



CENTRAL BANK

of BELIZE

Basel II/III Implementation

Principles for Liquidity Risk Management

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INTRODUCTION

Liquidity is the ability of a bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses. The fundamental role of banks in the maturity transformation of short-term deposits into long-term loans makes banks inherently vulnerable to liquidity risk¹, both of an institution-specific nature and that which affects markets as a whole. Virtually every financial transaction or commitment has implications for a bank's liquidity. Effective liquidity risk management helps ensure a bank's ability to meet cash flow obligations, which are uncertain as they are affected by external events and other agents' behavior. Liquidity risk management is of paramount importance because a liquidity shortfall at a single institution can have system-wide repercussions.

This liquidity risk management principles are tailored from the Basel Committee on Banking Supervision's Principles for Sound Liquidity Risk Management and Supervision which was published in September 2008. The principles in this document cover governance; the measurement and management of liquidity risk, and the role of disclosure. These elements should not be viewed in isolation; rather, they are integrated components of the liquidity risk management framework and the overall risk management framework of the bank. Therefore, the implementation of sound principles by banks should be tailored to the size, nature of business and complexity of the bank's activities. Banks should consider the bank's role in the financial sector in which it operates and the bank's systemic importance in the financial sector.

As part of the revision of the capital framework, banks will be required to implement a framework for the management of its liquidity risk incorporating these principles as a minimum benchmark. Through the publication of this document, the Central Bank of Belize (Central Bank) desires to promote the effectiveness of liquidity risk management throughout the banking system.

¹ This document focuses primarily on funding liquidity risk. Funding liquidity risk is the risk that the bank will not be able to efficiently meet both the expected and unexpected current and future cash flow and collateral needs without affecting either daily operations or the financial condition of the bank. 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.

FUNDAMENTAL PRINCIPLE FOR THE MANAGEMENT AND SUPERVISION OF LIQUIDITY RISK

PRINCIPLE 1

Banks are responsible for the sound management of liquidity risk. Banks should establish a robust liquidity risk management framework² that ensures it maintains sufficient liquidity, including a cushion of unencumbered, high quality liquid assets, to withstand a range of stress events, including those involving the loss or impairment of both unsecured and secured funding sources.

1.1 Banks should:

- a) establish a robust liquidity risk management framework³ that is well integrated into the bank-wide risk management process, being a primary objective to ensure with a high degree of confidence that the firm is in a position to both address its daily liquidity obligations and withstand a period of liquidity stress affecting both secured and unsecured funding, the source of which could be bank-specific or market-wide.
- b) hold an adequate liquidity cushion comprised of readily marketable assets to be in a position to survive such periods of liquidity stress.
- c) demonstrate that its liquidity cushion is commensurate with the complexity of its on- and off-balance sheet activities, the liquidity of its assets and liabilities, the extent of its funding mismatches and the diversity of its business mix and funding strategies.
- d) use appropriately conservative assumptions about the marketability of assets and its access to funding, both secured and unsecured, during periods of stress.

1.2 Furthermore, banks should not allow competitive pressures to compromise the integrity of its liquidity risk management, control functions, limit systems and liquidity cushion. In addition, banks should manage its liquidity on a conservative basis, not relying on the Central Bank to provide liquidity support during periods of stress.

GOVERNANCE OF LIQUIDITY RISK MANAGEMENT

PRINCIPLE 2

Banks should clearly articulate a liquidity risk tolerance that is appropriate for the business strategy of the bank and its role in the financial system.

2.1 Banks should set a liquidity risk tolerance in light of its business objectives, strategic direction

² A risk management framework encompasses the process/systems and procedures to manage risk and the roles and responsibilities of individuals involved in risk management. An effective risk management framework includes clearly defined risk management policies and procedures covering risk identification, acceptance, measurement, monitoring, reporting and control. Also a well constituted organizational structure defining clearly roles and responsibilities of individuals involved in risk taking as well as managing it.

³ A primary objective of the liquidity risk management framework should be to ensure with a high degree of confidence that the bank is in a position to both address its daily liquidity obligations and withstand a period of liquidity stress affecting both secured and unsecured funding, the source of which could be bank-specific or market-wide.

and overall risk appetite. The Board is ultimately responsible for the liquidity risk assumed by the bank and the manner in which this risk is managed and therefore should establish the bank's liquidity risk tolerance.

2.2 The risk tolerance should:

- a) define the level of liquidity risk that the bank is willing to assume;
- b) be appropriate for the business strategy of the bank and its role in the financial system;
- c) reflect the bank's financial condition and funding capacity;
- d) ensure that the bank manages its liquidity strongly in normal times in such a way that it is able to withstand a prolonged period of stress; and
- e) be articulated in such a way that all levels of management clearly understand the trade-off between risks and profits.

2.3 There are a variety of qualitative and quantitative ways in which a bank can express its risk tolerance. For example, banks may quantify its liquidity risk tolerance in terms of i) the level of unmitigated funding liquidity risk the bank decides to take under normal and stressed business conditions, ii) limits to a set of predefined liquidity ratios, iii) maximum cumulative net cash outflows over a period of time, iv) minimum percentage of high-quality liquid assets over total assets, etc.

