

GUIDELINES ON LIQUIDITY RISK MANAGEMENT

[Appendix to Sec. 145]

I. GENERAL PRINCIPLES

Liquidity risk management practices should ensure that a bank is able to maintain a level of liquidity sufficient to readily meet both expected and unexpected cash flows and collateral needs without adversely affecting daily operations and the financial condition of the institution. The management of cash flows should duly consider a bank's funding capacity for both short- and long-term time horizons, including intraday, and the currencies in which it has significant activities or exposures. Systems and controls should be in place to oversee and manage liquidity positions on an intragroup basis, including those arising from cross-border transactions, taking into consideration the differing liquidity risk profiles of each entity and the transferability of funds within the group, among other relevant factors. Funds management practices shall ensure that liquidity is not consistently maintained at a high cost, from concentrated sources, or through undue reliance on funding sources that may not be available in times of financial stress or adverse changes in market conditions. Lastly, a bank should ensure that it is able to withstand a series of stress events with varying severities under different time horizons.

The requirements for sound liquidity risk management that are set forth in these guidelines shall apply to all banks. In addition, all banks are expected to comply with the minimum prudential liquidity requirements set out under existing regulations.

II. DEFINITIONS

1. *Liquidity risk* is generally defined as the current and prospective risk to earnings or capital arising from a bank's inability to meet its obligations when they come due without incurring unacceptable losses or costs. Liquidity risk includes the inability to manage unplanned decreases or changes in funding sources.
2. *Funding liquidity risk* is the risk that a bank will not be able to meet efficiently both expected and unexpected current and future cash flow and collateral needs without affecting either daily operations or the financial condition of the bank. It also refers to the inability to meet investment and funding requirements arising from cash flow mismatches without incurring unacceptable losses or costs. This is synonymous to the general definition of liquidity risk.
3. *Market liquidity risk* is the risk that a bank cannot easily offset or eliminate a position at the market price because of inadequate market depth or market disruption. The size of the bid/ask spread of instruments in a market provides a general indication of its depth, hence its liquidity,

under normal circumstances. Market liquidity risk is also associated with the probability that large transactions may have a significant effect on market prices in markets that lack sufficient depth.

4. *Intraday liquidity* refers to funds which can be accessed during the business day, usually to enable banks to make payments in real time.
5. *Intraday liquidity risk* is the risk that a bank fails to manage its intraday liquidity effectively, which could leave it unable to meet a payment obligation at the time expected, thereby affecting its own liquidity position and that of other parties.
6. *Intragroup transactions/activities* are transactions between the bank and its parent, subsidiaries, affiliates, and related parties¹ that involve or could cause movement or transfer of funds.

III. LIQUIDITY RISK MANAGEMENT PROCESS

The management of liquidity risk shall form part of the overall risk management framework. At a minimum, the process should:

1. *Identify liquidity risk.* Proper identification of liquidity risk requires that management understands both existing and prospective risks from products and activities. It involves determining the volume and trend of liquidity needs and the sources of liquidity available to meet these needs. Liquidity risk identification should be a continuing process and should occur at the transaction, portfolio, entity and group levels.
2. *Measure liquidity risk.* Adequate measurement systems enable banks to quantify liquidity risk exposures on a per entity basis and across the consolidated organization. A relatively large organization with an extensive scope of operations would generally require more robust risk measurement tools and management information system to properly measure risk in a timely and comprehensive manner.
3. *Control liquidity risk.* The control of liquidity risk necessitates the establishment of policies and standards on acceptable product types, activities, and counterparties, and set risk limits on a transactional, portfolio and aggregate/consolidated basis. Lines of authority and accountability should be clearly defined to ensure that liquidity risk exposures remain reasonable and within the risk tolerance expressed by the board.
4. *Monitor liquidity risk.* Monitoring liquidity risk requires timely reviews of liquidity risk positions, including intraday positions. Monitoring reports should be comprehensive, timely, and accurate

in order to provide sufficient basis for sound business decisions.

IV. LIQUIDITY RISK MANAGEMENT FRAMEWORK

A sound liquidity risk management system should cover the following basic elements:

- Active board and senior management oversight;
- Adequate risk management policies and procedures;
- Appropriate risk measurement methodologies, limits structure, monitoring, and management information system; and
- Comprehensive internal controls and independent audits.

Following the proportionality principle, banks with simple operations may generally employ basic practices while larger and/or complex institutions are expected to adopt more sophisticated risk management frameworks. Large organizations shall take a comprehensive perspective to measuring and controlling risk by understanding how subsidiaries and affiliates can magnify or reduce the consolidated liquidity risk profile.

A. Board and Senior Management Oversight²

The board and senior management should have an adequate understanding of how the liquidity risk profile is affected by other risks such as credit, market, operational and reputational risks.

Responsibilities of the Board of Directors

The board is ultimately responsible for the liquidity risk assumed by the bank and the processes used to manage it. The board of directors shall:

1. Establish the bank's tolerance for liquidity risk in a way that:
 - a. Defines clearly the level of unmitigated liquidity risk that the bank is willing to assume under normal and stressed conditions in varying time periods, including intraday, given its business model, financial condition, and funding capacity. The risk tolerance level should also be appropriate for the bank's role in the financial system. Banks that carry out important market functions or an activity that covers a key segment of the financial system are generally expected to factor in an additional measure of prudence in setting their risk tolerance level;
 - b. Can be easily communicated and understood by personnel involved in the liquidity risk

management process; and

- c. Reflects the bank's evaluation of the sources of liquidity risks and the trade-off between risks and profits.

The risk tolerance level should be adequately documented, preferably with a combination of qualitative provisions in the form of a policy statement, and quantitative expressions (e.g., the specification of a minimum survival period under a range of severe but plausible stress scenarios, or the setting of limits on liquidity metrics used by the bank for controlling different aspects of liquidity risk). Lastly, the risk tolerance should be regularly reviewed in light of any significant changes in market conditions or the validity of assumptions used.

