



Statement of Guidance

Liquidity Risk Management

1. Statement of Objectives

- 1.1. To provide guidance on the requirement imposed on licensees by Rule 7(B).
- 1.2. To establish key principles for managing liquidity risk, the formality and sophistication of the process used being dependant upon the size and sophistication of the bank, as well as the nature and complexity of its activities. The principles established here have broad applicability to all banks.
- 1.3. Liquidity, or the ability to fund increases in assets and meet obligations as they come due, is crucial to the ongoing viability of any bank.

2. Ongoing Liquidity Management

- 2.1. Each bank should have a strategy for the day-to-day management of liquidity. This strategy should be communicated throughout the bank.
- 2.2. A bank's board of directors should approve the strategy and significant policies related to the management of liquidity. The board should also ensure that senior management takes the steps necessary to monitor and control liquidity risk. The board should be informed regularly of the liquidity situation of the bank and immediately if there are any material changes in the bank's current or prospective liquidity position.
- 2.3. Each bank should have a management structure in place to execute effectively the liquidity strategy. This structure should include the ongoing involvement of members of senior management. Senior management must ensure that liquidity is effectively managed, and that appropriate policies and procedures are established to control and limit liquidity risk. Banks should set and regularly review limits on the size of their liquidity positions at least on an annual basis.
- 2.4. A bank's liquidity strategy should set out the general approach the bank has



to liquidity. This strategy should address the bank's goal of protecting financial strength and the ability to withstand stressful events in the marketplace.

- 2.5. A bank's liquidity strategy should enunciate specific policies on particular aspects of liquidity management, such as the composition of assets and liabilities, the approach to managing liquidity in different currencies and from one country to another, the relative reliance on the use of certain financial instruments, and the liquidity and marketability of assets. There should also be an agreed strategy for dealing with the potential for both temporary and long-term liquidity disruptions.
- 2.6. The strategy for managing liquidity risk should be communicated throughout the organisation. All business units within the bank that conduct activities having an impact on liquidity should be fully aware of the liquidity strategy and operate under the approved policies, procedures and limits.
- 2.7. Senior management and the appropriate personnel should have a thorough understanding of how other risks, including credit, market and operational risk, impact on the bank's overall liquidity strategy.
- 2.8. Banks should assign ultimate responsibility for setting liquidity policy and reviewing liquidity decisions to the bank's highest level of management. The responsibility for managing the overall liquidity of the bank should be placed with a specific, identified group within the bank. This might be in the form of an Asset/Liability Committee comprised of senior management, the treasury function or a risk management department.
- 2.9. A bank must have adequate information systems for measuring, monitoring, controlling and reporting liquidity risk. Reports should be provided on a timely basis to the bank's board of directors, senior management and other appropriate personnel.
- 2.10. A schedule of frequent routine liquidity reviews and less frequent, but more



in-depth reviews should be established. These reviews provide the opportunity to re-examine and refine a bank's liquidity policies and practices in the light of a bank's liquidity experience and developments in its business.

2.11. Bank management must make decisions related to the structure for managing liquidity. It may completely centralise liquidity management, it may decentralise by assigning business units responsibility for their own liquidity, subject to limits imposed by senior management, or it might do a combination of the two. Whatever structure is used, it is critical that there be close links between those individuals responsible for liquidity and those monitoring market conditions, as well as other individuals with access to critical information such as credit risk managers.

2.12. Banks' management should set limits to ensure adequate liquidity. Limits set by management will be reviewed by the Authority from time to time and may be subject to the Authority's approval. The Authority may also set the limits on a case-by-case basis. Limits could be set, for example, on the following:

2.12.1 The cumulative cash-flow mismatches (that is, the cumulative net funding requirement as a percentage of total liabilities) over particular periods such as next day, next eight days, next month etc. These mismatches should be calculated by taking a conservative view of marketability of liquid assets, with a discount to cover price volatility and any drop in price in the event of a forced sale, and should include likely outflows as a result of draw-down of commitments etc.

2.12.2 Liquid assets as a percentage of short-term liabilities. Again, there should be a discount to reflect price volatility. The assets included in this category should only be those, which are highly liquid and the bank determined that there is a ready market even in periods of stress.

2.13. Banks should analyse the likely impact of different stress scenarios on their liquidity position and set their limits accordingly. Limits should be appropriate to the size, complexity and financial condition of the bank. Management should define the specific procedures and approvals necessary for exceptions



to policies and limits.