PRINCIPLE 3

Senior management should develop a strategy, policies and practices to manage liquidity risk in accordance with the risk tolerance and to ensure that the bank maintains sufficient liquidity. Senior management should continuously review information on the bank's liquidity developments and report to the Board on a regular basis. The Board should review and approve the strategy, policies and practices related to the management of liquidity at least annually and ensure that senior management manages liquidity risk effectively.

3.1 Senior management is responsible for developing and implementing a liquidity risk management strategy in accordance with the bank's risk tolerance. The strategy should include specific policies on liquidity management, such as: i) the composition and maturity of assets and liabilities, ii) the diversity and stability of funding sources, iii) the approach to managing liquidity in different currencies, across borders, and across business lines and legal entities, iv) the approach to intraday liquidity management, and v) the assumptions on the liquidity and marketability of assets. The strategy should take account of liquidity needs under normal conditions as well as liquidity implications under periods of liquidity stress, the nature of which may be institution-specific or market-wide or a combination of the two. The strategy may include various high-level quantitative and qualitative targets. The Board should approve the strategy and critical policies and practices and review them at least annually. The Board should ensure that senior management translates the strategy into clear guidance and operating standards (e.g. in the form of policies, controls or procedures). The Board should also ensure that senior management and appropriate personnel have the necessary expertise and that the bank has processes and systems to measure, monitor, and control all sources of liquidity risk.

3.2 The liquidity strategy should be appropriate for the nature, scale and complexity of a bank's activities. In formulating this strategy, the bank should take into consideration its legal structures, key business lines, the breadth and diversity of markets, products, and jurisdictions in which it operates, and home and host regulatory requirements.

- 3.3 Senior management should determine the structure, responsibilities and controls for managing liquidity risk and for overseeing the liquidity positions of all legal entities, branches and subsidiaries in the jurisdictions in which a bank is active and outline these elements clearly in the bank's liquidity policies. The structure for managing liquidity (i.e. the degree of centralization or decentralization of a bank's liquidity risk management) should take into consideration any legal, regulatory or operational restrictions on the transfer of funds. In some cases there may be strict regulatory restrictions on funds being transferred between entities or jurisdictions. When a group contains both bank and non-bank entities, group level management should understand the different liquidity risk characteristics specific to each entity, both with respect to the nature of the business and with respect to the regulatory environment. Whatever structure is employed, senior management should be able to monitor the liquidity risks across the banking group and at each entity on an ongoing basis. Processes should be in place to ensure that the group's senior management is actively monitoring and quickly responding to all material developments across the group and reporting to the Board as appropriate. It is important that sufficient liquidity is available on a standalone basis, and that the liquid assets be located in Belize.
- 3.4 In addition, senior management and the board should have a thorough understanding of the close links between funding liquidity risk⁴ and market liquidity risk⁵, as well as how other risks, including credit, market, operational and reputation risks affect the bank's overall liquidity risk strategy.
- 3.5 The liquidity strategy, key policies for implementing the strategy, and the liquidity risk management structure should be communicated throughout the organization by senior management. All business units conducting activities that have an impact on liquidity should be fully aware of the liquidity strategy and operate under the approved policies, procedures, limits and controls. Individuals responsible for liquidity risk management should maintain close links with those monitoring market conditions, as well as with other individuals with access to critical information, such as credit risk managers. Moreover, liquidity risk and its potential interaction with other risks should be included in the risks addressed by risk management committees and/or independent risk management functions.
- 3.6 Senior management should guarantee that the bank has adequate internal controls to ensure the integrity of its liquidity risk management process. Senior management should ensure that operationally independent, appropriately trained and competent personnel are responsible for implementing internal controls. It is critical that personnel in independent control functions have the skills and authority to challenge information and modelling assumptions provided by business lines. When significant changes impact the effectiveness of controls and revisions or enhancements to internal controls are warranted, senior management should ensure that necessary changes are implemented in a timely manner. Internal audit should regularly review the implementation and effectiveness of the agreed framework for controlling liquidity risk.
- 3.7 Senior management should closely monitor current trends and potential market developments that may present significant, unprecedented, and complex challenges for managing liquidity risk so that they can make appropriate and timely changes to the liquidity strategy as needed. Senior management should define the specific procedures and approvals necessary for exceptions to policies and limits, including the escalation procedures and follow-up actions to be taken for breaches of limits. Senior management should ensure that stress tests, contingency funding plans and liquidity cushions are effective and appropriate for the bank, as discussed in later principles.

⁴ Funding or cash flow liquidity risk is the chief concern of a corporate treasurer who asks whether the firm can fund its liabilities (<https://www.investopedia.com/articles/trading/11/understanding-liquidity-risk.asp>).

⁵ Market or asset liquidity risk is asset illiquidity. This is the inability to easily exit a position (<https://www.investopedia.com/articles/trading/11/understanding-liquidity-risk.asp>).

- 3.8 The Board should review regular reports on the liquidity position of the bank. The Board should be informed immediately of new or emerging liquidity concerns. These include increasing funding costs or concentrations, the growing size of a funding gap, the drying up of alternative sources of liquidity, material and/or persistent breaches of limits, a significant decline in the cushion of unencumbered, highly liquid assets, or changes in external market conditions which could signal future difficulties. The board should ensure that senior management takes appropriate remedial actions to address the concerns.