2. Approve the bank's funding strategy.
3. Ensure coherence of the measures used to contain liquidity risk within the stated tolerance level. Banks should note that the mere setting of metrics and limits for managing different aspects of liquidity risk alone does not in itself constitute a sufficient articulation of the overall liquidity risk tolerance.
4. Maintain an appropriate structure for day-to-day funds management and the management of liquidity risk of the bank and its subsidiaries, whenever applicable. The structure should enable the availability of liquidity and the monitoring of liquidity risks across the banking group and at each entity on an on-going basis.

The management of liquidity risk generally requires collaboration among the various business areas that impact the bank's liquidity risk profile. These business units are usually represented in a senior management-level committee, commonly known as the Asset and Liability Committee (or ALCO), whose authority over asset and liability management (ALM) emanates from the board. Meanwhile, day-to-day funds management is executed by the ALM desk which is typically under a bank's treasury department.³

A simple bank's⁴ organizational structure may differ from that described above. Nonetheless, the board should identify committees/units within the organization that are responsible for effectively performing the ALM and daily funds management functions.

To ensure the proper management of liquidity risk, the board shall designate an independent unit responsible for measuring, monitoring and controlling liquidity risk. Said unit should directly report to the board of directors or a committee thereof.

5. Ensure that the bank has competent senior personnel and appropriate resources in terms of expertise and systems to enable the identification, measurement, monitoring and control of liquidity risk.
6. Monitor the bank's performance and overall liquidity risk profile in a timely manner by requiring regular reports. These reports should, at a minimum, contain the liquidity position of the bank along with information related to compliance with established risk limits, and on new or emerging liquidity risks.
7. Mandate and track the resolution of breaches in risk limits and actions taken on deviations from policies and procedures.

Responsibilities of Senior Management

Senior management is responsible for effectively executing liquidity strategies and for operating within the liquidity risk tolerance level set by the board. Thus, the senior management shall:

1. Develop and implement a set of liquidity risk policies and procedures that translates the board's goals and objectives into operating standards, and ensure that this is transmitted to and well understood by personnel.
2. Develop a funding strategy that provides for the effective diversification of assets, funding sources and maturities, taking into account market conditions and the bank's ability to access funds from different sources. A bank should diversify available funding sources in the short-, medium- and long-term. Diversification targets should be part of the medium- to long-term funding plans and aligned with the budgeting and business planning process. The funding strategy should be formally documented and regularly reviewed in light of any changes in the market environment or key assumptions. The factors that complex banks may consider in designing the strategy are set out in Annex A (Factors to Consider in Developing a Funding Strategy).
3. Appropriately incorporate liquidity costs, benefits and risks in the internal pricing, performance measurement and new product approval processes for all significant activities (both on- and off-balance sheet), thereby aligning the risk-taking incentives of individual business lines with the liquidity risk tolerance set by the board.
4. Ensure that all business units conducting activities that have an impact on the liquidity profile are fully aware of the bank's funding strategies, and operate in accordance with approved policies, procedures, limits and controls.

5. Adhere to the lines of authority and responsibility that the board has established for managing overall liquidity risk, and ensure that the units responsible for managing liquidity risk have sufficient authority and independence from risk taking units to enable them to discharge their functions effectively.
6. Oversee the implementation and maintenance of management information and other systems that are used to identify, measure, monitor, and control the bank's liquidity risk.
7. Closely monitor current trends and potential market developments that may present significant challenges for managing liquidity risk. These developments and trends shall include emerging issues, such as increasing funding costs or concentrations, the growing size of the funding gap, the drying up of alternative liquidity sources, material and/or persistent breaches of limits, a significant decline in the internal liquidity buffer, or changes in external market conditions that signal difficulties in the future.
8. Inform the board of any new and emerging liquidity concerns in a timely manner.

B. Risk Management Policies and Procedures

A bank's liquidity risk policies and procedures shall be comprehensive, clearly defined, documented and duly approved by the board of directors. Policies and procedures covering the bank's liquidity risk management system shall provide appropriate guidance to relevant personnel. These policies should be applied on a consolidated basis and, as appropriate, at the level of individual financial subsidiaries, recognizing legal distinctions and possible obstacles to cash movements within the banking group.

The details of the policies and procedures shall take into account the bank's liquidity needs under normal and stressed conditions. These should cover, at a minimum, the following key aspects:

1. The liquidity risk tolerance, as determined by the board;
2. The general approach to funds management, 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. The approach to managing liquidity in different currencies and across business lines;
 - d. The approach to intraday liquidity management; and

- e. The assumptions on the liquidity and marketability of assets.⁵
3. Lines of authority, roles and responsibilities, and the reporting structure for liquidity risk management;
4. Tools for measuring, monitoring, controlling, and reporting liquidity risk, including:
 - a. The setting of various liquidity limits and ratios;
 - b. The framework for conducting cash-flow analysis under normal and stress scenarios, including the techniques and behavioural assumptions used; and
 - c. The management reporting system for liquidity risk.
5. The contingency funding plan, which describes the approach and strategies for dealing with various types of liquidity crises.

The policies should be periodically reviewed to ensure that these remain consistent with the level and complexity of the bank's operations as well as current circumstances. The policies should be regularly updated to incorporate the effects of new products/activities,⁶ or changes in funding strategies or corporate structure.

C. Risk Measurement Methodologies, Limits Structure, Monitoring, and Management Information System (MIS)

Liquidity Metrics or Measurement Tools

Liquidity management entails the on-going measurement of intraday to long-term liquidity positions. Banks shall be guided by the following:

1. Banks shall employ a range of customized metrics or tools, against which internal limits may be set for measuring, monitoring and controlling liquidity risk.
2. Measurement tools should be comprehensive and forward-looking. A comprehensive risk measurement process entails an analysis of cash flows and liquidity implications arising from all material assets, liabilities, off-balance sheet positions and other activities. This also includes the monitoring of liquidity positions in currencies in which banks have significant activity. A currency is considered significant if the aggregate liabilities denominated in that currency amount to five percent (5%) or more of total liabilities. On the other hand, a forward-looking process requires the identification of potential funding gaps, apart from current liquidity shortfalls.

