

## **BEST PRACTICE GUIDELINE**

From the Banking Regulation and Supervision Agency:

### **GUIDELINE FOR LIQUIDITY RISK MANAGEMENT**

#### **FIRST PART**

#### **Objective, Scope and Definitions**

##### **Objective and Scope**

1. In this guideline for liquidity risk management, principles aiming to ensure the efficiency and adequacy of liquidity risk management which is a part of the internal capital assessment process as part of the Article 35 entitled "the objective of risk management and the establishment of risk management system" of Regulation on Internal Systems and Internal Capital Adequacy Assessment Process of Banks published in the Official Gazette dated July 11,2014 Nr:29057. An effective and adequate liquidity risk management is expected to be performed in line with the following principles by considering the bank's size and the complexity of its activities on consolidated and non-consolidated basis.

2. The guideline is based on Article 93 of Banking Law Nr:5411 dated October 19,2005 and the Article 7/A entitled "Best Practice Guides" of Regulation on Procedures and Principles For Supervision by the Banking Regulation and Supervision Agency published in the Official Gazette dated July 22,2006 Nr:26236.

3. Each bank should manage liquidity risk activities in line with the principle of proportionality. It has been provided to assess the conformity to the principles in this guideline in line with the principles of proportionality. This guideline generally consists of the following matters:

- a) Liquidity risk management framework,
- b) Organizational structure in liquidity risk management,
- c) Strategy, policy and procedures of liquidity risk,
- d) Liquidity risk management process,
- e) Contingency plan and business continuity plan.

##### **Definitions**

4. Following terms used in this guideline shall have the meanings expressly designated to them below,

- a) Contingency plan (CP): Contingency plan defined in the Article 3 of the Regulation on Internal Systems and Internal Capital Adequacy Assessment Process of Banks,

- b) Funding liquidity risk: The risk that the bank may fail to meet the liability and debts without becoming overdue and incurring any contingency losses,
- c) Stable deposits: Stable deposits defined in the Regulation on the Calculation of Liquidity Coverage Ratio of Banks,
- ç) Business continuity plan: Business continuity plan defined in the Article 3 of the Regulation on Internal Systems and Internal Capital Adequacy Assessment Process of Banks,
- d) Reputation Risk: The probability of loss-making because of bank's falling into disrepute or discrediting in consequence of disregarding current legal arrangements or because of the negative opinions of current and potential customers, partners, rivals and audit authority about the bank,
- e) Agency: Banking Regulation and Supervision Agency,
- f) Special Purpose vehicle: Special purpose vehicle defined in the Article 3 of Regulation on Measurement and Assessment of Capital Adequacy of Banks.
- g) Market Liquidity Risk: The risk that the bank may fail to sale or close a position without effecting the market value because of inadequate market depth or decay of market conditions or the risk that a market price does not occur for some reason,
- ğ) Risk Appetite: Risk appetite defined in the Article 3 of the Regulation on Internal Systems and Internal Capital Adequacy Assessment Process of Banks,
- h) Risk capacity: Risk capacity defined in the Article 3 of the Regulation on Internal Systems and Internal Capital Adequacy Assessment Process of Banks,
- i) Senior Management: Senior management defined in the Article 3 of the Regulation on Internal Systems and Internal Capital Adequacy Assessment Process of Banks.

## SECOND PART

### Establishing Liquidity Risk Management Structure

**Principle 1. A bank should establish a robust liquidity risk management framework including the strategy, policy and procedures that ensure it maintains its business soundly. It should be documented that which measures shall be taken and which practices shall be implemented under normal economic conditions or the stress events that it is impossible or difficult to reach secured/unsecured funding sources. Within this practices, there should be procedures about establishing a liquidity cushion that ensures it maintains sufficient liquidity in all economic conditions, including unencumbered high quality liquid assets.**

5. Banks should establish an independent liquidity risk management framework that is well integrated into the bank-wide risk management process. This framework should include liquidity risk strategy, policy and procedures (involving work flow diagrams). Senior

management should establish this framework and the board of directors should approve and review it periodically.

6. Banks should establish liquidity risk management framework considering that it can maintain its business positively under periods of liquidity stress the source of which may be bank-specific or market-wide and it can meet the daily liquidity needs. Banks should establish a liquidity cushion including a robust liquidity source that may be used even in liquidity stress conditions.

7. Banks should develop policies using conservative assumptions about the liquidity of assets and its access to funding during the periods of liquidity stress. The capital structure of bank is significant in supplying the liquidity during periods of stress. So, banks should evaluate the adequacy of capital given their own liquidity profile and the liquidity of the markets in which they operate.

8. Banks should take measure in order to prevent the implementations that may decrease the credibility and efficiency of liquidity risk management and control functions through competitive pressures.

9. Few liquidity stress, the intervention of central bank and the deposit guarantee systems should not prevent banks from developing conservative approaches in liquidity risk management.

## **THIRD PART**

### **Liquidity Risk Management**

**Principle 2. Senior management should develop a strategy, policy and procedures to manage liquidity risk effectively in accordance with the liquidity risk appetite and to ensure that the bank maintains sufficient liquidity and implement the necessary practices. Senior management should continuously review information on the bank's liquidity developments and report to the board of directors on a regular basis. The board of directors should review the results of liquidity risk management strategy, policies and practices at an acceptable frequency.**

#### **General**

10. Although the main responsibility belongs to the board of directors in the liquidity risk management process, both the board of directors and the senior management have their own distinct responsibilities in liquidity risk management. The board of directors is responsible for determining the liquidity risk appetite concerning the types and magnitude of liquidity risk and establishing the appropriate organizational structure for managing liquidity risk. Senior management is responsible for setting and implementing (after approval by the board of directors of) the liquidity risk management strategies, policies and procedures and ensuring the liquidity risk appetite set by the board of directors. Senior management should consider liquidity cost, risk and advantages in liquidity transfer pricing system<sup>1</sup> necessary for assignment of funds among alternative business lines.

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<sup>1</sup> In this guideline, liquidity transfer pricing and funding transfer pricing have the same meaning.

11. The liquidity risk management process should be subject to independent reviews and audits (internal or external) to ensure its continued effectiveness in the face of new risks arising from the constantly changing operating environment or increment of the current risk level.

12. In addition, senior management and the board of directors should have an adequate understanding of the close links between funding liquidity risk and market liquidity risk as well as how other risks (e.g. credit, market, operational and reputation risks) interact with liquidity risk and affect the liquidity risk management strategy.

## **Responsibilities of the Board of Directors**

### The Responsibilities of the Board of Directors about Liquidity Risk Appetite

**Principle 3. The board of directors should set a written liquidity risk appetite in terms of size and types that is appropriate for the bank's policy and strategies and the bank is willing to assume under normal and stressed economic conditions.**

13. The board of directors should set a liquidity risk appetite in light of the bank's business objectives, strategic direction, financial structure, size in financial system, funding capacity and overall risk appetite. For example, banks which carry out important market functions or the activity of which covers a key segment of the financial system are generally expected to factor in an additional measure of conservatism in setting their risk tolerance level. The risk appetite should ensure that the bank not only maintains its business positively in normal times but also withstands a prolonged period of stress, for instance, lasts for one month or longer by serving the purpose of an effective liquidity risk management.

14. The liquidity risk appetite should be articulated in such a way that all levels of management clearly understand the trade-off between risks and profits.

15. The liquidity risk appetite should be expressed in qualitative and quantitative ways in the liquidity risk management policy. For example, the level of liquidity risk that the bank decides to take under normal economic conditions should be determined qualitatively as high / mid-level and under stressed economic conditions it should be determined as low. In addition to the legal liquidity ratio in regulations, this risk appetite should include quantitative measures such as establishing an internal limit, determining the minimum limits ensure that the bank maintains its business positively during liquidity stress periods, the level of maximum liquidity risk about various maturity segments.

16. "Maintaining its business soundly" mentioned above, means that the bank's net cumulative cash-flow position is to remain positive under stress scenarios without the need for liquidity assistance from the central bank. Banks should determine the vulnerabilities by using the quantitative measures about concentration of funding in various maturity, contingent liquidity obligations arising from off-balance sheet activities, maturity and currency mismatches and liquid asset holdings and control over risks resulted from these areas.

### The Responsibilities of the Board of Directors about Liquidity Risk Management Structure and Other Issues

17. The board of directors is responsible for establishing a liquidity risk management structure appropriate for the bank's activities, scale, complexity and size.

18. The board of directors should review the appropriateness of the liquidity risk management structure in the light of developments and changes in scope of bank's business.

19. In the case of a local banking group with overseas operations, the board of directors should determine the appropriate liquidity risk management structure for overseeing all branches and subsidiaries in jurisdictions in which the group is active, taking into account their different liquidity risk characteristics and transferability of funds among them in the light of any legal, regulatory or operational restrictions.

20. The liquidity risk management structure may assume varying degrees of centralization or decentralization within a banking group. In general a set of group liquidity risk management policies and standards is produced and adapted to suit the specific circumstances of the group's operations at the regional or entity level. Finally, the structure to be employed should be such as to enable the monitoring of liquidity risks and the availability of liquidity across the group and each entity on an ongoing, simultaneous and consolidated basis.<sup>2</sup>

21. The board of directors should ensure the competence of senior management and appropriate personnel in measuring, monitoring and controlling liquidity risks in terms of expertise, systems and resources for an effective risk management.

22. The board of directors should approve the liquidity risk management strategies, policies and procedures established by senior management.

23. The board of directors is also responsible for reviewing the approved strategy at an acceptable frequency within the economic, financial and operational standards and general strategy of bank.

24. The structure for timely and adequate reporting to the board of directors and related staff on the liquidity positions of the bank should be established. The board of directors should be informed immediately of new and emerging concerns mentioning below:

- increasing funding costs over thresholds,
- the growing size of a funding gap in different maturities,
- concentrations in funding sources,
- negative developments in the markets from which significant funding provided,
- drying up of alternative funding sources,
- material or persistent breaches of limits,
- a significant change/decline in the cushion of unencumbered, highly liquid assets,
- increasing additional margin calls arising from the potential decline in the market price of collateral assets,
- changes in external market conditions which should signal future difficulties.

25. The board of directors should ensure that the bank has adequate internal controls to ensure the integrity of its liquidity risk management process.

26. The board of directors is responsible for establishing a structure to ensure that internal audit should regularly review the implementation and effectiveness of liquidity risk management.

