



International Professional
Practices Framework

Supplemental Guidance Practice Guide

FINANCIAL SERVICES

Auditing Liquidity Risk

An Overview

About Supplemental Guidance

Supplemental Guidance is part of The IIA’s International Professional Practices Framework (IPPF) and provides additional recommended, nonmandatory guidance for conducting internal audit activities. While supporting the *International Standards for the Professional Practice of Internal Auditing*, Supplemental Guidance is intended to address topical areas, as well as sector-specific issues, in greater procedural detail than the *Standards* or Implementation Guides. Supplemental Guidance is endorsed by The IIA through formal review and approval processes.

Practice Guides

Practice Guides are a type of Supplemental Guidance that provide detailed step-by-step approaches, featuring processes, procedures, tools, and programs, as well as examples of deliverables.

Practice Guides are intended to support internal auditors. Practice guides are also available to support:

- Financial Services.
- Public Sector.
- Information Technology (GTAG®).

For an overview of authoritative guidance materials provided by The IIA, please visit www.globaliia.org/standards-guidance.

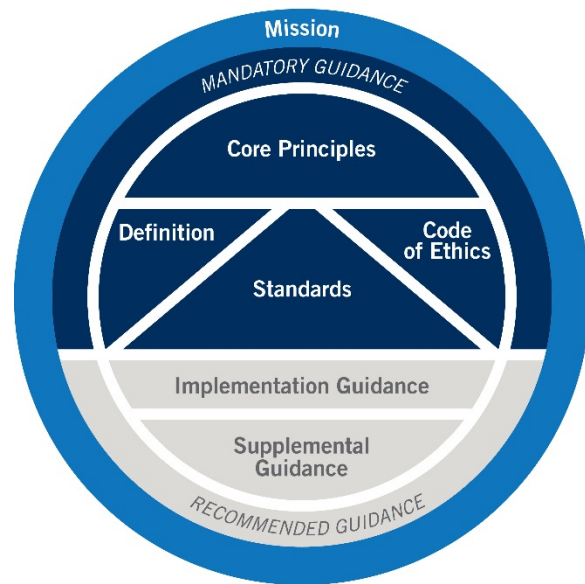


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Executive Summary

Banking supervisors¹ consider liquidity to be a pillar of a robust and solvent financial sector. Supervisory principles hold the board accountable for the bank's² liquidity adequacy assessment and advocate a relevant and active internal audit role in the assessment of a bank's liquidity risk management (LRM) process. To assure the bank's senior management and board that liquidity management is aligned to the bank's business strategy and risk appetite, internal auditors need an approach that fulfills both internationally supported standards and local regulations. The IIA's *International Standards for the Professional Practice of Internal Auditing* and the Three Lines of Defense model³ clarify the role of the internal audit activity in providing independent assurance to the board.

Regulators review and evaluate banks based on procedural and methodological tools, including specific metrics and mandatory reporting. A bank's liquidity risk management framework is fundamental to maintaining the bank's liquid capital position, which is crucial to the health of the greater financial system and economy. This guidance gives an overview of international standards and best practices of LRM, including the use of an LRM framework.

Considering the importance of LRM, the internal audit activity's assurance is essential. This practice guide describes the organizational roles and responsibilities related to the bank's liquidity governance, risk management, control, and monitoring processes, including the internal audit activity's role as the provider of independent assurance over the quality and effectiveness of those processes. Also included is an approach to internal audit engagements involving liquidity risk and an example employing this method.

¹ For the purpose of the Practice Guide, the terms "banking supervisor" and "supervisor" refer to a responsible authority with the necessary legal powers to authorize banks, conduct ongoing supervision, address compliance with laws, and undertake timely corrective actions to address safety and soundness concerns. Adapted from Basel Committee on Banking Supervision. *Core Principles for Effective Banking Supervision* (Basel, Switzerland: Bank for International Settlements, 2012).