3. The bank's set of metrics or tools shall be commensurate with its size, complexity, and liquidity risk profile. This set of tools should be able to measure the day-to-day liquidity position, structural liquidity mismatches, as well as vulnerabilities under stressed conditions. Some of the liquidity metrics that a bank may use are as follows:
 - a. Cash flow projections from assets, liabilities and off-balance sheet items over an appropriate set of time horizons. Cash flow projections can be used for monitoring intraday liquidity requirements, day-to-day liquidity needs and funding capacity over short to medium term horizons, longer term liquidity needs, and vulnerabilities to events, activities or strategies that can put a significant strain on the bank's capacity to generate liquidity;
 - b. Liquidity/Funding gap or maturity mismatch analyses based on contractual maturities as well as behavioural assumptions of cash inflows and outflows. These can be used to identify potential structural funding gaps that may need to be bridged;
 - c. Information on the composition and quality of funding sources (e.g., ratio of core deposits to total deposits, level of concentration of funding sources). Such metrics provide information on the degree of stability of funding sources; and
 - d. Other ratios (e.g., loans to deposits, liquid assets to liabilities, assets funded by swaps, etc.) as may be applicable to the bank.
4. A bank can use either a static or a dynamic approach to manage its liquidity position, and identify and address potential funding shortfalls in a timely manner.
5. Banks with large deposit bases should be able to conduct statistical or behavioural analyses of the stickiness or volatility of deposits. The related supervisory expectations are in Annex B (Factors to Consider in Developing Cash Flow Projections).
6. On the use of cash flow projections:
 - a. Universal and commercial banks (UBs/KBs) and other institutions with active treasury operations are expected to adopt more robust approaches (e.g., dynamic cash flow projection). The related guidelines are set out in Annex B (Factors to Consider in Developing Cash Flow Projections).
 - b. Simple banks may generally use a static approach to liquidity risk measurement, which is based on positions at a given point in time. This may consist of a simple cash flow projection in a spreadsheet where the bank's sources and uses of cash in a contractual or

maturity liquidity gap over different time horizons may be analyzed.

- c. Developing a realistic cash flow projection is highly dependent upon the underlying assumptions. As such, banks shall ensure that:
 - Controls are in place such that no major assumptions or parameters are used or changed unless the approval by an appropriate independent board-level committee is sought; and
 - Key assumptions, including those that are used in behavioural analysis, are kept valid considering changes in market conditions, the competitive environment, and business strategies; thus, the assumptions must be evaluated and tested at least annually.
 - d. At a minimum, the cash flow projection shall be prepared on a consolidated basis and for each significant currency (refer to Section VI – Foreign Currency Liquidity Management), at the banking group level and for each material financial subsidiary. In determining whether a financial subsidiary is material, consideration may be given to the subsidiary's balance sheet size, volume of funding requirements, level of activities, and degree of funding reliance on the parent bank.
7. Apart from liquidity metrics, banks shall design a set of indicators which may be derived from either internal or market data, to help identify at an early stage emerging risks or potential funding needs. These indicators can be qualitative or quantitative in nature and may include, but are not limited to, the following:
- a. Rapid asset growth, especially when funded by volatile liabilities;
 - b. Growing concentrations on certain assets and liabilities, or on payment/settlement obligations to a single or group of related counterparties;
 - c. Increasing currency mismatches or widening negative liquidity gaps especially in short-term time bands;
 - d. Unusual or sudden increase in intraday payment obligations;
 - e. Growing size of the projected intraday liquidity shortfall;
 - f. Increasing level of past due loans or non-performing assets;
 - g. Increasing overall funding costs;
 - h. Continuing operating losses;
 - i. Rapid decline of share prices, for listed banks;
 - j. Negative publicity; and
 - k. Difficulty in accessing short-term or longer term funds, such as from interbank and repo facilities.

Limits Structure

Banks shall establish limits consistent with the liquidity risk tolerance set by the board and the nature and amount of liquidity risk they are willing and capable to assume. A set of quantitative and qualitative factors should be considered in limits setting. These include, at a minimum, the nature of the bank's strategies and activities, market conditions and costs of access to money markets and other alternative sources of funding.

Limits can take various forms. Banks should address limits on types of funding sources and uses of funds, including off-balance sheet positions. These limits, tolerances, and guidelines may include the following:

- a. Limits on projected net cash flow positions over specified time horizons;
- b. Limits on the maximum amount of projected intraday liquidity shortfall;
- c. Limits on periodic and/or cumulative funding mismatches or gaps over specified short- and long-term time horizons;
- d. Target amounts of highly liquid assets expressed as aggregate amounts or as ratios calculated in relation to, for example, coverage of net cash outflows, or expected liquidity needs under stress scenarios;
- e. Limits or triggers on the structure of short-term and longer-term funding of the asset base, under both normal and stressed conditions;
- f. Limits or triggers on funding concentrations or guidelines that promote funding diversification such as limits on large liability and borrowed funds dependency, single funds providers, exposure to market segment funds providers, and other wholesale funding;
- g. Limits or triggers on contingent liabilities such as unfunded loan commitments and top-up provisions or margin calls from outstanding contracts; and
- h. Guidance on the acceptable tenors of different categories of assets and liabilities (e.g., term of deposits or notes to be issued, or duration of securities holdings).