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<sup>2</sup> Banks should establish their systems on "monitoring on an ongoing, simultaneous and consolidated basis" till January 1, 2017 in parallel with the Temporary Article 2 of "the Regulation on Calculation of Liquidity Coverage Ratio of Banks"

27. The board of directors should ensure that operationally independent, appropriately trained and competent personnel are responsible for implementing internal controls.

### **Responsibilities of Senior Management**

28. Liquidity risk management is a significant part of the assets and liabilities management as well as the bank's overall risk management. The board of directors is the fundamental responsible for liquidity risk management. –The Board may implement liquidity risk management through Senior management, Asset and Liability Committee or another unit/committee. This unit / committee should include staff from senior management, treasury unit, risk management and other business units. Senior management should clearly determine the responsibilities of this staff, committees and units in liquidity risk management. In addition, senior management should consider the conformity of budget and liquidity risk management.

29. While the risk exposures of banks will differ according to the nature of their business activities, the liquidity risk management policy should take account of a bank's liquidity needs under normal and stressed conditions and cover, at a minimum, the following key aspects:

- *Liquidity risk appetite* established by the board of directors,
  - *Liquidity risk management strategy* - set out the general approach to liquidity (including goals and objectives ) and the liquidity risk management policies on particular aspects, such as;
    - a) the composition and maturity of assets and liabilities,
    - b) the diversity and stability of funding sources,
    - c) intraday liquidity management,
    - d) the assumptions on the liquidity and marketability of assets;
  - *Liquidity risk management responsibilities*; the clearly defined authority and responsibilities of staff /unit /committee,
  - *Liquidity risk management systems*; the systems and tools for measuring, monitoring and controlling liquidity risk including;
    - a) the setting of various liquidity limits and ratios (e.g. target liquidity ratio, maturity and currency mismatch limits, loan to deposit ratio, concentration risk limits )
    - b) the framework for conducting cash-flow analysis under normal and stressed economic conditions, including the techniques and behavioral assumptions used,
    - c) Clearly determining the reporting system of monitoring liquidity risk management;
  - *Contingency plan*; the approach and strategies for dealing with various types of liquidity crisis;
  - the new product approval process, liquidity costs in pricing and performance measuring, risks and profits (Liquidity Transfer Pricing).
30. Senior management is responsible for ;
  - a) determining the procedures about liquidity risk identification, assessment, monitoring, controlling and mitigation as well as the exceptional cases as overdraft and measures taken after overdraft, submitting for the approval of the board of directors and implementing,
  - b) ensuring the effectiveness and appropriateness of stress tests, contingency plans and liquidity cushion to the bank,

- c) determining the authority and responsibilities of units and specialists without any conflict of interests and submitting for the approval of the board of directors,
- d) monitoring closely the current trends and potential market developments that may require timely changes or updates to the liquidity risk management strategy to address any significant challenges and submitting for the approval of the board of directors,
- e) informing the bank about the strategy, policy and procedures,
- f) ensuring that liquidity risk and its potential interaction with other risks should be included in the risks addressed by risk management committee and independent risk management functions if there exist any,
- g) ensuring that the processes, limits and policies should include monitoring and controlling the fund flows ( fund flows about intraday, structural and stressed liquidity) between bank and participations subject to consolidated audit and considering the legislation, market, accounting, credit and tax limitations and other possible limitations.

#### Considering Liquidity Risk Costs and Benefits by Senior Management

**Principle 4. Senior management should ensure that a bank should consider liquidity costs, benefits and risks in the internal pricing, performance measurement and new product approval process for all significant business activities both on- and off- balance sheet activities.**

31. Recognizing that liquidity risk management is not a profit making activity, it is important to avoid adverse incentives and potential conflicts of interest that would impede a sound risk management framework. Senior management should appropriately incorporate liquidity costs, benefits and risks in the internal pricing, performance measurement and new product approval process for all significant activities, thereby aligning the risk-taking incentives of individual business lines with the liquidity risk appetite established by the board of directors.

32. Liquidity transfer pricing framework involves the charging of a liquidity premium to activities that consume liquidity (e.g. granting new advances) and the assignment of a liquidity value to those that generate liquidity (e.g. obtaining new deposits), based on a predetermined mechanism for attributing liquidity costs, benefits and risks to these activities. Senior management should periodically review the effects of changes and developments in financial market conditions and business lines and this system should;

- reflect the level of liquidity risk inherent in a business activity,
- cover all significant business activities including off-balance sheet activities which may cause contingent exposures,
- incorporate, in the measurement and allocation process, factors related to the anticipated holding periods of assets and liabilities, their market liquidity risk characteristics, and any other relevant factors, including the benefits from having access to relatively stable funding sources,
- take account of both contractual maturity and anticipated maturity as part of the precautionary principle,
- provide an explicit and transparent management at the business line level for quantifying and attributing liquidity costs, benefits and risks,

- include consideration of how liquidity would be affected under stressed conditions,
- consider the effects in pricing of risks about products which have the prepayment option.

## **FOURTH PART**

### **Measuring and Managing Liquidity Risk**

#### **Liquidity Risk Identification, Measurement, Monitoring and Control and Cash-flow Approach and Foreign Currency Liquidity Management**

**Principle 5. A bank should have a sound process for identifying, measuring, monitoring and controlling liquidity risk. This process should include a robust framework for comprehensively projecting cash flows arising from assets, liabilities and off-balance sheet items over an appropriate set of time horizons.**

#### **Liquidity Risk Identification, Measurement, Monitoring and Control**

##### General

33. A bank's liquidity risk management process should include the features mentioned below in order to facilitate the identification, measurement, monitoring and controlling of liquidity risk:

- the use of a range of customized tools and metrics, against which internal limits may be set, for measuring, monitoring and controlling liquidity risk exposures,
- the design and implementation of early warning indicators for identifying potential vulnerabilities in liquidity positions and risks,
- the establishment of a system to report current and potential liquidity difficulties and other liquidity information to senior management in a timely and effective manner.

##### Liquidity Metrics and Measurement Tools

34. Banks should use a range of liquidity metrics for the measurement and analysis of their liquidity risk. These metrics should enable the senior management of bank to understand its day-to-day liquidity positions and structural liquidity mismatches, as well as its resilience under stressed conditions and these metrics should perform the functions of -

- projecting the bank's future cash-flows and identifying potential funding mismatches under both normal and stressed conditions over different time horizons. ( The cash-flow projections should be based on reasonable and appropriate assumptions that are properly documented and periodically reviewed and approved )
- assessing the potential liquidity risks inherent in the bank's balance sheet structure and business activities including emerging risks that are more distant in nature.
- assessing the bank's capability to generate funding as well as its vulnerability to or concentration on any major sources of funding.
- identifying the bank's liquidity vulnerability to foreign currency movements.

35. While determining the functions above, the banks should take into account on- and off-balance sheet positions and activities ( including the effects of embedded options and other contingent exposures that may affect the bank's sources and uses of funds) across business lines, legal entities and operations in major jurisdictions and assess how they can affect liquidity risk.

36. Banks should use metrics and tools that are appropriate for their business mix, complexity and risk profiles in order to quantify the liquidity risk. Liquidity metrics below can be used in risk measurement;

- maturity mismatch analysis, based on contractual maturities as well as behavioral assumptions of cash inflows and outflows,
- information on the composition, quality<sup>3</sup>, diversity and concentration of funding sources<sup>4</sup>,
- information on the size, composition and characteristics of a bank's liquidity cushion for assessing its potential capacity to obtain liquidity under stressed economic conditions,
- other ratios and measures<sup>5</sup> that are appropriate for the bank's business activities.

37. Banks should analyze regularly information or trends ( e.g. a persistent decline in stable deposits ) revealed from liquidity metrics to identify any material liquidity concerns.

### Risk Limits

38. Banks should set limits for the liquidity metrics they employ in monitoring and controlling their liquidity risk exposures. The limits set should be relevant to a bank's business activities and consistent with its liquidity risk appetite.

39. The limits should be used for managing day-to-day liquidity within and across business lines and entities. For example, maturity mismatch limits over different time horizons can be set. The limits should be set at such a level as to ensure that a bank can continue to operate under stressed economic conditions.

40. Banks should ensure compliance with the limits set, and define the procedures for reporting exceptions or breaches which can be early indicators of excessive risk or inadequate liquidity risk management. The limits set and the corresponding reporting procedures should be regularly reviewed.

### Early Warning Indicators

41. Other than liquidity metrics, banks should also design a set of indicators to help in identifying the emergence of increased risks in their liquidity risk positions or potential funding needs. Such early warning indicators should identify any negative trend and cause an assessment and potential response by management in order to mitigate the bank's exposure to the emerging risk. Both internal and market data may be used as early warning indicators.

42. Early warning indicators can be qualitative and quantitative in nature and may include, but are not limited to, the following:

- rapid assets growth, especially when funded with potentially volatile liabilities,
- the decline in the marketability of assets,

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<sup>3</sup> e.g. medium-term funding ratio, core deposit ratio

<sup>4</sup> such metrics provide insight into bank's stable funding sources and identify vulnerability to any particular funding source

<sup>5</sup> e.g. loan to deposit ratio, intragroup exposures and borrowings, swapped fund ratio (to measure the reliance of a bank on foreign currencies to fund domestic currency liquidity needs ), contractual and non-contractual facilities and obligations.

- negative events in the markets that have significant country risk size for the bank (e.g. signs of crisis or recession, decline in the credit rating notes etc.),
- growing concentrations in assets, liabilities and funding sources,
- increasing in currency mismatches,
- a decrease in the weighted average maturity of liabilities,
- repeated incidents of positions approaching or breaching internal or regulatory limits,
- heightened risk associated with a particular product line,
- significant deterioration in the bank's earnings, asset quality and overall financial condition,
- negative publicity,
- a credit rating downgrade,
- stock price declines or rising debt costs,
- widening debt or credit-default-swap spreads,
- rising wholesale or retail funding costs<sup>6</sup>,
- counterparties beginning to request additional collateral for credit exposures or to resist entering into new transactions,
- correspondent banks that eliminate or decrease their credit lines,
- increasing retail deposit outflows,
- difficulty in accessing longer-term funding or placing short-term liabilities,
- worsening cash-flow or structural liquidity positions as evidenced by widening negative maturity mismatches, especially in the short-term time bands,
- high concentration in a particular funding sources.

43. A bank should also have early warning indicators that signal embedded triggers in off-balance sheet operations and contingent liabilities.

### Information Systems

44. Banks should have a reliable management information system designed to provide the board of directors, senior management and other responsible staff with timely and forward-looking information on the liquidity position of the bank.