MEASUREMENT AND MANAGEMENT OF LIQUIDITY RISK

PRINCIPLE 4

Banks 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.

- 4.1 Banks should define and identify the liquidity risk to which it is exposed for all legal entities, branches and subsidiaries in the jurisdictions in which it is active. A bank's liquidity needs and the sources of liquidity available to meet those needs depend significantly on the bank's business and product mix, balance sheet structure and cash flow profiles of its on- and off-balance sheet obligations. As a result, a bank should evaluate each major on- and off- balance sheet position, including the effect of embedded options (such as term deposits subject to early redemption, non-maturing deposits, or fixed rate loans subject to prepayment risk) and other contingent exposures (e.g. irrevocable loan commitments) that may affect the bank's sources and uses of funds, and determine how it can affect liquidity risk.
- 4.2 Banks should consider the interactions between exposures to funding liquidity risk and market liquidity risk. A bank that obtains liquidity from capital markets should recognize that these sources may be more volatile than traditional retail deposits.
- 4.3 Banks should ensure that assets are prudently valued according to relevant financial reporting and supervisory standards. A bank should fully factor into its risk management the consideration that valuations may deteriorate under market stress and take this into account in assessing the feasibility and impact of asset sales during stress on its liquidity position. For example, a bank's sale of assets under duress to raise liquidity could put pressure on earnings and capital and further reduce counterparties' confidence in the bank, further constraining its access to funding markets.
- 4.4 Banks should recognize and consider the strong interactions between liquidity risk and the other types of risk to which it is exposed. Various types of financial and operating risks, including interest rate, credit, operational, legal, and reputational risks, may influence a bank's liquidity profile. Liquidity risk often can arise from perceived or actual weaknesses, failures, or problems in the management of other risk types. Banks should identify events that could have an impact on market and public perceptions about its soundness.
- 4.5 Liquidity measurement involves assessing a bank's cash inflows against its outflows and the liquidity value of its assets to identify the potential for future net funding shortfalls (also known as liquidity gap analysis). A bank should be able to measure and forecast its prospective cash flows for assets, liabilities, off-balance sheet commitments and derivatives over a variety of time horizons, under normal conditions and a range of stress scenarios, including scenarios of severe stress.

- 4.6 Regarding the time horizons over which to identify, measure, monitor and control liquidity risk, banks should ensure that its liquidity risk management practices integrate and consider a variety of factors. These include 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 up to one year; longer-term liquidity needs over one year; and vulnerabilities to events, activities and strategies that can put a significant strain on internal cash generation capability.
- 4.7 Banks should identify, measure, monitor and control a bank's liquidity risk positions for:
- a) Future Cash Flows of Assets and Liabilities;
 - b) Sources of Contingent Liquidity Demand and Related Triggers Associated with Off-Balance Sheet Positions;
 - c) Currencies in which a Bank is Active; and
 - d) Correspondent, Custody and Settlement Activities.

a) Future Cash Flows of Assets and Liabilities

- 4.8 Banks should have a robust liquidity risk management framework providing prospective, dynamic cash flow forecasts that include assumptions on the likely behavioral responses of key counterparties to changes in conditions and are carried out at a sufficiently granular level. Banks should make realistic assumptions about its future liquidity needs for both the short- and long-term that reflect the complexities of its underlying businesses, products, and markets. Banks should analyze the quality of assets that could be used as collateral, in order to assess their potential for providing secured funding in stressed conditions. Banks also should attempt to manage the timing of incoming flows in relation to known outgoing sources in order to obtain an appropriate maturity distribution for its sources and uses of funds.
- 4.9 In estimating the cash flows arising from its liabilities, a bank should assess the "stickiness" of its funding sources - that is, their tendency not to run off quickly under stress. In particular, for large wholesale funds providers, both secured and unsecured, banks should assess the likelihood of rollover of funding lines and the potential for fund providers to behave similarly under stress, and therefore consider the possibility that secured and unsecured funding might dry up in times of stress. For secured funding with overnight maturity, a bank should not assume that the funding will automatically rollover. In addition, banks should assess the availability of term funding back up facilities and the circumstances under which they can be utilized. Banks should also consider factors that influence the "stickiness" of retail deposits, such as size, interest-rate sensitivity, geographical location of depositors and the deposit channel (e.g. direct, internet or brokered).

b) Sources of Contingent Liquidity Demand and Related Triggers Associated with Off-Balance Sheet Positions

- 4.10 Banks should identify, measure, monitor and control potential cash flows relating to off-balance sheet commitments and other contingent liabilities. This should include a robust framework for projecting the potential consequences of undrawn commitments being drawn, considering the nature of the commitment and credit worthiness of the counterparty, as well as exposures to business and geographical sectors.
- 4.11 The management of liquidity risks of certain off-balance sheet items is of particular importance due to their prevalence and the difficulties that many banks have in assessing the related liquidity risks that could materialize in times of stress. Those items include special purpose vehicles; financial derivatives; and guarantees and commitments.

