions; by holding high quality marketable assets which can be converted into

cash at short notice; by maintaining a matching profile of cash flows from maturing assets and liabilities; and by raising fresh funds in the market. Institutions' judgments therefore, need to reflect the nature of their particular business and their place in the market. Historical data on the past resilience of funding sources and on the quality and loyalty of retail and other customer deposits will form a part of institutions' assessment of their liquidity requirements, together with consideration of possible steps aimed at diversifying funding sources, altering the underlying mix of deposits in their book and reinforcing credit quality and diversification.

### **Liquidity Management Strategy**

5. It is critical for institutions' Boards and senior management to be fully familiar with the nature and scale of the liquidity risk run by them. Institutions need to put in place a liquidity management strategy, appropriate for their operations, together with related policies and procedures for managing liquidity risk. Liquidity management strategies and policies, approved by the Board, must also be submitted to the Authority which reviews their prudence and completeness. Arrangements must also be in place for the strategy and policies to be kept under regular review in the light of developments in the institution's business as well as in the markets in which it is involved. Similarly, the Authority reviews periodically the continued appropriateness of the policies and procedures in place and the effectiveness of their implementation, as well as of Board oversight of them.
6. In drawing up its liquidity management strategy and policies, each institution must ensure that it takes proper account of the nature and types of business in which it is engaged. The strategy and policies should consider both aggregate liquidity and the monitoring and control of positions and mismatches in any individual currencies where significant exposures are run. Given the particular relationship between the Bermuda and US dollar, institutions may for liquidity purposes treat them as identical but they should monitor positions and mismatches in each currency individually. Any other material foreign currency liquidity transformation, however, must be both monitored and controlled. The institution's strategy and policies must also consider liquidity in both normal and abnormal or crisis situations, and include appropriate contingency arrangements for handling such situations. In particular, they must identify who is responsible for liquidity management on a day-to-day basis and the arrangements envisaged within the institution for dealing with any problem or crisis situation which might arise, including the arrangements for notifying the Authority of any stresses.

### **Monitoring of Liquidity by the Authority**

7. The statutory requirement contained in the minimum licensing criteria relates to the licensed entity as a whole; and this also forms the normal basis for the regular reporting of liquidity data to the Authority. However, liquidity is a very complex

area; and in carrying out their responsibilities for the prudent conduct of the business, management must be fully alert to all factors which may be relevant to the institution's operations. Just as the policies and monitoring tools employed by management may on occasion have to go beyond the licensed entity – for example where there are funding links with other members of the group to which it belongs – so, too, the Authority may, in particular cases, agree with an institution that routine reporting of liquidity data should extend beyond the licensed entity. The precise scope of the policy and of the reporting framework is, therefore, agreed in each case between the institution and the Authority.

8. The policy framework, the reporting systems and controls employed within each institution, and the regular liquidity data provided by institutions are the subject of discussion with the Authority in the course of its routine prudential meetings. In these discussions, the Authority satisfies itself as to the appropriateness of the policies pursued by institutions, the effectiveness of the management information systems available to management, and the strength of the control environment in ensuring that the agreed policy is applied and that any exceptions or breaches are quickly identified and dealt with. In particular, it needs to be satisfied that institutions have proper ability to monitor their liquidity position on a daily basis, and that an appropriate range of alternative stress scenarios is considered in planning suitable contingency arrangements. Any breaches of the approved liquidity framework must be reported to the Authority as soon as they come to the attention of management.

### **The Authority's Mismatch Approach**

9. Institutions are required to provide to the Authority certain standard data on the maturity structure of their balance sheet and off-balance sheet items, normally on a quarterly basis, as part of the Prudential Information Return. Where particular issues or concerns arise, the Authority may require this information to be submitted more frequently. As noted above, this prudential information normally relates to the licensed entity on a solo, rather than a consolidated basis. Exceptionally, a wider scope may be agreed.
10. In conducting its analysis of institutions' liquidity, the main statistical tool employed by the Authority is a mismatch ladder which monitors the overall extent of maturity transformation undertaken by institutions. Broadly, an institution's assets and liabilities are allocated to particular bands, based on their residual maturities, and taking a worst case view. The net mismatch between assets and liabilities, within each band and cumulatively across all bands is then assessed as a percentage of the institution's total deposit liabilities. Mismatches are monitored for all currencies taken together, as well as for individual currencies in which an institution has material asset and liability positions.