45. Information systems should enable the bank;

- to monitor liquidity positions in all currencies both individually and on an aggregate basis,
- to calculate liquidity positions in subsidiaries and branches in all jurisdictions in which a bank is active and on a group basis,
- to capture all sources of liquidity risks including embedded triggers in contingent liabilities and off-balance sheet operations,
- to have the ability to deliver more granular and time sensitive information during stressed economic conditions,
- to have the ability to calculate net funding requirements and liquidity positions for intraday, day-to-day and weekly basis and other time horizons,
- to monitor internal and regulatory limits and operational procedures,
- to report appropriate operations about liquidity risk monitoring,

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<sup>6</sup> for example; increase in the bank's credit spread in interbank money market.

- to present the level of concentrations on the funding sources from various aspects (maturity, source type, counterparty etc. ).
46. For banks actively engaged in securitization or other transactions in financial instruments or derivatives, their information systems should capture all risks in the following areas;
- secured borrowing and lending including information on maturity mismatches and asset liquidity,
  - derivative transactions including collateral outflows resulting from rating changes and asset price movements,
  - off-balance sheet funding vehicles and non-contractual obligations providing greater transparency into contingent funding risks.
47. Banks information systems should support effective statistical and behavioral analyses to detect any signs that the average life of retail deposits is shortening or that the deposit base is becoming more volatile.
48. To facilitate in-bank liquidity risk monitoring, senior management should agree on a set of reporting criteria, specifying the scope, manner and frequency of reporting for various recipients and the parties responsible for preparing the reports.
49. The contents of reports should be designed to adequately support liquidity risk management, measuring liquidity needs and controlling liquidity risks. This reports should compare current liquidity exposures to established limits both for internal liquidity risk management and statutory compliance purposes to identify any emerging pressures and limit breaches. Breaches in liquidity risk limits should be reported and thresholds and reporting guidelines should be specified for escalation to higher levels of management, where appropriate to the Board.
50. Banks should promptly inform the Agency of breaches relating to the statutory liquidity ratio and other key ratios that have been agreed by the Agency, any indicators of serious liquidity problems such as the events that trigger the contingency funding plans.
51. In addition to compliance monitoring, information system reports should support the board of directors and senior management in identifying emerging concerns on liquidity, as well as in managing events during liquidity crisis.

## **Cash-flow Approach**

### General

52. Banks should adopt a cash-flow approach in liquidity risk management. The measurement and analysis should be comprehensive and incorporate the cash-flows arising from assets, liabilities, on- and off-balance sheet positions over an appropriate set of time horizons. The framework should be used for:

- monitoring on a daily basis net funding requirements under normal business conditions,
- conducting regular cash-flow analysis based on a range of stress scenarios.

53. Unless otherwise specified, the cash-flow management standards set out in this section apply generally to banks under both normal and stressed conditions. Further specific guidance on cash-flow projections for stress-testing purposes involve in the section named "Stress Testing - Principle 7"

### Scope

54. Liquidity measurement should include the estimation of a bank's cash inflows against its outflows arising from its on- and off- balance sheet assets and liabilities and the liquidity value of its assets to identify the potential net funding shortfalls. Banks should estimate and assess the expected cash inflows and outflows during normal and stressed business conditions. The projections should be forward-looking and based on reasonable assumptions and techniques. So, the banks should take into consider the followings in identifying, measuring, monitoring and controlling liquidity risk:

- cash-flows of assets and liabilities,
- triggering events about contingent liabilities and off-balance sheet positions,
- foreign currency assets and liabilities,
- core business lines and activities including correspondent, custodian and settlement activities.

55. Cash-flow projections should address a variety of factors over different time horizons, including:

- vulnerabilities to changes in liquidity needs and funding capacity on an intraday basis,
- day-to-day liquidity needs and funding capacity over short and medium-term horizons of up to one year,
- longer-term liquidity needs over one year,
- vulnerabilities to events, activities and strategies that can put a significant strain on a bank's capacity for generating liquidity.

56. Cash-flow projections should cover all currencies in aggregate and separate cash-flow projections should be performed for each currencies in which a bank has significant activity. There are detailed explanation about this matter in "Foreign Currency Liquidity Management"

### Net Funding Requirements

57. In order to stay in business, banks need to ensure that either a positive cash-flow position is maintained or otherwise sufficient cash can be generated from their assets and funding sources to satisfy their funding requirements on a daily basis.

### *Maturity Profile*

58. Net funding requirements should be assessed through the construction of a maturity profile. All cash-flows from on-and off-balance sheet assets and liabilities should be allocated into a series of time bands according to their expected maturity dates and a net mismatch position can be obtained by subtracting outflows from inflows in each time band. A cumulative net mismatch position can be derived by accumulating the net mismatch positions in successive time bands which enable banks to estimate the prospective net funding requirements in each time band.

59. The maturity profile should encompass adequate time bands so that banks can monitor their short-term, medium-term and long-term liquidity needs. It is common to have daily time bands in the very short term ( especially a week ), followed by wider and less granular time bands for other periods. The time frame can also vary depending on the bank's business activities.

60. While the focus of the maturity profile is on short-term cash-flows, banks should also review the mismatch positions for the medium-term and longer-term time bands to identify any early sign of potential liquidity problems inherent in their structural balance sheet positions.

#### *Maturity Mismatch Limits*

61. Banks should set internal limits for their cumulative net cash outflows positions of shorter-term time bands especially next day, seven day and one month. Such limits should be in line with the established liquidity risk appetite and take into account the potential impact adverse market conditions on a bank's funding capacity. Maturity mismatch limits should be imposed for each foreign currencies in which a bank has significant positions.

62. The maturity mismatch limits should be documented in the liquidity risk management policy statement and should be periodically reviewed.

#### Cash-flow Assumptions and Techniques

63. While certain cash-flows can be based simply on contractual maturities, there are those which can only be estimated based on assumptions. Banks should make realistic assumptions to enable prudent cash-flow projections by considering the followings:

- future growth in the balance sheet,
- the expectations about renewing ratio of maturing assets and liabilities,
- the quality and ratio of liquid assets that can be used as collateral to obtain secured funding,
- the behavioral characteristics of assets and liabilities with no clearly specified maturity dates such as repayment of overdrafts and demand deposits,
- potential cash-flows arising from off-balance sheet assets and liabilities,
- convertibility of foreign currencies,
- the lead time required for the liquidation of marketable debt securities, taking into account the settlement time and the impact of time differences,
- access to funding sources.

64. Banks should understand and have the capacity to manage how the provision of correspondent, custodian and settlement bank services can affect their cash-flows. Banks should also be familiar with the failure-to-settle procedures of payment and settlement systems in which they are direct participants and be able to manage potential liquidity needs.

65. In projecting cash flows, banks should consider general economic and market trends that may affect their ability to access funds readily and at reasonable terms.

66. Banks should document in their liquidity risk management policy statement the underlying assumptions used for estimating cash-flow projections and reasons behind them. The assumptions and their reasons should be approved and regularly reviewed by the senior management.

67. Techniques employed by banks for designing assumptions should take into account ongoing market developments and should be commensurate with the nature and complexity of their business activities.

68. In deriving behavioral cash-flow assumptions, banks may analyze historical observations. There is however no standard methodology for making such assumptions. It is important that

the use of consistent and reasonable assumptions should be supported by sufficient historical and empirical evidence.

## **Foreign Currency Liquidity Management**

### General

69. Banks should have adequate systems in place for measuring, monitoring and controlling their liquidity positions in each major currency in which they have significant activity or exposure. These systems should be integrated into various aspects of their overall liquidity risk management framework, such as managing net funding requirements, stress-testing and contingency funding planning as appropriate.

70. Significant foreign currency positions should be determined according to realistic and sound criteria and this criteria should be documented.

### Liquidity Strategies and Policies

71. Banks should formulate liquidity strategies and policies for foreign currencies in which they have significant activity or exposure, including those that are not freely convertible into Turkish liras, taking into account potential constraints in times of stress. The effectiveness of such strategies and policies should be regularly reviewed.

72. Banks should manage and control their funding needs to avoid over-reliance on foreign exchange or currency swap markets in respect of those currencies in which they have significant exposures as there is a risk that their ability to swap currencies may erode rapidly under stressed conditions and this is particularly so for currencies in relation to which fully developed foreign exchange markets do not exist.

### Currency Mismatch Controls

73. Banks should assess their aggregate foreign currency liquidity needs under both normal and stressed business conditions and control currency mismatches within acceptable levels.

74. Maturity mismatch in a foreign currency may arise where, for example, a bank relies on foreign currency liabilities and short-term credit lines to fund a portion of their Turkish Liras assets, or vice versa via foreign exchange or currency swap markets. In these cases, banks should have the capacity to assess and monitor the risk of sudden, adverse exchange rate movements that could sharply widen existing liquidity mismatches and alter the effectiveness of foreign exchange hedges and hedging strategies. Banks should also assess the likely convertibility of foreign currencies and access to foreign exchange markets for switching funding from one currency to another.

75. Banks should set and regularly review the limits to control the size of cumulative net mismatches over particular time bands (next day, seven days and one month maturity ) for each major foreign currency in which they operate. Such limits are generally expected to be lower than those for the Turkish liras, unless a bank's balance sheet is predominantly composed of assets and liabilities denominated in foreign currencies. In determining the limits, the following factors should take into account:

- the amount of foreign currency liabilities ( or vice versa the assets ) to fund local currency assets,

- the convertibility and price volatility of each foreign currencies, the timing of access to funds in those currencies, as well as the potential for impairment and complete closure of foreign exchange swap markets,
- the difference of convertibility between each currencies and Turkish lira,
- the conditions of foreign exchange markets including the depth and liquidity of the markets and the level of interest rates,
- the ability to raise funds in foreign exchange markets, to transfer the surplus liquidity from a foreign currency to another and across jurisdictions and legal entities,
- the differences in the behaviour of foreign currency depositors and lenders and those of local currency depositors and lenders and the stickiness of deposits in foreign currencies under stressed conditions,
- the availability of foreign currency backup facilities to cater for circumstances in which normal access to funding in currencies is disrupted,
- the ability of borrowers to repay their foreign currency liabilities such as interest rate hikes and exchange rate fluctuations under stressed conditions.