2.14. Senior management should ensure that there are adequate internal controls in place to protect the integrity of the established liquidity risk management process.

2.15. The management information system should be designed to provide the board of directors, senior management and other appropriate personnel with timely information on the liquidity position of the bank. The system should be flexible to deal with various contingencies that may arise. It should have the ability to calculate liquidity positions in all of the major currencies in which the bank deals, both individually and on an aggregate basis. The bank should have the ability to calculate its liquidity position on a day-to-day basis for the short time horizons (e.g. out to eight days) and over a series of specified time periods thereafter, including more distant periods. The management information system should be used to check for compliance with the bank's established policies, procedures and limits.

3. Measuring and Monitoring Net Funding Requirements

3.1. Each bank should establish a process for the ongoing measurement and monitoring of net funding requirements.

3.2. At a very basic level, liquidity measurement involves assessing all of a bank's cash inflows against its outflows to identify the potential for any net shortfalls going forward. This includes funding requirements for off-balance sheet commitments. A number of techniques can be used for measuring liquidity risk, ranging from simple calculations and static simulations based on current holdings to highly sophisticated modelling techniques.

3.3. For reporting purposes, the Monetary Authority requires banks to use a "gap report" or maturity ladder (Schedule B: Repricing Maturities of the BS Form) to compare cash inflows and outflows over a series of specified time periods. The gap report serves as a basic tool for monitoring both interest rate exposure and liquidity in banks arising out of repricing and maturity imbalances. Schedule B: Repricing Maturities of the BS Form, stratifies all of a



bank's assets, liabilities and off-balance sheet instruments into time bands on their next repricing date or maturity date.

- 3.4. Evaluating whether a bank is sufficiently liquid depends in large measure on the behaviour of cash flows under different conditions. Analysing liquidity thus entails laying out a variety of "what if" scenarios. Under each scenario, a bank should try to account for any significant positive or negative liquidity swings that could occur. These scenarios should take into account factors that are both internal (bank-specific) and external (market-related). While liquidity will typically be managed under "normal" circumstances, the bank must be prepared to manage liquidity under abnormal conditions.
- 3.5. A bank will need to assign the timing of cash flows for each type of asset and liability by assessing the probability of the behaviour of those cash flows under the scenario being examined. These decisions about the specific timing and the size of cash flows are an integral part of the construction of the maturity ladder under each scenario. For each funding source, for example, a bank would have to decide whether the liability would be: (1) repaid in full at maturity; (2) gradually run off over the next few weeks; or (3) virtually certain to be rolled over or available if tapped.
- 3.6. Since a bank's future liquidity position will be affected by factors that cannot always be forecast with precision, assumptions need to be reviewed frequently to determine their continuing validity, especially given the rapidity of change in banking markets. The total number of major assumptions to be made, however, is fairly limited. This section attempts to catalogue the liquidity assumptions under four broad categories: (a) assets, (b) liabilities, (c) off-balance-sheet activities, and (d) other.
- 3.7. Assumptions about a bank's future stock of assets include their potential marketability and use as collateral which could increase cash inflows, the extent to which assets will be originated and sold through asset securitisation programs, and the extent to which maturing assets will be renewed, and new assets acquired.



3.8. Determining the level of a bank's potential assets involves answering three questions:

- a) what proportion of maturing assets will a bank be able and willing to roll over or renew?
- b) what is the expected level of new loan requests that will be approved?
- c) what is the expected level of draw-downs of commitments to lend that a bank will need to fund?

3.9. In determining the marketability of assets, they can be segregated into four categories by their degree of relative liquidity:

3.9.1 the most liquid category includes components such as cash and government securities which are eligible as collateral in central banks' routine open market operations; these assets may be used to either obtain liquidity from the central bank or may be sold or repoed, or otherwise used as collateral in the market;

3.9.2 a second category is other marketable securities, for example equities, and inter-bank loans which may be saleable but which may lose liquidity under adverse conditions;

3.9.3 a less liquid category comprises a bank's saleable loan portfolio. The task here is to develop assumptions about a reasonable schedule for the disposal of a bank's assets. Some assets, while marketable, may be viewed as un-saleable within the time frame of the liquidity analysis;

3.9.4 the least liquid category includes essentially unmarketable assets such as loans not capable of being readily sold, bank premises and investments in subsidiaries, as well as, possibly, severely troubled credits;

3.9.5 assets pledged to third parties are deducted from each category.