² For the purpose of the Practice Guide, the term "bank" refers to banks, bank holding companies, or other companies considered by banking supervisors to be the parent of a banking group under applicable national law as determined to be appropriate by the entity's national supervisor. Adapted from Basel Committee on Banking Supervision. *Principles for Sound Liquidity Risk Management and Supervision* (Basel, Switzerland: Bank for International Settlements, 2008).

³ The IIA. Position Paper: The Three Lines of Defense in Effective Risk Management and Control (Altamonte Springs, Fla. USA: The Institute of Internal Auditors, 2013).

Introduction

Liquidity risk was not well regulated before the financial crisis that began in 2007. During the crisis, despite having capital levels that complied with relevant regulatory ratios, many banks experienced difficulties funding their lending activities or maintaining daily cash flows because they did not manage liquidity prudently. As the commercial paper market froze, the banking system came under severe stress, and banks were unable to trade or sell assets that had been liquid previously. The crisis brought into focus liquidity's important role in the healthy functioning of the banking sector, financial markets, and the greater economy.

Note: Terms in bold are defined in the glossary at the end of this practice guide.

The Basel Committee on Banking Supervision (“Basel Committee”) was established to enhance financial stability by improving the quality of banking supervision worldwide and to serve as a forum for regular cooperation among its 45 member countries on banking supervisory matters. The Basel Committee originally issued a capital adequacy framework in 1988, and continues to revise and supplement the internationally recognized framework in order to strengthen the regulation, supervision, and **risk management** of the banking sector. In the wake of the financial crisis, the committee reformed its standards and principles related to capital adequacy and LRM. Known as Basel III, the comprehensive set of reform measures aimed to improve the banking sector’s ability to absorb shocks arising from financial and economic stress, strengthen banks’ transparency and disclosures, and improve risk management and governance.⁴

Specific to the global liquidity standard, Basel III included a common set of supervisory monitoring metrics, a liquidity coverage ratio (LCR)⁵, a net stable funding ratio (NSFR)⁶, and a guidance document for LRM, titled *Principles for Sound Liquidity Risk Management and Supervision*.⁷ The 17 internationally recognized principles for managing and monitoring liquidity risk, fully listed in Appendix C, are grouped into five main categories, which form the subsections of this guidance:

1. Fundamental principle for the management and supervision of liquidity risk.
2. Governance of liquidity risk management.
3. Measurement and management of liquidity risk.
4. Public disclosure.
5. The Role of supervisors.

⁴ Basel Committee on Banking Supervision. *Basel III: International framework for liquidity risk measurement, standards and monitoring* and *Basel III: a global regulatory framework for more resilient banks and banking systems* (Basel, Switzerland: Bank for International Settlements, 2010).

⁵ Basel Committee on Banking Supervision. *Basel III: The liquidity coverage ratio and liquidity risk monitoring tools* (Basel, Switzerland: Bank for International Settlements, 2013).

⁶ Basel Committee on Banking Supervision. *Basel III: The net stable funding ratio* (Basel, Switzerland: Bank for International Settlements, 2014).

⁷ Basel Committee on Banking Supervision. *Principles for Sound Liquidity Risk Management and Supervision* (Basel, Switzerland: Bank for International Settlements, 2008).

Although many banking systems have implemented, or are implementing, Basel III requirements, many developing countries are creating their own adaptations of its liquidity standards and measures. Internal auditors should be aware of any variations their organization has chosen in regard to Basel III's capital adequacy metrics (e.g., organizations may differ in how they calculate equity capital and risk-weighted assets). Even when the organization does not follow Basel III strictly, internal auditors can refer to the principles and best practices in this guide.