11. It is emphasised that this common framework of measurement does not imply a single common standard applying to all institutions. Based on both a quantitative and a qualitative assessment of the institution's business, the Authority sets individual guidelines as a percentage of total deposits applying to the overall mismatch in all currencies in the two shortest maturity bands. These comprise sight to 1 week, and 8 days to 1 month. (This reflects the particular importance of the short-term position in assessing the adequacy of liquidity.). The guidelines which are set reflect the particular characteristics of the institution and its business. The guidelines apply for monitoring purposes and not as limits; however, repeated difficulty on the part of an institution in keeping its mismatches below the guideline levels provides a trigger for discussions with the Authority on the development of the institution's overall business and the liquidity policy framework which it is applying.

### **Measurement Framework**

12. As indicated above, it is important, when allocating assets and liabilities to maturity time-bands, to take a cautious approach, in order to cater for a situation when funding sources are unwilling to lend and depositors withdraw their funds. The Authority analyses institutions' assets and liabilities into 6 separate time-bands: sight - 8 days; over 8 days- 1 month; over 1 month - 3 months; over 3 months - 6 months; over 6 months - 1 year; and over 1 year.

### **Treatment of Liabilities**

13. Liabilities should be included in the maturity ladder according to their earliest contractual maturity. Retail current account and other demand liabilities are reported in full in the first time-band. However, an agreed proportion of the total may normally be excluded (the so-called 'behavioural adjustment') in calculating the mismatch for the purpose of the guideline. Known firm commitments to make funds available must be included at full value in the appropriate time band. In the case of commitments which are not due to be met in full on a particular date (e.g. undrawn overdraft and other facilities), the normal treatment is, again, for an agreed proportion to be included in the first time band, based on past and forecast draw-down trends, as agreed with the Authority. Contingent liabilities are ignored unless there is a reasonable likelihood of their being triggered.

### **Treatment of Assets**

14. Assets are generally included in the maturity ladder according to their latest contractual maturity. Overdue and non-performing assets are excluded from the ladder. Assets are recorded net of any specific provisions made. Specific treatment again needs to be agreed with the Authority in the case of certain assets nominally payable on demand, e.g. overdrafts: only a small proportion of the total is generally to be included as a short-term asset. Undrawn committed standby facilities provided by other banks and deposit-takers may generally be treated as a sight asset; however, the Authority will wish to be satisfied that they are genuinely committed, and that institutions do not place undue weight on such facilities within their overall liquidity policies.
15. Most marketable assets are shown within the relevant time-band reflecting their residual maturity. However, in the case of particular highly liquid marketable securities, where the Authority is satisfied that they can be readily sold or repo'd in a deep and liquid market in any conditions (for cash settlement on the day of trade or the following business day), assets may be recorded in the shortest time-band, subject to a small discount factor to reflect any forced sale risk. Any assets which have been pledged as collateral are excluded from the ladder; similarly any assets held by institutions as collateral must be excluded. In the case of securities acquired or sold as part of a sale and repurchase or stock-lending arrangement, care must be taken to avoid double-counting. Similar considerations arise with forward sales and purchases. Swaps, forward rate agreements and futures should be reported according to the cash flows expected to arise.

### **Stock of Marketable Assets**

16. Although the Authority does not set specific requirements for the particular stock of marketable assets, it sees it as prudent for institutions having substantial amounts of demand liabilities to hold reasonable stocks of readily liquifiable assets. The extent of such stocks is discussed with institutions as part of the routine discussions on their liquidity strategy and policies.