Before setting limits that allow negative funding gaps, the board and senior management shall consider the bank's ability to fund these negative gaps. Factors include, but are not limited to: the availability of on-balance sheet liquidity, the amount of firm credit lines available from

commercial sources that can be drawn to fund the shortfall, and the amount of unencumbered on-balance sheet assets that can be sold without excessive loss and in a reasonable timeframe. Further, liquidity positions and limits should be influenced by the outcome of stress tests.

Banks shall ensure compliance with the established limits, establish policies on accountabilities for non-compliance, and define the procedures for reporting exceptions or breaches. Finally, banks should regularly review the suitability and effectiveness of their limits structure.

Liquidity Risk Monitoring and Reporting

Banks shall have an adequate and reliable MIS that is able to provide the board, senior management and other concerned personnel with timely information on the bank's liquidity position. The MIS should encompass all significant sources of liquidity risk, including new activities and contingent risks and the related triggers. The MIS should be able to calculate risk measures to monitor liquidity positions:

- In all currencies, both individually and on an aggregate basis;
- In each financial subsidiary and at the consolidated level;
- Under normal business conditions and during stress events, with the ability to deliver more granular, frequent, and time-sensitive information during the latter; and
- For different time horizons (e.g., on an intraday basis, on a day-to-day basis, and over a series of more distant time periods thereafter).

A bank's MIS should likewise be able to capture risks in the following areas:

- The deposit base particularly signs that it is becoming more volatile, as may be indicated by statistical and behavioural analyses;
- 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; and
- Off-balance sheet funding vehicles and non-contractual obligations, providing greater transparency into contingent funding risks.

To facilitate liquidity risk monitoring, there should be reporting standards that specify the scope and granularity of information that should be provided to specific committees or authorities within the bank, as well as the manner and frequency of reporting.

The contents of the MIS reports should adequately support the functioning of the liquidity risk management tools for measuring liquidity needs and controlling different aspects of liquidity risk. At a minimum, the reporting should compare current liquidity exposures to established limits. Breaches in liquidity risk limits should be reported to the appropriate level of management.

Other than monitoring of compliance with limits, the MIS reports should be capable of supporting the board and senior management in identifying emerging concerns on liquidity, as well as in managing events during liquidity crises.

D. Internal Controls and Audit⁷

A bank shall have adequate internal controls in place to protect the integrity of its liquidity risk management process. An effective internal control system promotes operational efficiency, complete and reliable financial and regulatory reporting, and compliance with applicable policies, laws and regulations.

As with other risks, an effective system of internal controls for liquidity risk includes:

- A strong internal control environment;
- An adequate process for identifying, measuring, monitoring and controlling liquidity risk;
- Adequate information systems; and
- Continuous review of adherence to established policies and procedures.

A key element of the internal control system is the conduct of independent internal audit reviews at reasonable audit cycles. Banks/QBs should ensure that the internal audit scope, program and procedures cover all aspects of the liquidity risk management process, including the determination of the appropriateness of the risk management system, particularly its risk measurement tools and stress testing methodology, risk reporting processes, and compliance with policies.

V. INTRADAY LIQUIDITY RISK MANAGEMENT

Banks whose business activities inherently entail a large volume of daily payments and settlements should effectively manage their intraday liquidity positions and risks in order to meet obligations on a timely basis under both normal and stressed conditions, and contribute to the smooth functioning of payment and settlement systems.

A bank may be exposed to intraday liquidity risk through its direct participation in payment and

settlement systems, the provision of correspondent and custodian banking services, or reliance on correspondent or custodian banks for the payment and settlement of its own transactions. In the latter case, operational or financial disruptions at the bank's correspondent or custodian bank will also affect its own liquidity position.

The objective of intraday liquidity risk management is to identify, prioritize, and meet critical obligations when they become due, and to settle other less critical obligations as soon as possible. In accomplishing this objective, banks may face a number of challenges due to the uncertainty of the level and timing of gross cash inflows and outflows. It is, therefore, essential that all banks:

The objective of intraday liquidity risk management is to identify, prioritize, and meet critical obligations when they become due, and to settle other less critical obligations as soon as possible. In accomplishing this objective, banks may face a number of challenges due to the uncertainty of the level and timing of gross cash inflows and outflows. It is, therefore, essential that all banks:

1. Understand the rules of all payment and settlement systems in which they participate;
2. Identify key counterparties and their correspondents or custodians that act as the source of incoming or outgoing gross liquidity flows;
3. Identify key times, days, and circumstances where liquidity flows and possible intraday credit needs might be particularly high; and,
4. Understand the business needs underlying the timing of liquidity flows and intraday credit needs of internal business lines and key customers.

For this purpose, it may be useful for banks to maintain lines of communication with key customers, including customer banks, to obtain a forecast of their own payment traffic.

Banks should have policies, procedures and systems to support operational objectives in all of the financial markets and currencies in which they have significant payment and settlement activities. These should enable them to:

1. Measure expected daily gross liquidity inflows and outflows, including throughput,⁸ anticipate the intraday timing of these flows where possible, and forecast the range of potential net funding shortfalls that might arise at different points during the day;
2. Monitor intraday liquidity positions against expected activities and available resources. Such monitoring should be frequent enough to enable a bank to:
 - (a) determine when to acquire additional intraday liquidity or restrict liquidity outflows to meet critical payments;