## **Funding Diversification and Market Access**

**Principle 6. Banks should establish a liquidity strategy to diversify the funding sources and maturity effectively and be in a sound relationship with fund providers and strengthen presence in chosen funding markets in order for ensuring funding diversification. Banks should regularly monitor the capacity of providing funds from each sources in a short time and identify and closely follow the factors which effect the standing of this capacity.**

### **General**

76. To ensure a reliable supply of funds, during both normal and stressed conditions, banks should maintain a range of diversified and stable liquidity sources in short-term, medium-term and long-term and ensure access to the relevant markets. Banks should take appropriate measures to foster relationships with fund providers and strengthen presence in chosen funding markets.

77. Banks should evaluate their capacity to raise funds by reasonable cost quickly from each of the available sources. Banks should also identify the main factors affecting their ability to raise funds and monitor such factors closely to ensure that their estimates of fund-raising capacity remain valid.

## **Funding Diversification**

### Funding Strategy, Plans and Limits

78. Banks should establish a funding strategy that provides effective diversification of their asset and funding sources and maturities. They should take into account correlations between market conditions and funding sources in liquidity strategy.

79. Banks should determine the concentration limits for each funding sources, assets and maturity segments. In determining the concentration limits, banks should take into account the type of asset and market; the nature of counterparty, issuer and fund provider; maturity; currency; geographical location and economic sector. They should also monitor conformity to these limits.

80. Senior management should be aware of the composition, characteristics and diversification of assets and liabilities and should regularly monitor the liquidity strategy in the light of any changes in the internal and market conditions.

#### Liquid Assets<sup>7</sup>

81. Banks should maintain an appropriate liquid assets as a source of liquidity for day-to-day operational needs as well as for meeting emergency liquidity needs. Liquidity can be raised either through selling these assets or using them as collateral. The amount and composition of liquid assets should be determined by banks with reference to the nature of their business and liquidity risk profile.

82. Banks are expected to maintain a sufficient proportion of their liquid assets locally as it is generally easier and quicker to sell or pledge assets that are physically located in Turkey in crisis situations. In particular, banks with significant retail business need to have sufficient funds in the event of a deposit run to purchase quickly bank notes from note-issuing banks to meet the immediate demand from depositors. In this regard, banks should hold an appropriate amount of liquid assets (e.g. treasury bill ) for liquidity risk management that can be sold or pledged immediately during funding crisis.

83. Banks which are a part of a foreign banking group, should maintain sufficient liquid assets within their local operations to cover the liquidity needs of those operations.

#### Other Funding Sources

84. Banks should avoid any potential concentrations in their reliance on particular funding markets or sources. As the level of the concentration cannot be expressed only in definite sizes or amounts, banks should take into account the following factors in assessing the degree of funding concentration:

- the maturity profile and diversity of liabilities,
- the secured and unsecured debt ratio,
- the extent of reliance on a single fund provider or a group of related fund providers, a particular market, financial instrument and product and intragroup funding,
- geographical location, business units and economic sectors of fund providers,
- the currency of funding sources.

85. Banks should analyze the characteristics of their available funding sources and the potential impact of these on their liquidity position. Banks should take into account that certain funding sources like interbank borrowing and wholesale funding are more volatile than traditional funding sources like saving deposits. Banks heavily reliant on such funding sources should seek more diversification of these sources and maintain a higher proportion of high-quality liquid assets.

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<sup>7</sup> The liquid assets mentioned here are broader than those mentioned in the liquidity cushion.

86. In the case of standby credit facilities, banks should take into account that their right to draw on these facilities may be denied and the fund providers may simply not honor their contractual obligations in a crisis and therefore banks should avoid excessive reliance on standby facilities.

87. For banks active in multiple foreign currencies, funding sources should be diversified in each major currency in which they have significant activity.

88. Banks should seek to build up a sufficient level of stable and longer term funding to support their assets and activities. They should analyze their funding structure and identify which funding sources are likely to stay with them under adverse circumstances. Banks with a large deposit base should conduct a granular analysis to evaluate the behavioral characteristics of different types of deposits (e.g. domestic versus foreign deposit, insured versus uninsured deposit, retail versus wholesale banking etc. ) with a view to determine the attributes of deposits that are more stable in nature and they should monitor the trends and levels of their stable deposits.

89. Banks should assess their exposure to large fund providers or depositors on an ongoing basis. Banks should regularly assess reports on at a minimum the largest fifteen fund providers and group of related fund providers. The historical performance of these fund providers e.g. in terms of the maximum, minimum and average balances over the previous twelve months, should also be monitored. Thresholds may be established to identify any funding concentration for senior management review. If a significant percentage of total deposit base concentrate on a limited number of depositors or a group of related depositors, banks should consider appropriate actions to diversify and to broaden the deposit base.

90. Some banks may regard connected deposits as a stable funding source, they should broaden the deposit base as much as possible in order to avoid a concentration on such deposits.

91. Banks should identify alternative funding sources (e.g. intragroup fund transfers, new debt issues, asset sales, access to central bank standing facilities etc. ) that may be used to generate liquidity in case of needs, and assess the effectiveness of using such sources in different situations. They should take into account that not all fund-raising options are available in all circumstances and some may be available only with a substantial time delay.

## **Market Access**

92. Market access is critical for effective liquidity risk management in terms of the ability to liquidate assets and to raise new funds. Senior management should ensure that market access is being actively managed, monitored and tested bet appropriate staff or unit.

## **Market Presence**

93. Banks should maintain an active presence in markets relevant to their funding strategy which requires an ongoing commitment and investment in adequate and appropriate infrastructures, processes and information collection systems. To ensure their ability to access markets in a timely manner and to confirm whether willing counterparties are in place, banks should periodically review the established systems, documentation and arrangements.

94. Interbank money market is an important liquidity source for banks. Banks should estimate their borrowing capacity from this market based on the past experiences. Banks should aim to limit their wholesale funding needs for both local and foreign currencies on a daily and weekly

basis to an amount which is comfortably within that capacity. Banks should also test their name regularly in the market even if there is no immediate need for funds.

95. Because a bank's capacity to borrow from the interbank money market depends on a number of factors, including the size of the bank, market depth, bank share in the market and limits imposed by counterparties, it may not be feasible for a bank to be absolutely certain about its borrowing capacity in the interbank money market. Therefore, in setting internal targets for interbank borrowing, banks should ensure that such targets have actually been attained and exceeded on a reasonable number of occasions.

96. The inclusion of loan-sale clauses in loan documentation, the use of securitization structures and exploring arrangements under which a bank can obtain liquidity against its assets (e.g. repurchase agreements ) may provide some alternative sources of liquidity in times of stress. However, banks should take into account that the securitization market is likely to become illiquid in stressed economic conditions, the securitization transaction may take time and it cannot be possible to provide liquidity from these markets in a short notice.

#### Relationship with Fund Providers

97. A bank should identify and build strong relationships with current and potential investors and providers, even in funding markets facilitated by brokers and other third parties. Where appropriate, a bank should also establish and maintain a relationship with the central bank. The frequency of contact and the frequency of use of a funding source are two possible indicators of the strength of a funding relationship. Building strong relationships can give a bank insights into providers' behavior in times of bank-specific or market-wide shocks and provide a line of defense should a liquidity problem arise. Banks should always conduct research and development activities on reasonable loan sources.

98. Although developing and maintaining strong relationships with providers is important, banks should take into account in the formulation of their stress test scenarios and contingency funding plan that institutions that reliably provide funds in normal conditions may not do so in times of widespread stress because of uncertainty about their own liquidity needs and sources of funds may dry up and markets may close.

#### **Stress Tests**

**Principle 7. Banks should conduct stress tests on a regular basis for a variety of short-term and protracted institution-specific and market-wide stress scenarios individually or in combination, to identify sources of potential liquidity strain and to ensure that current on- and off-balance sheet positions remain in accordance with banks' established liquidity risk appetite. Banks should use stress test outcomes to adjust their liquidity risk management strategies, policies and positions and to develop effective contingency plans.**

#### **General**

99. A bank's having sufficient liquidity depends to a great extent on its ability to meet obligations under a funding crisis. Therefore, in addition to conducting cash-flow projections to monitor funding requirements under normal economic conditions, banks should perform

stress tests regularly by conducting projections based on scenarios<sup>8</sup> on their liquidity positions to -

- identify sources of potential liquidity stress,
- ensure that current liquidity risk positions remain in accordance with the established liquidity risk appetite,
- analyze any possible impact of future liquidity stresses on their cash-flows, liquidity positions, profitability and solvency.

100. The scenarios should cover, at a minimum, institution-specific and market-wide stress scenarios individually and in combination. The scenarios should also cater for short-term and protracted liquidity stresses. Banks should consider the need for additional stress scenarios ( or additional levels of severity for scenarios used ) based on their individual risk profiles for the purposes set out in previous paragraph. Additionally, The Board may establish a single scenario or a series of scenarios for institution-specific or all the banks.

### **Scope and Process**

101. Stress tests provide banks to analyze the impact of scenarios of stressed economic conditions on the banks on consolidated and unconsolidated basis. So, banks may analyze the sources of potential liquidity risk independent from organizational structure and the degree of liquidity risk management centralization. Banks should implement stress tests across different time horizons including on an intraday basis.

102. Stress tests should have reasonable scenarios and senior management and the board of directors should review these scenarios on a regular basis to ensure their appropriateness. Senior management should be actively involved in stress testing process to ensure its effectiveness and demand that rigorous and challenging stress scenarios be considered, even in times when liquidity is plentiful.

103. Stress tests should be performed for all foreign currencies in aggregate and separately for significant amount of exchange rates' net positions and for the positions of Turkish liras.

104. The extent and frequency of stress-testing should be commensurate with the size and complexity of a bank and its liquidity risk exposures, as well as with the relative importance of the bank within the financial system in which it operates. Banks should build a quick and flexible information system in the capability to increase the frequency of stress tests in special circumstances, such as in volatile market conditions or at the request of supervisors.

105. When conducting stress tests on their liquidity position, banks should also consider the insights and results of stress tests performed for other risks including possible interaction with these other risks.

### **Behavioral Considerations for Stress Items**

106. For stress-testing purposes, banks are expected to analyze the behavioral characteristics of their assets, liabilities and off-balance sheet commitments ( including those that are non-contractual in nature but cause liquidity needs because of the reputation risk ) to facilitate

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<sup>8</sup> "What if" scenarios

understanding of how these items may contribute to, or place demands on, their liquidity under stress scenarios.