The internal audit activity assures senior management and board that the liquidity risk management (LRM) processes effectively and efficiently meet the organization's regulatory obligations and liquidity needs. However, fulfilling regulatory obligations is only a foundation for sound LRM. Much broader than assuring compliance with regulations, the internal audit activity's role is linked to the organization's strategy and objectives. The internal audit activity provides assurance and advice regarding the management of **risks** that threaten the organization's ability to achieve its objectives. It assures senior management and the board that the LRM framework is aligned with the bank's strategy and **risk appetite** and that its LRM processes are operating effectively and efficiently as designed.

Business Significance and Risks

Banking institutions are inherently vulnerable to liquidity risk. As defined in the *Principles for Sound Liquidity Risk Management and Supervision*, liquidity is "the ability of a bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses."⁸ The Basel Committee acknowledges and defines two main types of liquidity risk: funding liquidity risk and market liquidity risk. This guidance refers primarily to funding liquidity risk, which is "the risk that the firm 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 firm."⁹

Funding liquidity risk includes the various risks that could cause a bank to be unable to pay its debts and obligations when due. For example, banks may be unable to convert investments into cash or procure sufficient funds because the costs of liquidity transformation are exceptionally high and could affect the bank negatively. The failure or inability to convert investments or procure funds can cause a liquidity crisis, or credit crunch, a time in which loans become difficult to obtain and interest rates increase. When the demand for capital is far higher than the bank's existing liquidity level, the bank could enter into a stress condition.

⁸ Basel Committee on Banking Supervision. *Principles for Sound Liquidity Risk Management and Supervision* (Basel, Switzerland: Bank for International Settlements, 2008).

⁹ Ibid.

During the global financial crisis that began in 2007, liquidity evaporated, and LRM became the focus of the banking industry. Liquidity risk is unpredictable and difficult to measure for several reasons:

- Cash-flow obligations are uncertain because they depend on external events and entities.
- The likelihood liquidity risks will occur is hard to predict because some other risk event often leads to a secondary occurrence of a liquidity event.
- The impact of liquidity risk events can grow rapidly and have wide-ranging negative effects on the greater financial system and economy.
- There is a tipping point beyond which recovery is difficult and will result in the closure of organizations with low solvency ratios.
- Changes in financial markets have decreased the options banks have to manage liquidity risk.

The internal audit activity plays an important role in the assessment of LRM, providing assurance not only to governing bodies but also to regulators. The general reporting requirements of banks are described in Basel III, while some specific details such as reporting frequency, are determined by local regulations. Internal auditors should be aware of the reporting and other regulatory requirements related to assessing the bank's overall liquidity framework, positions, and profile (i.e., high-quality liquid assets, amount and type of unencumbered assets, contingency funding plan, and stress test results). For example, bank management may be required to report certain metrics quarterly or monthly, with or without a formal annual report on their internal liquidity adequacy assessment process.

While the internal audit activity has always performed assessments that may include liquidity risk, the Basel III framework and subsequent regulations formalized expectations for organizations to evaluate liquidity risk properly. Thus, the internal audit activity can add value by understanding and evaluating the organization's ability to meet the regulatory requirements and adapt to future changes.

Fundamental Principles for the Management and Supervision of Liquidity Risk

A bank must establish an LRM framework that ensures it is able to meet its liquidity obligations daily, during both normal times and periods of liquidity stress, whether the stress is specific to the individual institution or systemic (i.e., throughout the financial system). The goal is to ensure that the institution has sufficient liquidity to deal with any event or scenario of liquidity stress that could cause loss or deterioration of funding sources. Thus, each bank must maintain an easily negotiable buffer of assets based on conservative assumptions about the complexity of its on- and off-balance sheet operations, the liquidity of its assets and liabilities, the scale of its financing mismatches, and the diversity of its business model and leverage strategies.

The LRM framework must include a defined methodology for managing the bank’s liquidity risk in an adequate and orderly manner, aligned with the bank’s risk appetite, **risk tolerance**, and strategic objectives. The framework should also include a methodology for analyzing internal and external factors in order to identify, assess, and manage liquidity risks. The methodology should include descriptions of the indicators, metrics, and limits that inform and alert management of potential liquidity issues.