Guarantees and Commitments

- 4.12 Undrawn loan commitments, letters of credit and financial guarantees represent a potentially significant drain of funds. Banks may be able to ascertain a "normal" level of cash outflows under routine conditions, and then estimate the scope for an increase in these flows during periods of stress. For example, an episode of financial market stress may trigger a substantial increase in the amount of drawdowns of letters of credit provided to its customers.
- 4.13 Similarly, liquidity issues can arise if reliance is placed on committed lines of credit or guarantees provided by others. For example, a bank that holds assets whose creditworthiness is dependent on the guarantees of a third party or has raised funds against such assets could face significant demands on its funding liquidity if the third party's credit standing is highly correlated with the credit quality of the underlying assets. In such cases, the value of the protection a bank purchased from the guarantor on the underlying assets could deteriorate at a time when the assets also are deteriorating. Moreover, the bank could be called upon to post additional margin in respect of borrowings against such assets.

c) Currencies In Which a Bank Is Active

- 4.14 An assessment of its aggregate foreign currency liquidity needs should be conducted to determine acceptable currency mismatches. A separate analysis of its strategy for each currency in which it has significant activity⁶, considering potential constraints in times of stress, should be undertaken.
- 4.15 The size of foreign currency mismatches should take into account:
- a) the bank's ability to raise funds in foreign currency markets;
 - b) the likely extent of foreign currency back-up facilities available in its domestic market;
 - c) the ability to transfer a liquidity surplus from one currency to another, and across jurisdictions and legal entities; and
 - d) the likely convertibility of currencies in which the bank is active, including the potential for impairment or complete closure of foreign exchange swap markets for particular currency pairs.
- 4.16 Banks should be aware of, and have the capacity to manage, liquidity risk exposures arising from the use of foreign currency deposits and short-term credit lines to fund domestic currency assets as well as the funding of foreign currency assets with domestic currency. Banks should take account of the risks of sudden changes in foreign exchange rates or market liquidity, or both, which could sharply widen liquidity mismatches and alter the effectiveness of foreign exchange hedges and hedging strategies.
- 4.17 Moreover, banks should assess the likelihood of loss of access to the foreign exchange markets as well as the likely convertibility of the currencies in which the bank carries out its activities. Banks should negotiate a liquidity backstop facility for a specific currency, or develop a broader contingency strategy, if the bank runs significant liquidity risk positions in that currency.

⁶ The determination should be based on the impact on the operations of the bank. However, at minimum the Central Bank requires this for currency positions that exceed 5% of total assets.

d) Correspondent, Custody and Settlement Activities

- 4.18 Banks should understand and have the capacity to manage how the provision of correspondent, custodian and settlement bank services can affect its cash flows. Given that the gross value of customers' payment traffic (inflows and outflows) can be very large, unexpected changes in these flows can result in large net deposits, withdrawals or line-of-credit drawdowns that impact the overall liquidity position of the correspondent or custodian bank, both on an intraday and overnight basis. Banks should understand and have the capacity to manage the potential liquidity needs it would face as a result of the failure-to-settle procedures of payment and settlement systems in which it is a direct participant.

Measurement Tools

- 4.19 A range of customized measurement tools, or metrics, as there is no single metric that can comprehensively quantify liquidity risk, should be employed. To obtain a forward-looking view of liquidity risk exposures, banks should use metrics that assess the structure of the balance sheet, as well as metrics that project cash flows and future liquidity positions, taking into account off-balance sheet risks. These metrics should span vulnerabilities across business-as-usual and stressed conditions over various time horizons. Under business-as-usual conditions, prospective measures should identify needs that may arise from projected outflows relative to routine sources of funding. Under stress conditions, prospective measures should be able to identify funding gaps at various horizons, and, in turn, serve as a basis for liquidity risk limits and early warning indicators.
- 4.20 Management should tailor the measurement and analysis of liquidity risk to the bank's business mix, complexity and risk profile. The measurement and analysis should be comprehensive and incorporate the cash flows and liquidity implications arising from all material assets, liabilities, off-balance sheet positions and other activities of the bank. The analysis should be forward-looking and strive to identify potential future funding mismatches so that the bank can assess its exposure to the mismatches and identify liquidity sources to mitigate the potential risks. In the normal course of measuring, monitoring and analysing its sources and uses of funds, a bank should project cash flows over time under a number of alternative scenarios. These pro-forma cash flow statements are a critical tool for adequately managing liquidity risk. These projections serve to produce a "cash flow mismatch" or "liquidity gap" analysis that can be based on assumptions of the future behaviour of assets, liabilities and off-balance sheet items, and then used to calculate the cumulative net excess or shortfall over the time frame for the liquidity assessment. Measurement should be performed over incremental time periods to identify projected and contingent flows taking into account the underlying assumptions associated with potential changes in cash flows of assets and liabilities.
- 4.21 Given the critical role of assumptions in projecting future cash flows, steps to ensure that its assumptions are reasonable and appropriate, documented and periodically reviewed and approved should be taken. The assumptions around the duration of demand deposits and assets, liabilities, and off-balance sheet items with uncertain cash flows and the availability of alternative sources of funds during times of liquidity stress are of particular importance. Assumptions about the market liquidity of such positions should be adjusted according to market conditions or bank-specific circumstances.

Liquidity Risk Control Through Limits

- 4.22 Banks should set limits to control its liquidity risk exposure and vulnerabilities. A bank should regularly review such limits and corresponding escalation procedures. Limits should be relevant to the business in terms of its location, complexity of activity, nature of products, currencies and markets served.