3.10. Analysing the liability side of the balance sheet for sources of funding requires a bank to understand the characteristics of their fund providers and funding instruments. To evaluate the cash flows arising from a bank's



liabilities, a bank would first examine the behaviour of its liabilities under normal business conditions. This would include establishing:

- a) the normal level of roll-overs of deposits and other liabilities;
- b) the effective maturity of deposits with non-contractual maturities, such as demand deposits and many types of savings accounts;
- c) the normal growth in new deposit accounts.

3.11. In examining the cash flows arising from a bank's liabilities under abnormal circumstances (bank-specific or general market problems), a bank would examine four basic questions:

- a) which sources of funding are likely to stay with the bank under any circumstance, and can these be increased?
- b) which sources of funding can be expected to run off gradually if problems arise, and at what rate? Is deposit pricing a means of controlling the rate of runoff?
- c) which maturing liabilities or liabilities with non-contractual maturities can be expected to run off immediately at the first sign of problems? Are there liabilities with early withdrawal options that are likely to be exercised?
- d) does the bank have back-up facilities that it can draw down and under what circumstances?

3.12. A bank should also examine the potential for substantial cash flows from its off-balance-sheet activities (other than the loan commitments already considered). The contingent nature of most off-balance-sheet instruments adds to the complexity of managing off-balance-sheet cash flows. In particular, during stressful situations, off-balance-sheet commitments can have a significant drain on liquidity.

3.12.1 Looking solely at instruments may ignore some factors that could significantly impact a bank's cash flows. Besides the liquidity needs arising from their own business activities, banks also require funds to support other operations. For example, many large banks provide correspondent banking services for foreign banks or provide access to



payment systems for smaller domestic banks and other financial institutions.

3.12.2 In addition, net overhead expenses, such as rent, salary and tax payments, although generally not significant enough to be considered in banks' liquidity analyses, can in some cases also be sources of cash outflows.

4. Managing market access

4.1. Each bank should periodically review its efforts to establish and maintain relationships with liability holders, to maintain the diversification of liabilities, and aim to ensure its capacity to sell assets.

4.2. A bank needs to understand how much funding they can expect to receive from the market, both under normal and adverse circumstances. Senior management needs to ensure that market access is being actively managed by appropriate staff within the bank. Relationships may exist with trading counterparties, correspondent banks, corporate customers and payments systems. Building strong relationships with key providers of funding can provide a line of defence in a liquidity problem and form an integral part of a bank's liquidity management. The frequency of contact and the frequency of use of a funding source are two possible indicators of the strength of a funding relationship.

4.3. Concentrations in funding sources increase liquidity risk. Consequently, as a check for adequate diversification of liabilities, a bank needs to examine the level of reliance on particular funding sources, both at an individual level and by instrument type, nature of the provider of funds, and geographic market. Senior management must constantly be aware of the composition, characteristics and diversification of its funding sources.

5. Contingency planning

5.1. A bank should have contingency plans in place that address the strategy for handling liquidity crises and include procedures for making up cash flow shortfalls in emergency situations.



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- 5.2. Senior management needs to address these issues realistically in order to determine how the bank may fare under abnormal adverse circumstances. In addition, management needs to identify and understand the types of events that may trigger liquidity contingency plans.
 - 5.3. A major element in the plan should be a strategy for taking certain actions to alter asset and liability behaviours. Other components of the contingency plan involve maintaining customer relationships with liability-holders, borrowers, and trading and off-balance-sheet counter-parties.
 - 5.4. Contingency plans should also include procedures for making up cash flow shortfalls in adverse situations. Banks have available to them several sources of such funds, including previously unused credit facilities. Depending on the severity of the liquidity problems, a bank may choose – or be forced – to use one or more of these sources. The plan should spell out as clearly as possible the amount of funds a bank has available from these sources, and under what scenarios a bank could use them. Banks must be careful not to rely excessively on back-up lines and need to understand the various conditions, such as notice periods, that could affect the bank’s ability to access quickly such lines. Indeed, banks should have contingency plans for times when their back-up lines become unavailable.
 - 5.5. Banks should consider under what circumstances and for what purposes they would establish committed lines of funding, for which they pay a fee, which will be available to them under abnormal circumstances if uncommitted facilities fail.
 - 5.6. The existence of recourse provisions in asset sales, the extension of liquidity facilities to securitisation programs, and the early amortisation triggers of certain asset securitisation transactions can involve significant liquidity risk to institutions engaged in these secondary market credit activities. Institutions should ensure that their liquidity contingency plans fully incorporate the potential risk posed by their secondary market credit activities. With the issuance of new asset-backed securities, the issuing banking organisation



should determine the potential effect on its liquidity at the inception of each transaction and throughout the life of the securities in order to better ascertain its future funding needs.