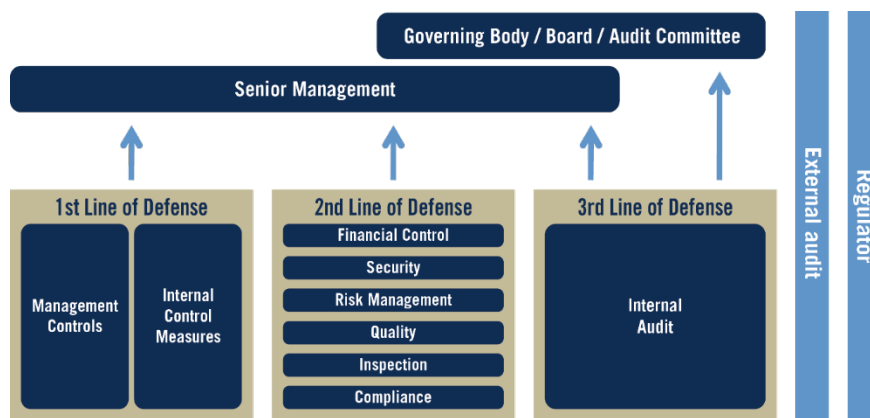
Governance of Liquidity Risk Management

Risk management is a fundamental element of sound governance. Successful management of liquidity risk, like any other area of organizational risk, requires clearly defined roles and responsibilities throughout the organization. Basel III holds the board accountable for determining that the bank’s liquidity and LRM processes are adequate. The bank’s management is responsible for establishing and operating the risk management framework on behalf of the board. The IIA’s Three Lines of Defense model is helpful in clarifying the roles of the internal and external providers of assurance to the board.

Three Lines of Defense Model and Liquidity Risk Management

As shown in **Figure 1**, The Three Lines of Defense model segregates responsibilities to ensure effective risk management, control, and governance, with independent assurance. Having effective lines of defense and processes in a clear governance structure supports the organization’s ability to achieve its objectives in the context of the social, regulatory, and economic environments.

Figure 1: Three Lines of Defense Model



Source: The IIA. Position Paper: The Three Lines of Defense in Effective Risk Management and Control (Altamonte Springs, Fla. USA: The Institute of Internal Auditors, 2013). Adapted from ECIIA/FERMA *Guidance on the 8th EU Company Law Directive*, article 41.

The first line of defense comprises the operational management primarily responsible for maintaining effective internal controls and for executing risk and control procedures on a day-to-day basis.

The second line of defense consists of separately established risk, control, and compliance functions that oversee the first line of defense, ensuring that risk management and control processes are properly designed and effectively operating.

Senior management's asset and liability committee (ALCO) establishes the policies and strategy, makes and implements liquidity risk decisions, and actively monitors the organization's liquidity risk profile. The ALCO performs oversight responsibilities that are considered second line of defense, but also acts as the first line of defense to manage liquidity, market, and capital risks. In small or less mature institutions, the board itself or other types of committees may perform similar functions. However, internal auditors should recommend that the board establish an ALCO as part of good governance.

The ALCO should include those with authority over the business units responsible for executing liquidity-related transactions and other activities within the risk management process (e.g., lending, investment securities, and wholesale and retail funding) because these roles have significant influence over the institution's liquidity strategy. Risk management may also validate the ALCO's decisions and the execution of those decisions.

Basel III guidelines specify requirements for the second line of defense (risk management, compliance, and financial functions) to regularly report to the board regarding the bank's activities. Typically, the ALCO reports directly to the board.

The third line of defense is the internal audit activity, which provides independent assurance over the processes implemented by the first line of defense and overseen by the second line of defense. Only the assurance provided by the third line of defense can be considered objective and independent. Instead of being directly responsible for any risk management activities, the internal audit activity independently assesses the adequacy and effectiveness of the policies and processes applied by the other lines and reports directly to the board without the influence of management. Such an evaluation includes considering whether the outcomes achieved by management align with the mission, objectives, and risk appetite of the organization.