- 4.23 Limits should be used for managing day-to-day liquidity within and across lines of business and legal entities under "normal" conditions. For example, a commonly employed type of limit constrains the size of cumulative contractual cashflow mismatches (e.g. the cumulative net funding requirement as a percentage of total liabilities) over various time horizons. This type of limit also may include estimates of outflows resulting from the drawdown of commitments or other obligations of the bank.
- 4.24 The limit framework should include measures aimed at ensuring that the bank can continue to operate in a period of market stress, bank-specific stress and a combination of the two. Simply stated, the objective of such measures is to ensure that, under stress conditions, available liquidity exceeds liquidity needs.

Early Warning Indicators

- 4.25 While management and staff have the responsibility to utilize good judgement to identify and manage underlying risk factors, banks should also design a set of indicators to aid this process to identify the emergence of increased risk or vulnerabilities in its liquidity risk position 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.
- 4.26 Early warning indicators can be qualitative or quantitative in nature and may include but are not limited to:
- a) rapid asset growth, especially when funded with potentially volatile liabilities;
 - b) growing concentrations in assets or liabilities;
 - c) increases in currency mismatches;
 - d) a decrease of weighted average maturity of liabilities;
 - e) repeated incidents of positions approaching or breaching internal or regulatory limits;
 - f) negative trends or heightened risk associated with a particular product line, such as rising delinquencies;
 - g) significant deterioration in the bank's earnings, asset quality, and overall financial condition;
 - h) negative publicity;
 - i) a credit rating downgrade;
 - j) stock price declines or rising debt costs;
 - k) rising wholesale or retail funding costs;
 - l) counterparties that begin requesting or request additional collateral for credit exposures or that resist entering into new transactions;
 - m) correspondent banks that eliminate or decrease their credit lines;
 - n) increasing retail deposit outflows;

- o) increasing redemptions of CDs before maturity;
- p) difficulty accessing longer-term funding; and
- q) difficulty placing short-term liabilities (e.g. commercial paper).

Monitoring System

- 4.27 Banks should have a reliable management information system designed to provide the Board, senior management and other appropriate personnel with timely and forward-looking information on the liquidity position of the bank. The management information system should have the ability to calculate liquidity positions in all of the currencies in which the bank conducts business - both on a subsidiary/branch basis in all jurisdictions in which the bank is active and on an aggregate group basis. It should capture all sources of liquidity risk, including contingent risks and the related triggers and those arising from new activities, and have the ability to deliver more granular and time sensitive information during stress events. To effectively manage and monitor its net funding requirements, banks should have the ability to calculate liquidity positions on an intraday basis, on a day-to-day basis for the shorter time horizons, and over a series of more distant time periods thereafter. The management information system should be used in day-to-day liquidity risk management to monitor compliance with the bank's established policies, procedures, and limits.
- 4.28 To facilitate liquidity risk monitoring, senior management should agree on a set of reporting criteria, specifying the scope, manner, and frequency of reporting for various recipients (such as the board, senior management, asset - liability committee) and the parties responsible for preparing the reports. Reporting of risk measures should be done on a frequent basis (e.g. daily reporting for those responsible for managing liquidity risk, and at each board meeting during normal times, with reporting increasing in times of stress) and should compare current liquidity exposures to established limits 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, the Board and supervisory authorities.

PRINCIPLE 5

Banks should actively monitor and control liquidity risk exposures and funding needs within and across legal entities, business lines and currencies, taking into account legal, regulatory and operational limitations to the transferability of liquidity.

- 5.1 Regardless of its organizational structure and degree of centralized or decentralized liquidity risk management, banks should actively monitor and control liquidity risks at the level of individual legal entities, and foreign branches and subsidiaries, and the group as a whole, incorporating processes that aggregate data across multiple systems in order to develop a group-wide view of liquidity risk exposures and identify constraints on the transfer of liquidity within the group.
- 5.2 Although at the time of preparing this risk management guideline this may not be relevant. The Central Bank requires this to be in place whenever the operation of a bank fits this requirement. Therefore, for each country where it is active, a bank should ensure that it has the necessary expertise about 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 frameworks and collateral policies. This knowledge should be reflected in liquidity risk management processes.

- 5.3 To mitigate the potential for reputational contagion, effective communication with counterparties, credit rating agencies and other stakeholders when liquidity problems arise is of vital importance. In addition, group-wide contingency funding plans, liquidity cushions and multiple sources of funding are mechanisms that may mitigate reputational contagion.

PRINCIPLE 6

Banks should establish a funding strategy that provides effective diversification in the sources and tenor of funding. It should maintain an ongoing presence in its chosen funding markets and strong relationships with funds providers to promote effective diversification of funding sources. Banks should regularly gauge its capacity to raise funds quickly from each source. It should identify the main factors that affect its ability to raise funds and monitor those factors closely to ensure that estimates of fundraising capacity remain valid.

- 6.1 Banks 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 be aligned with the budgeting and business planning process. Funding plans should take into account correlations between sources of funds and market conditions. The desired diversification should also include limits by counterparty, instrument type, currency, and geographic market.
- 6.2 As a general liquidity management practice, banks should limit concentration in any one particular funding source or tenor. Banks should ensure that wholesale funding sources are sufficiently diversified to maintain timely availability of funds at the right maturities and at reasonable costs. Furthermore, banks reliant on wholesale funding should maintain a relatively higher proportion of unencumbered, highly liquid assets than banks that rely primarily on retail funding. For institutions active in multiple currencies, access to diverse sources of liquidity in each currency is required, since banks are not always able to swap liquidity easily from one currency to another.
- 6.3 Senior management should be aware of the composition, characteristics and diversification of the bank's assets and funding sources. Senior management should regularly review the funding strategy in light of any changes in the internal or external environments.