- (b) allocate intraday liquidity efficiently between itself and its customers; and
 - (c) react quickly to unexpected payment flows and adjust overnight funding positions easily when needed.
3. Secure sufficient funding and manage the timing of liquidity outflows in accordance with intraday objectives, as well as requirements from the market;
 4. Manage and mobilize collaterals as necessary to obtain intraday funds. A bank should have sufficient collaterals available to acquire the level of intraday liquidity needed to meet its intraday objectives. It should have operational arrangements in place to pledge or deliver this collateral either to the central bank, correspondents, custodians or other counterparties when needed. A bank should also understand the timeframes required to mobilize different forms of collaterals, including collaterals held on a cross-border basis;
 5. Attribute intraday liquidity costs to the bank's income generating units, as warranted;
 6. Set intraday liquidity risk limits that take into account possible obstacles to intraday cash flow movement across various payment systems, and across borders in the case of foreign banks and other global financial market utilities (FMUs)⁹ which may be operating in more than one jurisdiction; and
 7. Deal with unexpected disruptions to intraday liquidity flows, as supported by stress tests and the contingency funding plan. Scenarios designed based on intraday funding disruptions should be included in the bank's stress testing exercise. Stress scenarios for a bank that uses correspondent banking services may include events where: (i) intraday credit lines are being withdrawn by the correspondent bank; or (ii) a bank is required to either prefund its payments and/or to collateralize its intraday credit lines. Contingency funding plans must also be adopted to manage liquidity needs under the different scenarios. (Refer to Sections IX and X of this Appendix for the related guidelines on stress testing and contingency funding plans.)

The tools and resources applied by a bank in managing its intraday liquidity risks should be tailored to its business model, role in the financial system, and the manner by which it conducts its activities for a particular market. That is, whether it directly participates in a payment and settlement system, or it provides correspondent or custodian services and intraday credit facilities to other banks. In particular, a bank classified as a settlement bank for transactions executed through an FMU is expected to have a robust MIS that can tag and segregate, as well as monitor, in real time the inflows/outflows of their own transactions from their payment and settlement obligations.

Banks should ensure that there is a clear assignment of tasks and responsibilities to personnel involved in the intraday liquidity management process. There should also be sufficient coordination among the front, middle, and back offices, as intraday liquidity management requires close monitoring of expected payments and direct contacts with customers, where necessary, to quickly verify the reasons for delayed payments.

VI. FOREIGN CURRENCY LIQUIDITY MANAGEMENT

The principles described in these guidelines also apply to the management of any foreign currency in either the Regular Banking Unit (RBU) or Foreign Currency Deposit Unit (FCDU) to which the bank maintains a significant exposure. The systems or processes for measuring, monitoring, and controlling foreign currency liquidity positions shall be integrated into various aspects of a bank's overall liquidity risk management framework, such as managing net funding requirements, stress-testing, and contingency funding planning, as appropriate.

Banks should formulate liquidity strategies and policies for the major currencies in which they have significant activity or exposure.¹⁰ As a general principle, 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 exposure, as there is a risk that their ability to swap currencies may erode rapidly under stressed conditions.

Banks should assess their aggregate foreign currency liquidity needs under both normal and stressed conditions, and control currency mismatches within acceptable levels.¹¹ Management needs to set and regularly review limits on the size of its funding gaps for each significant individual currency and in aggregate over particular time bands (e.g., "next day", "7 days" and "1 month") for each major foreign currency in which they operate.

Currency mismatch may arise where, for example, a bank relies on local currency liabilities and short-term borrowings to fund a portion of its assets denominated in foreign currency, or vice versa via foreign exchange or currency swap markets. In these cases, banks should demonstrate the capacity to assess and monitor the risk of sudden, adverse exchange rate movements that could sharply widen existing funding gaps 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.

The size of the limits should take into account the following factors, among others:

- a. The amount of foreign currency liabilities that can be swapped through the foreign exchange market to fund local currency assets, or vice versa;

- b. The convertibility and price volatility of individual foreign currencies, the timing of access to funds in those currencies, as well as the potential for impairment or complete closure of foreign exchange swap markets for particular currency pairs in the case of market disruptions;
- c. The conditions of foreign exchange markets, including the depth and liquidity of the markets and the level of interest rates;
- d. The ability to raise funds in foreign exchange markets and to transfer surplus liquidity from one currency to another, across jurisdictions and legal entities;
- e. Differences in the behavior of foreign currency depositors and lenders vis-à-vis those of customers and counterparties in transactions involving the domestic currency, and the stickiness of deposits in foreign currencies under stressed conditions;
- f. The availability of foreign currency backup facilities in cases where normal access to funding in individual currencies is disrupted; and
- g. The ability of borrowers to repay their foreign currency liabilities under stressed conditions (e.g., interest rate hikes and exchange rate fluctuations).

VII. INTRAGROUP LIQUIDITY RISK MANAGEMENT

Banks belonging to a financial group shall have adequate policies and systems that enable active monitoring and control of liquidity risk exposures and funding needs within and across business lines and legal entities in their groups, including those arising from cross-border transactions. Further, the parent bank of a group should establish processes that facilitate data aggregation across multiple systems to enable group-wide management of liquidity risk. For cross-border intragroup activities and other intragroup transactions involving foreign currencies, banks shall also apply the provisions of Part VI, Foreign Currency Liquidity Management.

Banks shall clearly document any liquidity support arrangements with group entities. Further, they should specify in their liquidity risk management policies the treatment of intragroup transactions and the assumptions on intragroup dependencies for the purposes of making cash-flow projections for both normal and stressed conditions.

Intragroup transactions may be treated in the same way as other third party transactions for the purpose of cash flow projections under normal business conditions, provided that there is no doubt about the financial position of the group as a whole. Under stressed situations, banks should analyze how the liquidity positions of group entities may affect their own liquidity. They should be

able to account for any funding or liquidity commitment provided to group entities and prepare for any withdrawal of funding provided by these entities. Where there is reliance on funding support from group entities, banks should take into account any limitation on their access to liquidity from those entities.

Banks should identify and understand the constraints on the movement of liquidity within their groups and specify assumptions regarding the transferability of funds and collateral in liquidity risk management policies. These assumptions should fully consider regulatory, legal, accounting, credit, tax, and internal constraints on the effective movement of liquidity and collateral as well as the time required to complete the transfers. There should also be processes in place for the allocation of liquidity and collateral resources.