The nature and types of these functions depend on many factors, including organizational maturity. In general, the first line of defense should propose the risk appetite, targets, and limits, but the control functions (e.g., the bank's independent risk management function) should collaborate and ensure that those proposals are appropriately consistent with the bank's risk profile. The ALCO should review the liquidity risk profile, monitor conformance to the bank's stated risk appetite, and oversee decision-making related to managing assets and liabilities. This oversight includes evaluating and reacting to changing market conditions and ensuring the adequacy of the liquidity and capital resources. The board should review and approve the bank's strategy, policies, and risk management practices at least annually and must review and ratify

any policy changes. Ultimately, the board is also responsible for ensuring that senior management effectively manages liquidity risks.

To assess the effectiveness of the LRM framework, internal auditors should first understand the bank's liquidity strategy. To gain insight into this strategy, internal auditors may participate in senior management committee meetings as nonvoting observers. Nonvoting observation enables internal auditors to maintain the independent positioning required by The IIA's *Standards*. Internal auditors may observe ALCO meetings and any other risk management committee and/or board meetings about liquidity risks to evaluate:

- How the entities work and establish responsibilities.
- Whether the entities are sufficiently informed to make decisions.
- The frequency and content of presentations about liquidity risks.

To better understand liquidity risk management process and the organization's governance structure (such as the roles and responsibilities within all levels of management), internal auditors may review the charters and meeting minutes of the ALCO and any relevant risk committee(s), as well as management reports and other documents.

Based on their observations and information gathering, internal auditors should identify and document sufficient, reliable, relevant, and useful information to achieve the engagement's objectives (IIA Standard 2310 – Identifying Information) and to eventually support the engagement's results and conclusions (IIA Standard 2330 – Documenting Information).

Although Basel III requirements may seem to drive such assessments over the governance of liquidity risk management, IIA Standard 2110 – Governance applies equally. It requires internal auditors to assess and recommend improvements to the organization's governance processes for making strategic and operational decisions, overseeing risk management and control, promoting appropriate ethics and values, ensuring effective performance management and accountability, communicating risk and control information throughout the organization, and coordinating the activities of, and communicating information among, the board, external and internal auditors, other assurance providers, and management.

Liquidity Risk Appetite and Risk Tolerance

According to Basel III's LRM principle 3, senior management should develop the strategy, policies, and practices to manage liquidity risk in accordance with the liquidity risk tolerance set by the board, and the board should review and approve the strategy, policies, and practices at least annually. Principle 2 states that the board is ultimately responsible for the liquidity risk exposure assumed by the bank and the manner in which the risk is managed.

Therefore, the board should establish a liquidity risk tolerance that reflects the bank's business objectives, strategic direction, overall risk appetite, financial condition, funding capacity, and role

in the financial system. The tolerance should ensure that the firm manages its liquidity prudently in normal times so that it is able to withstand a prolonged period of stress. Senior management should articulate the risk tolerance in such a way that the trade-off between risks and profits is clear to all levels of management. The ALCO should continuously review the bank's liquidity developments and regularly report to the board.

Internal auditors should obtain the organization's board-approved **risk appetite statement**. Within the risk appetite statement, internal auditors typically find the metrics related to monitoring liquidity risk and should assess whether those metrics effectively capture the key risks. The statement should describe how management identifies the key risks to which the bank might be exposed, as well as how management sets the risk appetite and specific liquidity risk tolerance levels. Risk tolerances may be expressed as exposure limits. Typically, the risk appetite statement includes two metrics of liquidity during normal conditions and two during stress conditions, and the metrics are embedded in the limit structure. The risk appetite and liquidity risk tolerances should be integrated into overall liquidity management, including links to business strategy, risk strategy, the internal capital adequacy assessment process and internal liquidity adequacy assessment process.