### Assets

107. The liquidity of a bank's assets is essentially determined by their marketability. Banks should classify their assets in accordance with their relative liquidity and related article of Regulation on the Calculation of Liquidity Coverage Ratio published in the Official Gazette dated March 21, 2014 Nr:28948. In addition to the classification in the mentioned regulation, if the following system is used, assets may be classified on condition that banks should implement more prudent rules than the current classification characteristics/ standard of assets in the Article 5 of the mentioned regulation.

- Cash ( that provides a ready source of liquidity in all circumstances),
- Marketable assets such as government securities which are eligible as collateral which may be sold or repurchased,
- Other marketable assets ( e.g. non-government debt securities, equities ),
- Saleable loan and asset portfolios which may provide a bank with a relatively limited amount of liquidity,
- Other assets which are illiquid or not marketable.

108. In each of the above category, assets which are incapable of generating liquidity because they are pledged to third parties or tied to other positions should be classified as "other assets which are illiquid or nor marketable".

109. Based on the above analysis, banks should assess the potential of different assets for providing liquidity under stressed conditions. In this regard, banks should take into account of the expected level of loss or discount in prices and the time needed to settle the transactions under stressed conditions.

110. For contractual cash inflows generated from banks' asset portfolios (e.g. receivables from retail or wholesale clients), banks should assess the extent to which such payments will be received ( taking into account any projected outflows needed to refinance outstanding loans). Banks should only consider receivables from the customers with regular inflows and which they have no reason to expect a default even within the stress period.

### Liabilities

111. The liquidity need of a bank's liabilities is determined by the reliability, stability and stickiness of its funding sources. Banks should analyze and identify funding sources (other than capital) that would tend to stay with the bank under various circumstances and those that would likely run off quickly at the first sign of problems.

112. Wholesale funding, both secured and unsecured, from more sophisticated fund providers ( such as financial institutions, hedge funds etc. ) tend to be more volatile as the fund providers may be inclined to react quickly to institution-specific and/or market-wide stressed economic conditions by withdrawing or switching their funds to other safe havens at the earliest possible maturity. Banks should assess the likelihood of roll-over of such funding facilities and the possibility that wholesale funding markets may dry up in times of stress.

113. Banks should also consider, having regard to historical trends and account behavior, factors that influence the stability of customer deposits during a crisis scenario, such as:

- the size of deposit (small versus large deposits),
- the channel of soliciting deposits (direct, internet or brokered ),
- the level of deposit insurance,
- whether a depositor has credit relationship with the bank,
- the type of depositor: the relative stability of deposits from retail, small business, large corporate, private banking and offshore customers,
- the purpose of deposit: banks may assess whether some transactional deposits (e.g. payroll accounts) will exhibit more signs of stability in times of stress,
- the behavioral analysis of deposit (core deposit analysis, renewal history analysis etc.).

114. The above analysis can be used to estimate potential run-off rates for different types of deposits in a crisis.

#### Off-Balance Sheet Positions

115. Banks should assess the potential contingent liquidity risks arising from off-balance sheet commitments under stressed economic conditions.

#### *Guarantees and Commitments*

116. Undrawn loan commitments (credit limits), letters of credit and financial guarantees given by banks to their customers may represent a potential drain of funds during stress. Banks should ascertain the level of cash outflows in the normal course of business and then estimate the scope of increase in these cash outflows during period of stress (for example, an economic downturn may trigger a substantial increase in the amount of cash outflows of letters of credit provided by banks to their customers or the trend of cash outflow may differ depending on the type of customers).

117. Conversely, when a bank relies on committed lines of credit or guarantees provided by others, the extent to which such commitments can be relied upon during a crisis should be assessed. Where a bank is holding assets which are guaranteed by a third party or has raised funds against such assets, its funding liquidity could erode when the credit standing of that third party deteriorates. The resale value of those assets will diminish and the bank could be called upon to post additional margin in respect of borrowings against such assets.

#### *Asset Securitization*

118. Banks should assess how the structure of securitization transactions will affect their liquidity positions in respect of their role in the transactions (including contractual terms that can trigger recourse in asset sales, extension of liquidity facilities to the programmes and early amortization etc.) and the extent to which triggering events are more likely to occur during adverse market conditions.

119. Other than contractual obligations, reputation concerns may drive banks in times of stress to provide liquidity support to special purpose vehicle (SPV) of securitization transactions they sponsored/arranged (whether the SPV is consolidated or not for accounting purposes) or buy back securitized assets from the market. Therefore, banks should take into account how their liquidity may be adversely affected by illiquidity at the SPV (for example, the SPV's potential

liquidity draws on the sponsoring bank, the liquidity required for buying back securitized assets, any possible withdrawal of the SPV's liquidity surplus deposited with the bank).

120. Moreover, banks should be aware that they may not have continuing access to the securitization market as a funding source in the midst of a market-wide stress or if they themselves face liquidity problems.

#### *Financial Derivatives and Other Transactions*

121. Where a bank has entered into short-term financing transactions, derivatives and other contracts with embedded trigger clauses, the bank should assess the implications of such transactions or contracts for its liquidity position in times of stress. This would include the potential for counterparties to demand additional collateral in the event such as a 3-notch decline in the bank credit rating or creditworthiness or a decline in the mark-to-market valuation of derivative positions or the price of underlying assets.

#### Consolidated Liquidity Risk Management

122. Banks which are part of a consolidated group should assess the appropriate treatment of their intragroup transactions, including short-term funding and committed liquidity lines provided to, or received from, other group entities in a crisis scenario.

123. For a localized crisis scenario, banks may only include cash inflows from intragroup funding lines where the funding arrangement is fully committed and irrevocable, and there is an acceptable level of certainty that the funding will be received in case of a crisis. Any assumption that intragroup deposits will not be withdrawn at maturity should also be supported by formal arrangements with the placing entity. If the crisis scenario affects the group as a whole, no intragroup or head office funding support should normally be assumed to be available.

### **Scenarios and Assumptions**

#### General

124. Banks should establish severe but plausible stress scenarios and assess the resultant cash-flow needs. History and the opinions of qualified staff may serve as a guide when designing stress tests. While banks should aim to cover different stress events, they should, at a minimum, include the following types of scenarios:

- an institution-specific crisis scenario,
- a general market crisis scenario,
- combined scenarios (a combination of both).

125. Banks should assess the timing of cash inflows of assets, liabilities and off-balance sheet transactions in each scenario and the probability of the behavior of those cash flows. In estimating liquidity needs, both contractual and non-contractual cash flows should be considered.

126. In designing stress scenarios, banks should take into account specific risks associated with their business activities, products and funding sources (for example heavily reliance on specific funding markets or significant exposures on complex financial instruments etc.).

127. Banks should use conservative assumptions for stress tests. Depending on the type and severity of the scenario, banks should take into account, at a minimum, the following assumptions:

*Assumptions Associated With Funding Sources*

- asset market illiquidity and erosion in the value of liquid asset,
- excessive run-off of retail funding,
- the unavailability of secured and unsecured funding sources,
- the correlation<sup>9</sup> between funding markets or the ineffectiveness of diversification across sources of funding,
- the availability of contingent liquidity lines extended by other financial institutions to the bank,
- the access to central bank sources,
- considering the time of settlement,
- considering the high level of prepayment options.

*Assumptions Associated With Funding Needs*

- contingent liabilities, including potential draws on committed lines extended to third parties or banks' subsidiaries, branches or head office,
- funding draws arising from the off-balance sheet transactions and activities,
- funding draws associated with the complex products and transferring,
- additional margin calls and collateral requirements,
- estimates of future balance sheet growth.

*Other Assumptions*

- foreign currency convertibility and access to foreign exchange markets,
- the transferability of liquidity across entities, sectors and national borders, taking into account legal, regulatory, operational and time zone restrictions and constraints,
- the effects of potential payments arising from the changes in credit rating,
- operational restrictions associated with the convertibility of assets to liquidity,
- the effects of resultant increase in the conversion rate of credits.

128. In designing stress tests, banks should consider how the behavior of counterparties (or their correspondents and custodians) would affect the timing of cash flows including on an intraday basis. Where a bank uses a correspondent or custodian to conduct settlement, analysis above should include the impact of those agents restricting their provision of intraday credit. A bank should also understand the impact of the stress event on its customers' use of their intraday credit, and how those needs affect its own liquidity position.

129. The scenario design and underlying assumptions used by a bank should be subject to regular review and approval by the board of directors and senior management to ensure that the nature and severity of the tested scenarios remain appropriate and relevant to the bank. Reviews

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<sup>9</sup> The correlation may be positive or negative.

should take into account changes in market conditions, changes in nature, size and complexity of the bank's business model and activities, and its actual experiences in stressed situations.

130. All crisis scenarios and their underlying assumptions should be properly defined and documented in a bank's liquidity risk management policy.

#### Institution-Specific Crisis Scenarios

131. Institution-specific crisis scenarios should cover situations that could arise from a bank experiencing either real or potential problems (asset quality problems, a 3-notch credit rating downgrade, rumors on the bank's credibility or management fraud) which affect public confidence in the bank or its group-wide operations. They should represent the bank's view of the behavior of its cash flows in a severe crisis. A key assumption is that many of the bank's liabilities cannot be rolled over or replaced, resulting in the need to utilize its liquidity cushion.

132. For retail banks, the scenario will likely entail an acute deposit run and such a scenario would typically include the following characteristics:

- significant run-off rates for deposits, with increasing requests from customers to redeem their time deposits before maturity,
- interbank deposits repaid at maturity,
- no new secured or unsecured funding obtainable from the market,
- forced sale of marketable securities at discounted prices.

133. Banks with foreign partner should, in particular, assess the effects of a group-wide crisis on their liquidity positions.

134. In another institution-specific scenario, it can be assumed that a less severe short-term liquidity crisis may have a negative effect on the bank's longer-term liquidity. This scenario may be triggered by possible changes in the market and public perceptions of a bank that affect its access to funds or cause a gradual drain on its liquidity. Banks are encouraged to take account of different scenarios applicable to their own circumstances as part of the ongoing liquidity risk management process.

#### General Market Crisis Scenarios

135. General market crisis scenarios are those which assume that the liquidity of a large number of financial institutions in one or more markets is affected by the crisis. The characteristics of these scenarios may include:

- a market-wide liquidity squeeze, with severe contraction in the availability of secured and unsecured funding sources, and a simultaneous drying up of market liquidity in some previously highly liquid markets,
- counterparty defaults,
- substantial discounts needed to sell or repurchase assets and wide differences in funding access among banks due to the occurrence of a severe tier of their perceived credit quality,
- restrictions on currency convertibility,
- severe operational or settlement disruptions affecting payment or settlement systems.