A bank should assess the possibility of a reputation contagion that occurs when a liquidity problem in an entity within its group leads to a liquidity strain across the entire group due to the assumption of market counterparties that a problem at one entity is a problem for the group as a whole. The inherent vulnerability of a bank that is part of a group to reputation contagion must be addressed in the bank's intragroup liquidity risk management system.

To mitigate the potential for reputation contagion, banks should consider establishing internal limits on liquidity risk within and across business lines and group entities. It is also vital that banks engage in effective communication with major counterparties and other stakeholders when liquidity problems in their group entities arise. Scenarios based on reputation contagion should be considered in the bank's stress testing exercise and must be complemented with a robust group-wide contingency funding plan. Banks should ensure that they have sufficient liquidity cushions and a well-diversified funding structure to mitigate the effects of reputation contagion.

VIII. COLLATERAL MANAGEMENT

The availability of eligible assets that a bank can use as collateral to obtain funding in the market gives it the ability to raise cash quickly to meet liquidity needs. On the other hand, entering into contracts with margin requirements (such as derivatives) exposes a bank to liquidity risk. Hence, the allocation of sufficient resources to the management of collateral positions is needed in order to achieve the overall liquidity risk management strategy of the bank. In this regard, banks that regularly and/or have plans to enter into collateralized transactions shall institute policies, procedures, and systems that would enable them to:

1. Assess the eligibility and acceptability of each major asset class for pledging as collateral to major counterparties, the Bangko Sentral, and other fund providers in secured funding markets for intraday, overnight, and term credit. Banks should also ensure that there is proper legal

documentation for each asset class to be effectively pledged for liquidity;

2. Monitor the level of available collateral by legal entity, jurisdiction, and currency exposure;
3. Track the legal entity and the physical location, i.e., the custodian bank or securities settlement system, with which each of the available collaterals are held;
4. Meet expected, and accommodate unexpected, borrowing needs as well as potential increases in margin requirements. Banks should also be able to monitor the shifts of collateral usage between intraday, overnight, and term borrowing requirements;
5. Optimize the allocation of collateral available for different operational needs, products, business units, locations, and currencies, as applicable;
6. Diversify the 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 (e.g., concentration of available collaterals in the form of long-dated ROP bonds that have a higher price sensitivity may pose constraints in generating liquidity especially during stressed conditions);
7. Account for all collateral positions, including both currently pledged and unencumbered eligible assets;
8. Prudently measure the value of available and pledged collaterals, together with estimates of its liquidated value in adverse market conditions;
9. Capture the implications of hedging activities and obligations embedded in the contractual terms of transactions involving derivatives, securitizations, structured products, and other market instruments to their ability to utilize collaterals to obtain liquidity and outstanding collateral positions; and
10. Integrate collateral positions in the liquidity risk measurement tools. Banks should incorporate assumptions for available and pledged collaterals in both business as usual and stressed-based liquidity risk measurement tools.

IX. LIQUIDITY STRESS TESTING

Stress tests should enable a bank to assess its ability to generate sufficient liquidity from the asset side, liability side, and contingent items of the balance sheet to meet funding needs under

adverse conditions and to ensure that exposures remain in accordance with the bank's liquidity risk tolerance. In this regard, the following guidelines shall apply:

1. Stress tests shall be conducted on a regular basis for a variety of short-term and protracted stress scenarios to identify sources of potential liquidity strain. This applies to all bank, including those that are covered by the regulations on the LCR, to take into account the varying liquidity risk profiles and vulnerabilities of individual institutions.
2. The design and frequency of stress tests shall be commensurate with the size and complexity of a bank, its liquidity risk exposures, as well as the importance of the bank within the financial system.
3. It is important for banks to construct plausible stress scenarios under varying levels of severities and examine the resultant cash flow needs. They shall, at a minimum, include the following types of scenarios in their stress testing exercise: (a) an institution-specific crisis scenario; (b) a market-wide crisis scenario; and (c) a combination of both.¹²
4. In designing stress scenarios, banks shall take into account specific risks associated with their business models and vulnerabilities arising from a concentration of assets or funding sources.
5. Retail banks, including rural and cooperative banks, may develop scenarios that include: (i) an acute deposit run with significant daily run-off rates for deposits; and (ii) increasing requests from customers to redeem their time deposits prior to maturity.
6. Banksthat actively utilize interbank facilities or collateralized borrowings, shall:
 - a. Analyze the impact of stressed market conditions on the value of assets used as collaterals; and
 - b. Account for systemic as well as second-round effects, i.e., tests should assume that the bank's actions may have an impact on the market and that there are other institutions seeking to undertake similar actions.
7. 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. As such, the bank is expected to have sufficient funds to cover its liquidity needs. It shall ensure that it is able to continue its businesses for a certain minimum stress period under each of the crisis scenarios.

The minimum stress period for an institution-specific crisis scenario shall last for no less than five (5) business days, while a market wide crisis scenario and a combined scenario shall last for

no less than one month. Banks may adopt longer minimum stress periods if their liquidity risk profile so warrants.

8. Stress tests shall be performed for all currencies in aggregate and separately for positions in the local currency and individual foreign currencies in which banks have significant positions. Refer to Section VI for the related guidelines on foreign currency liquidity management.
9. A bank that exercises control over subsidiary/ies should be able to analyze the impact of stress scenarios on its consolidated liquidity position as well as that of individual financial subsidiaries within the group in order to understand where risks could arise. Branches of foreign banks are expected to apply these guidelines to their Philippine operations only. Refer to Section VII for the related guidelines on intragroup stress testing.
10. Banks belonging to a banking group/conglomerate should, in particular, assess the effects of a group-wide crisis scenario on their liquidity positions. This scenario assumes that an institution-specific stress event is affecting the global operations of the banking group (i.e., with problems spilling over the entire banking group).
11. Results of the stress tests should be linked to the overall ALM and liquidity risk management processes of the bank. To this end, the board and senior management should:
 - a. Integrate the stress test results into the bank's strategic business planning process, liquidity risk management strategies and practices, setting of internal liquidity risk limits, and the assessment of potential funding shortfalls in the contingency funding plan; and
 - b. Thoroughly discuss the stress testing results to consider the need for remedial or mitigating actions, such as, but not limited to, expanding the liquidity buffer, obtaining more long-term funding or adjusting the composition of assets.
12. A bank's stress scenarios and related assumptions must be well documented. The scenario design and underlying scenarios used should be subject to regular review and approval by the board and senior management to ensure that the nature and severity of the tested scenarios remain appropriate and relevant to market conditions, changes in business model and activities, and actual experiences in stressed situations.