Engagement Planning

The 2120 series of the *Standards* describe the internal audit activity's responsibilities related to risk management. IIA Standard 2120 – Risk Management states that the internal audit activity must evaluate the effectiveness of the risk management processes by determining whether:

- Organizational objectives support and align with the organization's mission.
- Significant risks have been identified and assessed.
- The chosen risk responses align risks with the bank's risk appetite.
- Relevant risk information is captured and communicated timely throughout the bank.

The standard's interpretation notes: "The internal audit activity may gather the information to support this assessment during multiple engagements. The results of these engagements, when viewed together, provide an understanding of the organization's risk management processes and their effectiveness." IIA Standard 2120.A1 adds specific aspects of the organization's risk exposures that must be evaluated.

The internal audit plan, based on a risk assessment conducted at least annually (as required by IIA Standard 2010.A1), is crucial when considering how to assess a bank's liquidity risks, liquidity position, and liquidity risk management processes. The chief audit executive (CAE) should ensure that liquidity is included in the organizationwide risk assessment process and in the preliminary risk assessments that occur during engagement planning.

While there are many different approaches to assessing risks related to liquidity, its importance in the banking industry means that the internal audit plan in banks likely includes an annual assurance

engagement related to the bank's liquidity strategy and LRM process. Such an engagement may be structured as an end-to-end assessment with an opinion provided, or in some cases, liquidity risk may be assessed more efficiently alongside other risks in several individual engagements.

In the annual assessment approach internal auditors may incorporate liquidity risk assessments into other engagements, such as those covering the business model and strategy, the risk governance framework, the **risk appetite framework**, and regulatory reporting. Internal auditors may also choose to limit the scope of individual engagements for a more thorough assessment of specific aspects of the LRM process. For example, internal auditors may review the governance of the LRM process to ensure that board oversight is appropriate and that the risk committee and ALCO are reporting appropriately under the regulatory guidelines.

As another approach, internal auditors might target engagements to specific business units, regions, or product lines. A targeted approach could include stand-alone audit engagements that vary in scope, covering, for example:

- The contingency funding plan.
- Liquidity stress testing process and assumptions.
- Intraday liquidity management.
- Regulatory ratios.
- Other components of the LRM process.

From this, internal auditors may test and report on the phases of the LRM process that consume a large amount of time and other resources.

When internal auditors conduct their engagement-level risk assessment, they should consider the most recent full assessment of LRM, as well as recent relevant individual engagements. Internal auditors should also consider whether the organizationwide risk assessment offers any relevant information related to liquidity. When an organizationwide engagement to assess liquidity risk is planned, the information gained during the individual engagements should be coordinated and integrated so that the scope accounts for the assessments that have already been completed. This will affect the overall internal audit plan. If the approach of multiple individual engagements is used, a multi-annual internal audit strategy in addition to an annual plan of engagements could help internal auditors tailor the scope of the liquidity risk engagements, varying them enough to achieve full coverage in two or three years.

Internal audit planning that coordinates all the bank's providers of assurance and consulting services should contribute to the effective and efficient achievement of Basel III's risk data aggregation and risk reporting principles.¹⁰ Additionally, internal auditors may evaluate the potential for reliance on the work of other internal and external assurance and consulting service

¹⁰ See Basel Committee on Banking Supervision's *Principles for Effective Risk Data Aggregation and Risk Reporting*. (Basel, Switzerland: Bank for International Settlements, 2013)

providers (i.e., the second line of defense or external service providers) in order to make an overall assessment of the liquidity management process. However, as noted in IIA Standard 2050 – Coordination and Reliance, the CAE should consider the competency, objectivity, and due professional care of the other providers and should understand the scope, objectives, and results of their work, because the CAE retains the responsibility for ensuring that the internal audit activity’s conclusions and opinions are adequately supported.