136. Banks should consider that the cash-flow pattern of certain assets and liabilities may behave quite differently in the case of a general market crisis scenario as compared with the institution-specific crisis scenario (for example, a bank may have less control over the level and

timing of future cash flows from the sale of marketable debt securities under a general market crisis scenario. Hence, banks should assign appropriate discount factors to such assets to reflect the price risk associated with different stress scenarios).

### Combined Scenarios

137. In this third type scenarios which bear the characteristics of both an institution-specific crisis and general market crisis, it will generally be inappropriate for banks to adopt an additive approach in designing the scenario simply by summing up the underlying assumptions and estimated impacts of an institution-specific scenario and general market risk scenario. Banks should consider making appropriate adjustments under the combined scenario to modulate the severity of assumptions used commonly for the institution-specific and the general market crisis scenarios, having regard to how the various stress circumstances may interact in the scenario (correlation effect).

138. Banks should consider, at a minimum, the following factors in combined scenarios:

- As a greater number of financial institutions in the market will be affected by the crisis, some institution-specific stress elements should be adjusted (for example, instead of a quick but severe deposit run, there may be a less acute but more persistent and protracted run-off of deposits).
- Even lower realizable values of assets may result as the bank concerned seeks to sell or repurchase large quantities of assets when the relevant asset markets become less liquid and market participants are generally in need of liquidity.

### Minimum Stress Period

139. The ability of a bank to honor its immediate commitments at least for the initial period when the stress is likely to be most acute is crucial for its later survival. Generally speaking, a bank should assume the minimum stress period for an institution-specific crisis scenario to last for no less than five business days, and that for a general market crisis scenario and a combined scenario, no less than one calendar month. Banks should adopt longer minimum stress periods if their liquidity risk profile warrants this.

### **Utilization of Stress-Testing Results**

140. The stress-testing results should be linked to the overall liquidity risk management process of a bank. To this end, senior management should;

- review stress scenarios and assumptions regularly to consider the need for remedial or mitigating actions. These may include actions to limit the bank's exposures, obtain more long-term funding or restructure the composition of assets, increase the liquidity cushion or adjust its liquidity profile to fit its risk appetite,
- document the choice of scenarios and related assumptions and review them together with the stress-testing results,
- report the stress-testing results and identified vulnerabilities to the board of directors with recommendations for any resulting action. Banks should implement these action as part of a documentary process.

- integrate the stress-testing results into the bank's strategic business planning process as well as its liquidity risk management strategies and policies. Senior management should also review the access to liquidity limits after implementing stress test.
- decide how to incorporate stress-testing results in assessing and planning for related funding shortfalls in the institution's contingency funding plan. To the extent that projected funding deficits are larger than implied by the bank's liquidity risk appetite, senior management should consider whether to adjust its liquidity position or to implement the bank's contingency plan in consultation with the board of directors.

141. In order to identify and analyze factors that could have a significant impact on its liquidity profile, a bank may conduct an analysis of the sensitivity of the stress-testing results to certain key assumptions. Such sensitivity analyses can provide valuable additional indications of a bank's degree of vulnerability to certain factors.

### **Application of Stress-testing Standards**

142. Locally incorporated banks should apply the stress tests in line with the instructions above on consolidated and unconsolidated basis. Banks which are branches of foreign banks are expected to apply the standards to their Turkey operations only.

143. The provisions of this guideline on stress-testing practice should be assessed together with the principles in "the Guideline for Stress-testing to be used by Banks in Capital and Liquidity Planning".

### **Liquidity Cushions**

**Principle 8. Banks should maintain a cushion of unencumbered, high quality liquid assets to be held as insurance against a range of liquidity stress scenarios including those that involve the loss or impairment of unsecured and typically available secured funding sources. There should be no legal, regulatory or operational impediment to use these assets to obtain funding.**

#### **General**

144. A critical element of a bank's resilience to liquidity stress is the maintenance of an adequate cushion of unencumbered, high quality liquid assets that can be sold or pledged to obtain funds to meet the bank's liquidity needs at all times even in periods of bank-specific or market-wide liquidity squeeze. Banks should maintain such a liquidity cushion as a source of strategic liquidity reserve to be held as insurance against a range of liquidity stress scenarios.

145. Banks should establish a relation and balance between the size of the cushion of unencumbered, high quality liquid assets held as insurance against liquidity stress and the estimates of liquidity needs under stress. Estimates of liquidity needs during periods of stress should incorporate both contractual and non-contractual cash flows, including the possibility of funds being withdrawn and banks should assume the inability to obtain unsecured funding as well as the loss or impairment of access to funds secured by assets other than the safest, most liquid assets.

#### **Size of Liquidity Cushion**

146. The size of the liquidity cushion should reflect a bank's established risk appetite and should be sufficient to cover any funding gaps on various maturity segments generated from the liquidity stress-testing scenarios. Banks should also take into account the changes in the values of assets that can be used in liquidation under the relevant stress-testing scenarios.

147. Liquidity cushion should be sized to enable a bank both to continue to meet daily payments and to maintain its intraday cash-flows on a timely basis during the periods of stress. In this process the other explanations in the part on intraday liquidity management should also be considered.

### **Composition of Liquidity Cushion**

148. Banks are expected to maintain a liquidity cushion that is largely made up of the most liquid and readily marketable liquid assets that can be easily or immediately liquidated with little or no loss or discount at all times. Such assets should be sufficient to meet the liquidity needs in the initial phase of the liquidity stress which is most critical to a bank's survival. Such assets generally include cash, high-quality marketable securities issued or guaranteed by sovereigns or central banks and other similar instruments (e. g. marketable securities issued or guaranteed by public sector entities or multilateral development banks of comparable quality).(Such liquid assets held by a bank should generally qualify for a 0% risk weight under the Basel II standardized approach for credit risk.)

149. Banks may widen the composition of the cushion by holding other highly liquid or marketable assets of a *second level* in addition to those listed in the previous paragraph which can be used to pass the stress period without resulting in excessive losses or discounts. ( Second level liquid assets which should generally qualify for a 20 % risk weight under the Basel II standardized approach include high-quality corporate bonds and other marketable securities issued or guaranteed by sovereigns, central banks, public sector entities or multilateral development banks of comparable quality.)

150. The liquidity cushion should consist of an appropriate mix of eligible assets. There should be sufficient diversity in the types of liquid assets held by the banks, with concentration limits to control exposure to different assets. Banks should apply appropriate haircuts to the liquid assets to account for price fluctuations due to credit and market risks.

### **Characteristics of Liquid Assets**

151. Banks should document in their risk management policy their policies and criteria for defining liquid assets to be included in the liquidity cushion and distinguishing their relative levels of quality and liquidity. The following describes some of the basic characteristics banks should take into account in determining the eligibility of assets for inclusion in the liquidity cushion.

#### Asset Characteristics

- *Unencumbered*: This means there should be no legal or operational impediment at all times to using the assets to meet a bank's liquidity needs as and when they arise. Assets that are pledged , either explicitly or implicitly, to collateralise or are part of a "tied position" (e.g.

the assets are held as a hedge for some other positions) should be excluded. (Banks may consider including assets received in reverse repo and securities financing transactions provided that they are held at the bank, have not been repledged, and are legally and contractually available for the bank's use.)

- *Low Credit Risk:* An asset which is less risky, whose issuer has a high credit standing and with a low degree of subordination will enhance its liquidity. Banks may have a reference to the credit ratings assessed by international rating agencies, but this should not obviate the need for them to conduct their own assessment of the asset's suitability on an ongoing basis.
- *Low Market Risk:* The possession of such characteristics as low duration (the price sensitivity of a fixed income security to changes in interest rate), low volatility, low inflation risk and being denominated in a convertible currency with low exchange rate risk will all enhance an asset's liquidity.
- *Low Correlation Risk:* Banks should avoid relying on liquid assets that are subject to wrong-way risk<sup>10</sup>. Assets issued by financial institutions are more likely to be illiquid in times of a liquidity stress affecting the financial system generally and hence should be excluded.
- *Ease and Certainty of Valuation:* An asset's liquidity will tend to increase if market participants are more likely to agree on the asset's valuation, with its pricing formula being easy to calculate and not dependent on many assumptions or private knowledge (inputs into the formula are publicly available). The structure and risk characteristics of the asset should also be transparent to the market, investors and counterparties. Complex and structured products should be excluded.
- *Proven Record of Liquidity:* Banks should favor those types of assets that have a proven record as a reliable source of liquidity in the markets (sale or repo) even during stressed market conditions. Some types of assets (e.g. high quality government bonds) may also benefit from flight to quality in a systemic crisis.

#### Market-related Characteristics

- *Active, Sizable and Liquid Market:* The assets should be traded or listed in developed, deep and active markets, typically indicated by a narrow bid-offer spread, a sufficient number of market participants, a low level of market concentration and large transaction volume. So, the assets will be used in liquidity need when necessary. Banks should however not assume that a liquid market will exist for a given asset in all stress scenarios simply because such a market exists in normal times.

152. In addition, some high-quality liquid assets may enable a bank to access central bank lending facilities (e.g. intraday credit, overnight liquidity or other standing facilities). While central bank eligibility may confer additional confidence on an asset's liquidity, banks are not expected to use this as the main criterion for considering eligibility of the asset for inclusion in the liquidity cushion. Banks should also be realistic about how much funding they will be able to obtain from the relevant central bank against eligible assets.

#### **Operational Considerations**

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<sup>10</sup> In general wrong-way risk, there is a positive correlation between the default possibility of counterparty and the general market risk factors. Specific wrong-way risk means the risk arising when there is a positive correlation between the default possibility of counterparty and risk exposure because of the quality of transaction.

153. Banks could improve their ability to convert liquid assets reliably and predictably into cash through the following measures:

- Banks should maintain a regular presence in the markets of liquid assets held by them. This ensures that their ability to generate funding at times of stress is based on realistic operational information. An added advantage is that it minimizes the possibility of bank stigma which might arise from trading high-quality liquid assets under stress,
- Banks should have a diversified portfolio of liquid assets with limits by type, maturity and currency,
- Banks should avoid holding a liquid asset of an amount that represents a significant proportion of the market turnover.

154. Banks should ensure that the liquidity cushion is ready for use in the event of stressed economic conditions. The stock of high-quality liquid assets should be unencumbered, managed by banks with the clear and sole intent for use as a source of contingency funding, and segregated from those assets held within, or used to hedge, trading positions.