X. CONTINGENCY FUNDING PLAN

Banks shall have a formal contingency funding plan (CFP) that clearly sets out strategies for addressing emergency situations. These include, in particular, liquidity shortfalls estimated from

stress tests performed by the bank under institution-specific, market-wide and combined stress scenarios mentioned in Sections V and IX. The following shall be observed:

1. The CFP should address liquidity issues over a range of different time horizons, including intraday.
2. The CFP should clearly define a set of triggering events that will activate the plan as well as the mechanisms for identification, monitoring and reporting of such events at an early stage. Banks may adopt internal and market indicators for defining and monitoring triggering events.
3. The CFP should provide a bank's management with a diversified set of viable, readily deployable potential contingency funding measures for preserving liquidity and addressing liquidity shortfalls. All potential sources of funding should be identified, along with the estimated amount of funds that can be derived from these sources, their expected degree of reliability, the conditions under which these sources should be used (such as scenarios when a bank incurs a sudden material intraday liquidity shortfall), and the lead time needed to tap additional funds from each of the sources.

In this regard, banks must maintain adequate records in support of their assumed funding sources during stress conditions, such as test results of counterparty lines, analysis of saturation points for certain securities markets, or statements of support from related parties.

4. The CFP should reflect the relevance of the central bank lending facility as a secondary source of liquidity. It should specify the type of facility to be availed, the corresponding collateral requirements, and operational procedures for accessing the same.
5. To enable a bank to make timely and well-informed decisions and execute contingency measures proficiently, the roles and responsibilities and internal procedures for crisis management should be clearly delineated. These should cover the following:
 - a. The authority to invoke the CFP, and the establishment of a formal liquidity crisis team to facilitate internal coordination and communication across different business lines and locations and decision-making by senior management during a liquidity crisis;
 - b. 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;
 - c. Names and contact details of members of the team responsible for implementing the CFP and the locations of team members; and

- d. The designation of alternates for key roles.
6. In a time of stress, to support general confidence in the bank, it should develop a communication plan to deliver on a timely basis clear and consistent communication to internal and external parties. Internal communication should cover employees in different business lines and locations. External parties should include the Bangko Sentral, clients, and creditors. The CFP should, in particular, address communication with shareholders, market participants, and major counterparties to whom assurance about the bank is extremely important, as their actions could significantly affect the reputation of the bank and its liquidity position.

Strategies should also be appropriately formulated for managing media relationships and making public announcements to help reduce uncertainty or speculation about the bank in the market.

7. 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. This is highly warranted in respect of intraday liquidity stress events considering the need to address funding shortfalls in a limited period of time. The testing of the CFP should cover the following major aspects:
 - a. Verifying key assumptions, such as the ability to sell or repo a certain volume of assets or periodically draw down from credit lines;
 - b. Ensuring that roles and responsibilities are appropriate and understood;
 - c. Confirming that contact information is up-to-date, with reporting lines clearly stated and synchronized with the latest organization chart; and
 - d. Reviewing that the necessary legal and operational documentation is in place to execute the plan at short notice.
8. 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 crises and business continuity.
9. Banks should review and update their plan at least annually for the board's approval, or more often as changing business or market circumstances require.

FACTORS TO CONSIDER IN DEVELOPING A FUNDING STRATEGY

1. Concentration on particular funding markets and sources

Banks should manage any potential concentration in their reliance on particular funding markets and sources. What would constitute a funding concentration cannot be expressed in definite sizes or amounts, as this depends on the nature and complexity of banks' business activities. The following factors should be taken into account in assessing the degree of funding concentration:

- Maturity profile and credit-sensitivity of the liabilities;
- Mix of secured funding and unsecured funding;
- Extent of reliance on the following:
 - a. A single fund provider or a group of related fund providers;
 - b. Certain instruments or products, e.g., interbank borrowing, retail versus wholesale deposits, and repurchase agreements and swaps;
 - c. Particular markets, including a limited number of counterparty lines for financial instruments that are regularly used for funds management; and
 - d. Intragroup funding;
- Geographical location, industry, or economic sector of fund providers; and
- Currency of funding sources.

2. Availability of stable funding sources

Banks should build up a sufficient level of stable funding to support their assets and activities. They should analyze their funding structure and identify which funding sources are likely to stay with them, and which may leave, under adverse circumstances. Banks with a large deposit base should, in particular, conduct a granular analysis to evaluate the behavioural characteristics of different types of deposits with a view of determining the attributes of deposits that are more stable in nature. The trends and levels of stable deposits should be regularly monitored.

3. Impact of available funding sources on liquidity position

Banks should recognize that certain funding sources, e.g., interbank borrowing and wholesale funding, are more volatile than traditional retail funding. Banks that are heavily reliant on such funding sources should seek more diversification of these sources and maintain a higher proportion of high-quality liquid assets to withstand the potential impact of liquidity or market disruptions.

In the case of standby credit facilities, banks should likewise recognize the likelihood that their right to draw on these facilities may be denied in a crisis. Banks should therefore avoid excessive reliance on standby facilities. Where standby facilities constitute a major source of a bank's backup liquidity, it should be able to prove the certainty of these arrangements.