MANAGING MARKET ACCESS

- 6.4 An essential component of ensuring funding diversity is maintaining market access. Market access is critical for effective liquidity risk management, as it affects both the ability to raise new funds and to liquidate assets. Senior management should ensure that market access is being actively managed, monitored and tested by the appropriate staff.
- 6.5 Banks need to identify alternative sources of funding that strengthen its capacity to withstand a variety of severe yet plausible institution-specific and market-wide liquidity shocks. Depending on the nature, severity and duration of the liquidity shock, potential sources of funding include the following:
- a) deposit growth;
 - b) the lengthening of maturities of liabilities;
 - c) new issues of short- and long-term debt instruments;
 - d) intra-group fund transfers, new capital issues, the sale of subsidiaries or lines of business;

- e) the sale of unencumbered, highly liquid assets; and
- f) drawing-down committed facilities.

6.6 However, not all of these options may be available in all circumstances, and some may be available only with a substantial time delay. Bank management should regularly review and test its fund-raising options to evaluate their effectiveness at providing liquidity in the short-, medium- and long-term.

PRINCIPLE 7

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.

7.1 Banks 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. The level of available collateral should be monitored by legal entity and systems should be capable of monitoring shifts between intraday and overnight or term collateral usage.

PRINCIPLE 8

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 and in combination) to identify sources of potential liquidity strain and to ensure that current exposures remain in accordance with a bank's established liquidity risk tolerance. Banks should use stress test outcomes to adjust its liquidity risk management strategies, policies, and positions and to develop effective contingency plans.

8.1 While banks typically manage liquidity under "normal" circumstances, it should also be prepared to manage liquidity under stressed conditions. Banks should perform stress tests or scenario analyses⁷ on a regular basis to identify and quantify its exposures to possible future liquidity stresses, analyzing possible impacts on cash flows, liquidity position, profitability and solvency. The results of these stress tests should be discussed thoroughly by management and based on this discussion, should form the basis for taking remedial or mitigating actions to limit the bank's exposures, build up a liquidity cushion and adjust its liquidity profile to fit its risk tolerance. The results of stress tests should also play a key role in shaping the contingency planning and in determining the strategy and tactics to deal with events of liquidity stress. As a result, stress testing and contingency planning are closely intertwined.

Stress Testing Process

8.2 Stress tests should enable an analysis of the impact of stress scenarios on its consolidated group-wide liquidity position as well as on the liquidity position of individual entities and business lines. Regardless of the bank's organizational structure and the degree of centralized liquidity risk management, it is important for banks to understand where risks could arise. Banks should assess whether additional tests are warranted for individual entities (i.e., subsidiaries and branches) within the group that are exposed to significant liquidity risks. Tests should consider the implication of the scenarios across different time horizons, including on an intraday basis.

⁷ Banks can incorporate the recommendations included in the Stress Testing Principles issued in August 2021 at https://www.centralbank.org.bz/docs/default-source/basel-ii-iii-implementation-guidelines/stress-testing-guideline.pdf?sfvrsn=a5c28d35_4.

- 8.3 The extent and frequency of testing should be commensurate with the size of the bank and its liquidity risk exposures, as well as with the relative importance of the bank within the financial systems in which it operates. Banks should build in the capability to increase the frequency of tests in special circumstances, such as in volatile market conditions or at the request of supervisors.
- 8.4 The active involvement of senior management is vital to the stress testing process. Senior management should demand that rigorous and challenging stress scenarios be considered, even in times when liquidity is plentiful.

Scenarios and Assumptions

- 8.5 In designing stress scenarios, the nature of the bank's business, activities and vulnerabilities should be taken into consideration so that the scenarios incorporate the major funding and market liquidity risks to which the bank is exposed. These include risks associated with its business activities, products (including complex financial instruments and off-balance sheet items) and funding sources. The defined scenarios should allow the bank to evaluate the potential adverse impact these factors can have on its liquidity position.
- 8.6 History may serve as one guide when designing stress tests; however, historical events may not prove to be a good predictor of future events. A banker's judgment plays an important role in the design of stress tests. Banks should carefully consider the design of scenarios and the variety of shocks used. Banks should consider short-term and protracted, as well as institution-specific and market-wide, stress scenarios in its stress tests, including: a simultaneous drying up of market liquidity in several previously highly liquid markets; severe constraints in accessing secured and unsecured funding; restrictions on currency convertibility; and severe operational or settlement disruptions affecting one or more payment or settlement systems. Regardless of how strong its current liquidity situation appears to be, the potential impact of severe stress scenarios should be considered.
- 8.7 Banks should take a conservative approach when setting stress testing assumptions. Based on the type and severity of the scenario, banks need to consider the appropriateness of a number of assumptions, potentially including but not limited to the following list.
- a) asset market illiquidity and the erosion in the value of liquid assets the run-off of retail funding;
 - b) the (un)availability of secured and unsecured wholesale funding sources;
 - c) the correlation between funding markets or the effectiveness of diversification across sources of funding;
 - d) additional margin calls and collateral requirements;
 - e) funding tenors;
 - f) contingent claims and more specifically, potential draws on committed lines extended to third parties or the bank's subsidiaries, branches or head office;
 - g) the liquidity absorbed by off-balance sheet vehicles and activities (including conduit financing);
 - h) the availability of contingent lines extended to the bank liquidity drains associated with complex products/transactions the impact of credit rating triggers foreign exchange convertibility and access to foreign exchange markets;