155. The stock of high-quality liquid assets should be under the control of the specific unit/person/committee charged with liquidity management responsibilities. Banks should be able to use the liquid assets to generate funds in the desired currency and in the jurisdiction in which the liquidity will be required (e.g. with the assets physically located in that jurisdiction). Banks should have a policy in place that identifies legal entities, geographical locations, currencies and specific custodial or bank accounts where HQLA are held. Banks should determine whether any such assets should be excluded for operational reasons and therefore, have the ability to determine the composition of its stock on a daily basis.

156. Banks should avoid running large currency mismatches in their assets and liabilities. In the currency denomination of assets in the liquidity cushion, banks should take into account potential problems in their access to foreign exchange markets under stressed conditions and should cater for the operational needs of the banks in each individual currencies.

157. Banks should periodically monetize a proportion of the liquid assets in the cushion through repo or outright sale to the market in order to test the usability of the assets.

## **Intragroup Liquidity Risk Management**

**Principle 9. A bank should actively monitor and control liquidity risk exposures and funding needs in the consolidated entities, and in terms of related currencies, taking into account legal, regulatory and operational limitations to the transferability of liquidity.**

158. Regardless of its organizational structure and degree of centralized liquidity risk management, banks should monitor and control liquidity risks on consolidated/ unconsolidated basis. Banks should set up a substructure to aggregate data across multiple systems in order to develop a group-wide view of liquidity risk exposures and identify limits on the transfer of liquidity within the group.

159. In managing intragroup liquidity risks, banks should analyze how their liquidity positions may be affected by liquidity problems faced by other group entities. For example, a bank may be required to extend support to group entities that experience liquidity problems while the funding provided by other group entities to the bank may be withdrawn in an emergency

situation. Also, a localized liquidity problem originating in a group entity may lead to a liquidity strain across the whole group due to reputation risk.

### **Treatment of Intragroup Transactions**

160. Banks should specify in their liquidity risk management strategy the assumptions on the level of intragroup dependencies for the purposes of making cash-flow projections.

161. In assessing funding needs especially under stressed situations, banks should take into account any funding or liquidity commitment provided to group entities (e.g. in the form of explicit guarantees or funding lines to be drawn in times of need) and prepare for any withdrawal of funding provided by group entities. Banks should also analyze how the liquidity positions of group entities may affect their own liquidity, either through direct financial impact or through contagion when those entities are faced with liquidity strain.

### **Intragroup Liquidity Limits**

162. Banks should establish internal limits on intragroup liquidity risk to mitigate the risk of contagion from other group entities when those entities are under liquidity stress. Limits may be set in terms of group entities and/or foreign branches or different currencies. Banks should consider setting stricter internal limits on foreign currencies where ready conversion between the currencies is uncertain particularly in stressed situations.

### **Constraints on Intragroup Liquidity Transfers**

163. Assumptions regarding transferability of funds and collateral should be prudent and transparent in liquidity risk management policy that are available for supervisory review. These assumptions should fully consider regulatory, legal, accounting, credit, tax and internal constraints on the transfer of liquidity and collateral. Banks should also consider the operational arrangements needed to transfer funds and collateral across entities and the time required to complete such transfers under those arrangements.

The liquidity transfer restrictions to be accounted for in the consolidated ratio are confined to existing restrictions imposed under applicable laws, regulations and supervisory requirements. A banking group should have processes in place to capture all liquidity transfer restrictions to the extent practicable, and to monitor the rules and regulations in the jurisdictions in which the group operates and assess their liquidity implications for the group as a whole.

### **Reputation Contagion**

164. To mitigate the potential for reputation contagion, it is of vital importance that banks engage in effective communication with credit rating agencies, major counterparties and other stakeholders when liquidity problems in their group entities arise. In addition banks should establish group-wide contingency funding plans and liquidity cushions and diversify the funding sources in order to mitigate reputational contagion.

### **Other Issues**

165. The specific market characteristics and liquidity risks of positions in foreign currencies should be taken into account, particularly where fully developed foreign exchange markets do

not exist. For currencies trading in well-developed foreign exchange markets, a more global approach to management of the currency may be taken, including the use of swaps.

166. Banks should clearly document their policies and limits established for group entities and any internal liquidity support arrangements provided to the entities. The policies should also address how liquidity of the entities is monitored and controlled by senior management.

167. For each country in which they are active, banks should ensure that they have the necessary expertise concerning the country-specific features of the legal and regulatory regime that influence liquidity risk management, including arrangements for dealing with failed banks, deposit insurance and central bank operational framework and collateral policies. This knowledge should be reflected in their liquidity risk management processes.

168. In the case of a localized systemic stress event, banks should have processes in place to allow for allocation of liquidity and collateral resources to affected entities, to the extent that transferability is permitted. Banks should also consider the possibility that a local event could lead to a liquidity strain across the whole group due to reputational contagion and should develop action plans in line with the risk appetite approved by the Board to mitigate the effects of these shocks on the bank and the group

## **Intraday Liquidity Risk Management**

**Principle 10. Banks should actively manage their intraday liquidity positions and risks to meet payment and settlement obligations on a timely basis under both normal and stressed economic conditions.**

169. Intraday liquidity risk management is an important component of a bank's overall liquidity risk management strategy. A bank's failure to manage intraday liquidity effectively could leave it unable to meet its payment and settlement obligations during the day. Especially if large and critical payments are delayed or missed, this can affect the liquidity positions of other counterparties, thereby potentially causing liquidity dislocations across institutions and financial system. Where a bank relies on other correspondent and custodian banks to conduct payment and settlement activities, operational or financial disruptions at those banks will also affect the bank's own liquidity position.

### **Objectives and Challenges in Intraday Liquidity Risk Management**

170. A primary objective in intraday liquidity risk management is for banks to identify, prioritize and meet time-specific and other critical obligations when they become due, and to settle other less critical obligations as soon as possible. In satisfying this objective, banks should be aware of and be able to address various challenges associated with intraday liquidity risk management.

171. A key challenge in intraday liquidity risk management lies in the uncertainty in both the amount and timing of a bank's gross cash inflows and outflows during the day. Moreover, the timing of the cash flows may be dictated by the rules governing payment and settlement systems. Such problems may necessitate the bank borrowing funds on an intraday and overnight basis in order to meet critical payments.

## **Intraday Liquidity Risk Management Controls**

172. Banks should have effective policies, procedures, systems and controls for managing their intraday liquidity risks in all of the financial markets and currencies in which they have significant payment and settlement activities. Such systems and controls should, among other things, ensure a bank's capacity to:

- **measure** expected daily gross cash inflows and outflows, anticipate the intraday timing of these cash flows where possible, and hence forecast the range of potential net funding shortfalls at different time points during the day. For this purpose, banks should:
  - understand the rules of all payment and settlement systems in which banks participate and identify the level and timing of liquidity needs may arise as a result of the failure-to-settle procedures of these systems,
  - identify key counterparties, correspondents or custodians that are sources of incoming or outgoing gross liquidity flows,
  - identify key times, days and circumstances where liquidity flows and possible intraday credit needs may be particularly high,
  - understand the business needs underlying the timing of liquidity flows and intraday credit needs of internal business lines and key customers,
  - request key customers, including customer banks , to forecast their own payment traffic ( loan usage/repayment, run on a bank etc.) to facilitate the process.
- **monitor** intraday liquidity positions against expected activities and available resources (net liquidity position, remaining intraday credit capacity, available collateral) and prioritize payments if necessary. Such monitoring during the day should be frequent enough as to enable a bank to assess the need for additional intraday liquidity or restricting liquidity outflows to meet critical payments, allocate intraday liquidity efficiently among its own needs and those of its customers, and to react quickly to unexpected payment flows and adjust overnight funding positions.
- **manage** intraday liquidity positions so that there is always sufficient intraday funding to meet the bank's intraday liquidity needs. This requires a bank to:
  - establish an effective process for using collateral to meet the intraday funding needs. A bank should have sufficient assets that can be mobilized as collateral to obtain intraday or overnight funding from various sources and operational arrangements in place to pledge or deliver this collateral to central banks, correspondents, custodians and counterparties. A bank should also understand the timeframes required to mobilize different forms of collateral, including collateral held on a cross-border basis,
  - have a robust capability to manage the timing of its liquidity outflows in line with its intraday objectives. A banks should also have the ability to manage the payment outflows of key customers and if customers are provided with intraday credit, that credit procedures are capable of supporting timely decisions. Internal coordination across business lines is important to achieve effective controls over liquidity outflows,
  - be prepared to deal with unexpected disruptions to its intraday liquidity flows. A bank should take into account its intraday liquidity management considerations in the operational risk management and business continuity arrangements, stress testing and contingency funding plans. A bank should also understand the level and timing of liquidity needs that may arise as a result of the failure-to-settle procedures of payment and settlement systems in which it is a direct participant.

173. Intraday liquidity risk management demands cooperation between the front and back offices, as it typically requires close monitoring of expected payments and direct contracts with customers, where necessary, to verify quickly the reasons for delayed payments. A clear assignment of tasks and responsibilities of staff is therefore important, particularly as time-critical decisions need to be made ( for instance, to meet the settlement cut-off times).

174. The tools and resources applied by a bank in managing intraday liquidity risks should be tailored to the bank's business model and role in the financial system. (for example, if a bank relies heavily on secured funding markets, the bank's capacity for monitoring positions in securities settlement systems should be as strong as that for monitoring positions in real time gross settlement systems.)

175. If a bank relies on correspondent and custodian banks to conduct payment and settlement activities, the bank should assure itself that this arrangement allows it to meet payment obligations in a timely basis and to manage effectively its intraday liquidity risks even under stressed economic conditions. In particular, the bank should recognize the potential for operational and financial disruptions at its correspondent or custodian bank and should have alternative arrangements in place to ensure it can continue to meet its obligations in such situations.

## **Collateral Management**

**Principle 11. A bank should actively manage its collateral positions, differentiating between encumbered and unencumbered assets. A bank should monitor the legal entity and physical location where collateral is held and how it may be mobilized in a timely manner.**

### **General**

176. The availability of assets that banks can use as collateral to obtain funding in the market by means of repurchase agreement or secured borrowing gives them the capacity to raise cash quickly to meet short-term or longer-term liquidity needs. This can be considered as a form of liquidity risk mitigation. It is therefore important that banks allocate sufficient resources to the management of collateral in their liquidity risk management process.