4. Access to alternative sources of funding

Banks should identify alternative sources of funding that may be used to generate liquidity in case of need. These may include intragroup fund transfers, new debt issues, asset sales, and access to Bangko Sentral credit facilities, among others. Banks should review the effectiveness of using such sources in different situations. They should be aware that not all fund-raising options are available in all circumstances and some may be available only with a substantial time delay.

ANNEX B

FACTORS TO CONSIDER IN DEVELOPING CASH FLOW PROJECTIONS

1. 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 that reflect the complexity of their underlying businesses, products and markets. These assumptions may include –
 - a. Future growth in the balance sheet;
 - b. The proportion of maturing assets and liabilities that banks/QBs expect to roll over or renew;
 - c. The quality and proportion of liquid assets or other marketable securities that can be used as collateral to obtain secured funding;
 - d. The behaviour of assets and liabilities with no clearly specified maturity dates, such as repayment of overdrafts and demand deposits;
 - e. Potential cash flows arising from off-balance sheet activities, e.g., drawdown under loan commitments and contingent liabilities (including all potential draws from contractual or

- non-contractual commitments);
- f. Convertibility of foreign currencies;
 - g. The lead time required for the liquidation of marketable debt securities, taking into account the settlement time and the impact of time differences if the clearing or custodian agents are located outside the Philippines; and
 - h. Access to wholesale markets, standby facilities, and intragroup funding.
2. In projecting cash flows, banks should also consider general economic and market trends (e.g., an interest rate hike) that could affect their ability to access funds readily and at reasonable terms. Banks should document in their liquidity risk management policy statement the underlying assumptions used for estimating cash flow projections and the rationale behind them. The assumptions and their justifications should be approved, and be subjected to regular review, by senior management to take account of available statistical evidence and the changing business environment.
 3. Techniques employed by banks for designing assumptions should be commensurate with the nature and complexity of their business activities. These may range from historical experience and static simulations based on current holdings to sophisticated modelling (for more complex banks), taking into account ongoing market developments.
 4. In deriving behavioural cash flow assumptions, banks may analyze historical observations on cash flow patterns. While there is no standard methodology for making such assumptions, it is important that the use of consistent and reasonable assumptions should be supported by sufficient historical or empirical evidence.
 5. The minimum criteria for using behavioural assumptions are as follows:
 - a. The assumptions should be consistent and reasonable for each scenario. For example, the proportion of marketable debt securities which could be liquidated in case of need and their liquidation value should properly reflect the quality and market liquidity of the securities under different scenarios.
 - b. The assumptions should be verified and supported by sufficient evidence, experience and performance rather than arbitrarily selected. Typical information sources that could be used to help formulate the assumptions include -
 - Historical observations or statistical analyses of cash-flow patterns/behavioural maturity under different scenarios. For instance, the past behaviour of different types of customer deposits, coupled with an analysis of their characteristics and factors affecting their

stability, may provide relevant information for estimating the amount of deposits that will likely be withdrawn under normal or stressed situations;

- Models developed or used by banks for conducting cash-flow analysis;
- Input from managerial and business units about business and pricing strategies, as planned changes to business or repricing strategies could affect the behaviour of future cash flows of positions with uncertain maturities; and
- General economic and market trends as well as other relevant information that could affect banks'/QBs' ability to access funds readily and at reasonable terms.

c. The length of the underlying historical observation period used for the analyses and models should be at least ten years, consistent with international standards.

6. Banks should document the behavioural assumptions in their liquidity management policy statement. The type of analysis performed under each assumption should also be documented to facilitate periodic review. The details of that documentation should be consistent with the significance of the risk and the complexity of the analysis.

Footnotes

1. Related parties are defined in item "(n)" of Sec. 131.
2. This Section refers to a management structure composed of a board of directors and senior management. The Bangko Sentral is aware that there may be differences in some financial institutions as regards the organizational framework and functions of the board of directors and senior management. For instance, branches of foreign banks have board of directors located outside of the Philippines and are overseeing multiple branches in various countries. In this case, "board-equivalent" committees are appointed. Owing to these differences, the notions of the board of directors and the senior management are used in these guidelines not to identify legal constructs but rather to label two decision-making functions within a financial institution.
3. With this structure, the ALM desk would be the unit responsible for ensuring the capability of the bank to monetize any high-quality liquidity asset (HQLA) in accordance with Part III Item "(9) (b)" of the Liquidity Coverage Ratio Framework (LCR) in *Appendix 72*.
4. The classification of banks as simple or complex is set out in item "(c)" of Sec. 131
5. A related discussion on asset and market liquidity characteristics may be found in Part III Item "5" of the LCR Framework in *Appendix 72*.
6. Item "(i)" of Sec. 611 of the sets out the expectations on the risk management for new products.
7. Refer to Secs. 162 and 163 for the frameworks on Internal Control System and Internal Audit, respectively.
8. Throughput refers to the percentage of outgoing payments relative to total payments within the day.

9. A Financial Market Utility (FMU) refers to a multilateral system that provides the infrastructure for transferring, clearing, payment settlements and other financial transactions among financial institutions in the system. A bank can be designated as a settlement entity for foreign exchange transactions, securities related transactions, large value payment systems (such as the Philippine Payments and Settlements System or PhilPaSS), a clearing house, transfer systems and any other FMU.
10. The term “significant” as defined in Item “C.2” applies.
11. Banks with FCDU operations are subject to statutory requirements, such as the asset cover.
12. An institution-specific stress scenario may refer to situations that could arise from a bank experiencing problems which affect public confidence in either the bank or its group-wide operations. On the other hand, a market-wide stress scenario may refer to situations where liquidity at a large number of financial institutions in one or more markets is affected. This may be characterized by a market-wide liquidity squeeze, substantial discounts needed to sell or repo assets, or severe operational or settlement disruptions affecting one or more payment or settlement systems.