- 5.7. An institution's contingency plans should take into consideration the need to obtain replacement funding, and specify the possible alternative funding sources, in the event of the early amortisation of outstanding asset-backed securities. It should be recognised that an early amortisation of a banking organisation's asset-backed securities could impede its ability to fund itself—either through re-issuance or other borrowings—since the institution's reputation with investors and lenders may be adversely affected.

6. Foreign Currency Liquidity Management

- 6.1. Each bank should have a measurement, monitoring and control system for its liquidity positions in the major currencies in which it is active. In addition to assessing its aggregate foreign currency liquidity needs and the acceptable mismatch in combination with its domestic currency commitments, a bank should also undertake separate analysis of its strategy for each currency individually.
- 6.2. A bank should, where appropriate, set and regularly review limits on the size of its cash flow mismatches at least on an annual basis for foreign currencies in aggregate and for each significant individual currency in which the bank operates.
- 6.3. When foreign currency is used to fund a portion of domestic currency assets, banks need to analyse the market conditions that could affect access to the foreign currency and understand that foreign currency depositors and lenders may seek to withdraw their funding more quickly than domestic counterparties. Banks should also assess their access to alternative sources of funding to repay foreign currency liabilities.
- 6.4. When lending in a currency other than their domestic currency, banks need to consider carefully the various risks. Bank management needs to make a



thorough and conservative assessment of the likely access to the foreign exchange markets and the likely convertibility of the currencies in which the bank carries out its activities, under the various scenarios in which they might need to switch funding from one currency to another. They further need to consider a range of possible scenarios for exchange rates, even where currencies are currently pegged or fixed. In many cases, an effective yet simple strategy for dealing with these issues would be for an institution to hold foreign currency assets in an amount equal to its foreign currency liabilities.

7. Internal Controls for Liquidity Risk Management

- 7.1. Each bank should have an adequate system of internal controls over its liquidity risk management process. A fundamental component of the internal control system involves regular independent reviews and evaluations of the effectiveness of the system and, where necessary, ensuring that appropriate revisions or enhancements to internal controls are made. The results of such reviews should be available to the Authority.
- 7.2. Banks should have adequate internal controls to ensure the integrity of their liquidity risk management process. The internal controls should be an integral part of the bank's overall system of internal control. They should promote effective and efficient operations, reliable financial and regulatory reporting, and compliance with relevant laws, regulations and institutional policies. An effective system of internal control for liquidity risk includes:
- a) a strong control environment;
 - b) an adequate process for identifying and evaluating liquidity risk;
 - c) the establishment of control activities such as policies and procedures;
 - d) adequate information systems; and,
 - e) continual review of adherence to established policies and procedures.
- 7.3. With regard to control policies and procedures, attention should be given to appropriate approval processes, limits, reviews and other mechanisms



designed to provide a reasonable assurance that the institution's liquidity risk management objectives are achieved. Many attributes of a sound risk management process, including risk measurement, monitoring and control functions, are key aspects of an effective system of internal control. Banks should ensure that all aspects of the internal control system are effective, including those aspects that are not directly part of the risk management process.

- 7.4. In addition, an important element of a bank's internal control system over its liquidity risk management process is regular evaluation and review. This includes ensuring that personnel are following established policies and procedures, as well as ensuring that the procedures that were established actually accomplish the intended objectives. Such reviews and evaluations should also address any significant change that may impact on the effectiveness of controls. Management should ensure that all such reviews and evaluations are conducted regularly by individuals, who are independent of the function being reviewed. When revisions or enhancements to internal controls are warranted, there should be a mechanism in place to ensure that these are implemented in a timely manner.
- 7.5. From the periodic review management should determine whether the organisation complies with its liquidity risk policies and procedures. Positions that exceed established limits should receive the prompt attention of appropriate management and should be resolved according to the process described in approved policies. Periodic reviews of the liquidity management process should also address any significant changes in the nature of instruments acquired, limits, and internal controls that have occurred since the last review.
- 7.6. The internal audit function should also periodically review the liquidity management process in order to identify any weaknesses or problems. In turn, these should be addressed by management in a timely and effective manner.