- i) the ability to transfer liquidity across entities, sectors and borders taking into account legal, regulatory, operational and time zone restrictions and constraints;
 - j) the access to central bank facilities;
 - k) the operational ability of the bank to monetize assets;
 - l) the bank's remedial actions and the availability of the necessary documentation and operational expertise and experience to execute them, taking into account the potential reputational impact when executing these actions; and
 - m) estimates of future balance sheet growth.
- 8.8 The scenario design should be subject to regular reviews to ensure that the nature and severity of the tested scenarios remain appropriate and relevant to the bank. Reviews should consider changes in market conditions; changes in the nature, size or complexity of the bank's business model and activities; and actual experiences in stress situations.
- 8.9 In order to identify and analyze factors that could have a significant impact on its liquidity profile, banks may conduct an analysis of the sensitivity of stress test results to certain key assumptions. Such sensitivity analyses can provide additional indications of the bank's degree of vulnerability to certain factors.

Utilization of Results

- 8.10 Senior management should review stress test scenarios and assumptions as well as the results of the stress tests. The bank's choice of scenarios and related assumptions should be well documented and reviewed together with the stress test results. Stress test results and vulnerabilities and any resulting actions should be reported to and discussed with the board and the bank's supervisors. Senior management should integrate the results of the stress testing process into the bank's strategic planning process (e.g., bank management could adjust its asset-liability composition) and the bank's day-to-day risk management practices (e.g., through monitoring sensitive cash flows or reducing concentration limits). The results of the stress tests should be explicitly considered in the setting of internal limits.
- 8.11 Senior management should decide how to incorporate the results of stress tests in assessing and planning for related potential funding shortfalls in the institution's contingency funding plan. To the extent that projected funding deficits are larger than (or projected funding surpluses are smaller than) implied by the bank's liquidity risk tolerance, management should consider whether to adjust its liquidity position or to bolster the bank's contingency plan in consultation with the board.

PRINCIPLE 9

Banks should have a formal contingency funding plan (CFP⁸) that clearly sets out the strategies for addressing liquidity shortfalls in emergency situations. A CFP should outline policies to manage a range of stress environments, establish clear lines of responsibility, include clear invocation and escalation procedures and be regularly tested and updated to ensure that it is operationally robust.

⁸ A 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.

- 9.1 CFPs should be commensurate with the bank's complexity, risk profile, scope of operations and role in the financial systems in which the bank operates. CFPs should include a clear description of a diversified set of viable, readily available and flexibly deployable potential contingency funding measures for preserving liquidity and making up cash flow shortfalls in various adverse situations. Contingency plans should articulate available potential contingency funding sources and the amount of funds the bank estimates can be derived from these sources; clear escalation/prioritization procedures detailing when and how each of the actions can and should be activated; and the lead time needed to tap additional funds from each of the contingency sources. The CFP should provide a framework with a high degree of flexibility so that banks can respond quickly in a variety of situations.
- 9.2 The CFP's design, plans, and procedures should be closely integrated with the ongoing analysis of liquidity risk and with the results of the scenarios and assumptions used in stress tests. As such, the plan should address issues over a range of different time horizons, including intraday.

Statement of Plan, Contingency Procedures, Roles and Responsibilities

- 9.3 CFPs should prepare banks to manage a range of scenarios of severe liquidity stress that include both firm-specific and more generalized market-wide stress, as well as the potential interaction between them. The plan should include a diversified menu of options in order for management to have an overview of the potentially available contingency measures. Banks should also examine the time periods for which measures can be carried out under various assumptions and stresses.
- 9.4 CFPs should contain clear policies and procedures that will enable the bank's management to make timely and well-informed decisions, execute contingency measures swiftly and proficiently, and communicate effectively to implement the plan efficiently, including:
- a) clear specification of roles and responsibilities, including the authority to invoke the CFP. The establishment of a formal "crisis team" may facilitate internal coordination and decision-making during a liquidity crisis;
 - b) names and contact details of members of the team responsible for implementing the CFP and the locations of team members; and
 - c) the designation of alternates for key roles.
- 9.5 To facilitate the timely response needed to manage disruptions, the plan should set out a clear decision-making process on what actions to take at what time, who can take them, and what issues need to be escalated to more senior levels in the bank. The plan should explicitly set out the procedures to deliver effective internal coordination and communication across the bank's different business lines and locations. It should also address when and how to contact external parties, including the Central Bank.

Communication Plans

- 9.6 In any crisis situation, the flow of clear communications should provide assurance and information to market participants, employees, clients, creditors, shareholders and supervisors. Banks therefore should develop a plan that will deliver timely, clear, consistent and frequent communication to internal as well as external parties, such as supervisors, central banks or system operators, in a time of stress, to support the general confidence in the bank. The plan also should address when and how to communicate with correspondents, custodians, counterparties and customers, as the actions of these parties could significantly affect the bank's liquidity position and may vary with the underlying source of a problem.