177. Collateral management should aim at optimizing the allocation of collateral available for different operational needs, across products, business units, locations, and currencies. It should be based on a prioritization of needs and an awareness of the opportunity cost of its use, in both normal and stressed economic conditions.

### **Management of Collateral Positions**

178. A bank should have the ability to calculate all of its collateral positions, including assets currently pledged relative to the amount of security required and unencumbered assets available to be pledged. A bank's level of available collateral should be monitored by legal entity, by jurisdiction and by currency exposure, and systems should be capable of monitoring shifts between intraday and overnight or term collateral usage.

179. Effective collateral management requires a bank to be in a position to meet a range of collateral needs, including longer-term structural, medium to short-term and intraday considerations. A bank should have sufficient collateral to meet expected and unexpected

borrowing needs and potential increases in margin requirements over different timeframes, depending upon the bank's funding profile. In determining the required collateral to be allocated for intraday liquidity needs, banks should consider the potential for significant uncertainty around the timing of payment flows as well as the potential for operational and liquidity disruptions that could necessitate the pledging or delivery of additional intraday collateral during the day.

180. A bank should assess the eligibility of each major asset class for pledging as collateral with central banks and the acceptability of assets to other fund providers in secured funding markets.

181. Banks should diversify their sources of collateral to avoid excessive concentration on any particular funding provider or market, taking into consideration capacity constraints, sensitivity of prices, haircuts and collateral requirements under conditions of institution-specific and market-wide stress and the availability of funds from private sector counterparties in various market stress scenarios.

182. Banks should prudently measure the value of collateral under normal and stressed economic conditions.

### **Operational Issues**

183. Banks should take into consideration the following issues relating to the use of collateral for obtaining liquidity:

- Banks should be aware of the operational and timing requirements associated with accessing the collateral given its physical location,
- Banks should assess the potential effects of different types of payment and settlement systems (e.g. "net" systems versus "gross" systems) and their implications for collateral management to the liquidity risks,
- Banks should take into account the implications of obligations embedded in the contractual terms of certain transactions which, when triggered, may reduce the availability of collateral for liquidity risk management. These refer to, for example, margin requirements and triggering events that require a bank to:
  - in the case of derivative transactions, to provide additional collateral as a result of changes in the market valuation of the transactions or in the bank's credit rating or financial position,
  - in the case of securitization transactions, to hypothecate or deliver additional assets to the pool of underlying assets when the embedded triggering events occur.
- Banks' information systems should be able to monitor such transactions with embedded triggers and obligations and report whether there are sufficient unencumbered assets of the right type and quality to meet such contingent needs on time and effectively,
- Borrowing contracts should include detailed and clear disclosure on the value of collateral.

### **Contingency Funding Plan**

**Principle 12. A bank should have a formal contingency funding plan that clearly sets out the strategies for addressing liquidity shortfalls in emergency situations. A contingency**

**funding plan should outline policies to manage a range of stress environments and establish clear lines of roles and responsibilities.**

### **General**

184. A contingency funding plan (CFP) is the compilation of policies, procedures and action plans for responding to severe disruptions to a bank's ability to fund some or all of its activities in a timely manner and at a reasonable cost.

185. CFP established within the liquidity risk management policy by senior management should be approved by the board of directors.

186. The mentioned emergency situations should include, in particular, liquidity shortfalls estimated from stress tests performed by the bank under institution-specific, market-wide and combined stress scenarios. The CFP should contain a set of policies, procedures and action plans that prepare a bank to deal with the relevant liquidity stress events assumed in the stress tests with clearly established lines of responsibility and invocation and escalation procedures.

187. The CFP should be commensurate with a bank's complexity, risk profile, scope of operations and role in the financial system. The design of a CFP, including its action plans and procedures, should be closely integrated with the bank's ongoing analysis of liquidity risk, and with the results of the scenarios and assumptions used in stress tests. The CFP should address liquidity issues over a range of different time horizons, including intraday.

188. The CFP should be consistent with a bank's business continuity plans and should be operational under situations where business continuity arrangements have been invoked. As such, the bank should ensure effective coordination between teams managing issues surrounding liquidity crisis and business continuity.

### **Strategy, Plans and Procedures**

#### Contingency Funding Measures/Sources

189. The CFP should provide a bank's management with a diversified set of viable, readily deployable potential contingency funding measures for preserving liquidity and making up liquidity shortfalls in emergency situations. The CFP should articulate available potential contingency funding sources, along with the estimated amount of funds that can be derived from these sources, their expected degree of reliability, under what conditions these sources should be used and the lead time needed to tap additional funds from each of the sources. The CFP should provide a framework with a high degree of flexibility so that a bank can respond quickly in a variety of situations.

190. Banks should analyze the viability and likely impact on market perception of adopting different contingency funding measures. Some of the factors that should be considered include:

- the impact of stressed market conditions on a bank's ability to raise funding through different sources (for example, it will likely be difficult for a bank to rely on asset securitization for providing liquidity at short notice during a market disruption),
- the interaction between asset market and funding liquidity, especially in situations where there is an extensive or complete loss of typically available market funding options,
- the change in the level of reputation risks of banks related to the execution of CFP and any second-round effects,

- any peculiarities including special terms and conditions associated with particular funding sources (for example, banks should generally refrain from excessive reliance on backup credit lines such as central bank and need to understand various conditions that could affect a bank's ability to access such lines quickly).

191. The above considerations should reflect a bank's previous experiences and expert judgement, market practice and insights that the bank has gained through stress-testing.

192. In developing stress-testing with CFP and in assessing the results of these, banks should be aware of the operational procedures needed to transfer liquidity and collateral across group entities, borders and business lines, taking into account legal, operational and time zone restrictions. The CFP should incorporate relevant operational procedures and realistic timelines for such transfers. In a contingent situation, assets intended to be pledged as collateral in the event that backup funding sources are utilized should be held by a legal entity and in a location consistent with management's funding plans.

### Central Bank Lending Facilities

193. The CFP should reflect central bank lending programmes and their relevance as secondary sources of liquidity, including the types of available central bank lending facilities and collateral requirements, the operational procedures for accessing those facilities and potential reputation issues involved in accessing them.

194. Banks should not assume that such support is automatically available to them during a crisis even if they have the eligible collateral. They should recognize that such support can only be sought in exceptional circumstances and as a last resort.

### Early Warning Signals/Triggering Events

195. The CFP should define clearly a set of triggering events that will activate the plan as well as the mechanism for identification, monitoring and reporting of such events at an early stage.

### Roles and Responsibilities

196. The CFP should contain clear policies and procedures enabling a bank's management to make timely and appropriate decisions, communicate the decisions effectively and execute contingency measures swiftly and proficiently. To achieve this, the roles and responsibilities and internal procedures for crisis management should be defined covering, at a minimum, the following considerations:

- the authority to invoke the CFP and the establishment of a formal "crisis team", to facilitate internal coordination and communication across different business lines and locations and decision-making by senior management during a liquidity crisis,
- clear escalation and prioritization procedures detailing what actions to take, who can take them, and when and how each of the actions can and should be activated,
- names and contact details of members of the team responsible for implementing the CFP and units/locations of team members,
- the designation of alternates for key roles.

### Intraday Liquidity

197. The CFP should include potential steps to meet intraday critical payments. In situations where intraday liquidity resources become scarce, a bank should have the ability to identify critical payments, whether these payments may cause the need for additional collateral and sources and to sequence or schedule payments based on priority. As with stress tests, the CFP should also acknowledge that time-critical settlement needs may arise not only from the bank's own transactions, but also those of its customer, and from its provision of services to payment and settlement systems, as was stated in the part about stress tests. The CFP should take into account the risk management procedures of all relevant systems and therefore be sufficiently robust to handle simultaneous disruptions in multiple payment and settlement systems.

#### Managing Customer Relationships

198. The CFP should include procedures for determining the priority of customer relationships during a crisis (e.g. the order in which credit lines would be withdrawn from specific customers). In deciding which assets are to be disposed of, banks would typically select those which are least detrimental to business relationships and public perception about their financial soundness. Banks should also maintain strong ongoing links with trading counterparties in order to be better positioned to secure funding sources under crisis situations.

#### Retail Banking Operations

199. The CFP of retail banks should cater adequately for the occurrence of a retail bank run. In particular, the procedures for obtaining and distributing bank notes are a vital part of contingency planning. Banks with distant branches should have a plan to ensure the delivery of bank notes to these branches within a short period of time in case of emergency. In addition, there should be procedures to ensure the continued functioning of branch and non-branch (e.g. ATMs, internet and phone banking) banking services as well as an effective strategy for communicating with the media and public in the midst of a crisis.

#### Communication and Public Disclosure

200. As a part of CFP, a bank should develop a communication plan to deliver on a timely basis clear and consistent communication to internal and external parties, in a time of stress, to support general confidence in the bank. External parties should include the central bank, the agency, correspondents and custodians, relevant local or overseas public authorities, major counterparties and customers, payment systems and other relevant parties. The plan should in particular address communication with shareholders and market participants, correspondents, custodians and major counterparties and customers to whom assurance about the bank is extremely important as their actions could significantly affect the bank's reputation and liquidity position.

201. An appropriate strategy should also be formulated for managing media relationships, making public announcements and dealing with enquiries during a crisis situation to help reduce uncertainty or speculation about the bank in the market.

### **Testing and Update**

202. The CFP should be subject to regular testing to ensure its effectiveness and operational feasibility, particularly in respect of the availability of the contingency sources of funding listed in it. The aim is not only to prevent operational difficulties in times of crisis when the need to activate those funding sources arises, but also to reduce reputation risk and avoid over-reaction or speculation of the market that a bank is facing liquidity problems when those sources are activated.

203. The testing of the CFP should cover the following major aspects:

- verifying key assumptions, such as the ability to sell or repo certain assets or periodically draw down credit lines,
- ensuring that roles and responsibilities are appropriate and understood,
- confirming that contact information is up-to-date, with reporting lines clearly stated and synchronized with the latest organization chart,
- providing the transferability of cash and collateral especially across borders and entities,
- reviewing that the necessary legal and operational documentation is in place to execute the plan at short notice.

204. Senior management should review all aspects of the CFP following each testing exercise and ensure that follow-up actions are delivered.

205. Senior management should review and update the CFP regularly, at an acceptable frequency or more often as business or market circumstances change, to ensure that it remains robust over time. Any changes to the CFP should be properly documented and approved by the board of directors.

206. The CFP should be maintained in a corporate central repository and in locations that would facilitate quick implementation by responsible parties under emergency situations.