Design of Contingency Funding Plans

- 9.7 Banks CFP should account for:
- a) the impact of stressed market conditions on its ability to sell or securitize assets;
 - b) the link between asset market and funding liquidity (e.g. the extensive or complete loss of typically available market funding options);
 - c) second round and reputational effects related to execution of contingency funding measures; and
 - d) the potential to transfer liquidity across group entities, borders and lines of business, taking into account legal, regulatory, operational and time zone restrictions and constraints. These elements should reflect previous experiences of the bank or other institutions, expert judgment, market practice and insights that the institution has gained via the performance of stress tests.
- 9.8 The CFP should reflect central bank collateral requirements, including facilities that form part of normal liquidity management operations (e.g. the availability of seasonal credit). The inclusion of central bank lending in a CFP should consider the types of lending facilities, acceptable collateral, the operational procedures to access central bank funds and potential reputational issues involved in accessing them.
- 9.9 The CFP also should include potential steps to meet critical payments on an intraday basis. In situations where intraday liquidity resources become scarce, banks should have the ability to identify critical payments and to sequence or schedule payments based on priority.
- 9.10 It is particularly important that in developing and analyzing CFPs and stress scenarios, the relevant bank personnel are aware of the operational procedures needed to transfer liquidity and collateral across different entities and systems and the restrictions that govern such transfers. Realistic timelines for such transfers should be incorporated into liquidity modelling. Assets that are intended to be pledged for collateral in the event that back-up funding sources are utilized must be in a legal entity and location consistent with management's funding plans.

Testing, Update and Maintenance

- 9.11 CFPs should be reviewed and tested regularly to ensure their effectiveness and operational feasibility. Key aspects of this testing include ensuring that roles and responsibilities are appropriate and understood, confirming that contact information is up to date, proving the transferability of cash and collateral (especially across borders and entities) and reviewing that the necessary legal and operational documentation is in place to execute the plan at short notice. Banks should regularly test key assumptions, such as the ability to sell or repo certain assets or periodically draw down credit lines. Bank management should review all aspects of the plan following each exercise and ensure that follow up actions are delivered. Senior management should review and update the CFP at least every year for the board's approval, or more often as business or market circumstances change.
- 9.12 The CFP should be consistent with the bank's business continuity plans and should be operational under situations where business continuity arrangements have been invoked. As such, banks should ensure effective coordination between teams managing issues surrounding liquidity crises and business continuity. Liquidity crisis team members and alternates should have ready access to CFPs on- and off-site. CFPs should be maintained in a corporate central repository as well as at locations that would facilitate quick implementation by responsible parties under emergency situations.

PRINCIPLE 10

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 using these assets to obtain funding.

- 10.1 A critical element of the bank's resilience to liquidity stress is the continuous availability of an adequate cushion of unencumbered, high quality liquid assets that can be sold or pledged to obtain funds in a range of stress scenarios. This requires explicitly relating the size of the cushion of unencumbered, high quality liquid assets held as insurance against liquidity stress to 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 they 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.
- 10.2 The size of the liquidity cushion should be aligned with the established risk tolerance of the bank. Key considerations include assumptions about the size of cash flow mismatches, the duration and severity of stress and the liquidation or borrowing value of assets (i.e. the estimated cash available to the firm if assets are liquidated or used as collateral for secured funding) in stress situations. Banks should ensure that its liquid asset cushion is sized to maintain sufficient resilience to unexpected stress while it continues to meet its daily payment and settlement obligations on a timely basis for the duration of the stress. In doing so, the bank should take into account the other tools and resources it has available to manage intraday risks.
- 10.3 With respect to the composition of its liquidity cushion, a bank should hold a core of the most reliably liquid assets, such as cash and high-quality government bonds or similar instruments, to guard against the most severe stress scenarios. For insuring against less intense, but longer duration stress events, a bank may choose to widen the composition of the cushion to hold other unencumbered liquid assets which are marketable (i.e. can be sold or used as collateral in sale and repurchase agreements) without resulting in excessive losses or discounts.
- 10.4 The marketability of individual assets may differ depending on the stress scenario and timeframe involved. Nevertheless, there are some general characteristics which tend to increase the liquidity of a given asset including:
 - a) transparency of its structure and risk characteristics;
 - b) ease and certainty of valuation; and
 - c) central bank eligibility (though that in and of itself does not confer ready market liquidity).
- 10.5 Banks should 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. There should be no legal, regulatory or operational impediment to the use of these assets to obtain funding, as these assets should be available at all times to meet liquidity needs as and when they arise. Banks should be ready and prepared to use these assets in the event of severe stress. The cushion should, however, provide a backstop rather than the first line of defense.
- 10.6 Banks should be realistic about how much cash it will be able to obtain from the Central Bank against eligible assets. Moreover, a bank should not rely on the Central Bank altering the amount of or the terms on which it provides liquidity.

PUBLIC DISCLOSURE

PRINCIPLE 11

Banks should publicly disclose information on a regular basis that enables market participants to make an informed judgement about the soundness of its liquidity risk management framework and liquidity position.