Measurement and Management of Liquidity Risk

A bank’s liquidity strategy, including policies and procedures for measuring, managing, and controlling liquidity, should help the bank fulfill its objective of maintaining sufficient sources of liquid funds to meet its funding obligations as they come due. The strategy, policies, and processes should be designed to ensure that the bank is in a position to fund all obligations across planned time horizons, during both normal operations and under stress situations (i.e., those caused by extreme internal and/or external events).

The policies and procedures should also outline appropriate early warning indicators to alert the bank to a pending liquidity issue, as these crises tend to spread quickly given the rapid dissemination of information through mass media. Measuring liquidity risk is key to ensuring liquidity issues are identified timely.

In terms of measuring liquidity, Basel III introduced two minimum standards for measuring adequate funding and liquidity in stress situations. The liquidity coverage ratio (LCR), shown in **Figure 2**, was designed to promote the short-term resilience of a bank’s liquidity risk profile by ensuring that the bank has sufficient high-quality liquid assets (HQLA) to survive a stress scenario lasting 30 days. The net stable funding ratio (NSFR), shown in **Figure 3**, was developed to reduce funding risk over a long time horizon by requiring banks to fund their activities with sufficiently stable sources of funding in order to mitigate the risk of future funding stress. The NSFR requires banks to maintain a stable funding profile in relation to the composition of their assets and off-balance sheet activities.

Figure 2: Liquidity Coverage Ratio: Global Minimum Standard

The liquidity coverage ratio (LCR) promotes the short-term resilience of a bank's liquidity risk profile by ensuring that a bank has an adequate stock of unencumbered high-quality liquid assets (HQLA) that can be converted into cash easily and immediately in private markets to meet its liquidity needs for a 30 calendar day liquidity stress scenario.

$$\frac{\text{Stock of HQLA}}{\text{Total net cash outflows over the next 30 calendar days}} \geq 100\%$$

Phased timetable for LCR	2017	2018	2019
Minimum LCR requirement	80%	90%	100%

Once the LCR has been fully implemented, its 100% threshold will be a minimum requirement in normal times.

Source: Basel III: The liquidity coverage ratio and liquidity risk monitoring tools (Basel, Switzerland: Bank for International Settlements, 2013).

Figure 3: Net Stable Funding Ratio

The net stable funding ratio (NSFR) is defined as the amount of available stable funding relative to the amount of required stable funding. This ratio should be equal to at least 100% on an ongoing basis. "Available stable funding" is defined as the portion of capital and liabilities expected to be reliable over the time horizon considered by the NSFR, which extends to one year. NSFR is expressed by the formula:

$$\frac{\text{Available amount of stable funding}}{\text{Required amount of stable funding}} \geq 100\%$$

Source: Basel III: The net stable funding ratio (Basel, Switzerland: Bank for International Settlements, 2014).

To assess the bank's measurement and management policies and processes, internal auditors should verify that cash flows are forecasted as accurately as possible. Internal auditors may verify whether management:

- Has defined liquidity targets for cash and liquidity balances, monitors compliance with the defined limits, and reports instances of noncompliance to the oversight committee.
- Reviews end-of-day liquidity positions and activities and reports significant balance levels or shortfalls to the oversight committee.
- Reviews cash and liquidity reports daily to determine whether funding is sufficient to fulfill obligations and meet authorized targets.
- Distributes reports to relevant personnel and senior management to assist in monitoring liquidity and implementing the bank's investment plans.
- Reviews excess cash allocation to ensure it is consistent with guidelines.
- Monitors early warning indicators regarding the funding sources and markets.

Measuring liquidity risk exposure is not enough if there is no strategy in place to ensure the bank manages the risk exposures appropriately. Good management of information systems, analysis of net funding requirements under alternative scenarios, diversification of funding sources, and contingency planning are the building blocks of a sound liquidity strategy. Senior management must develop and implement a liquidity risk management strategy that aligns with the bank's risk appetite and liquidity risk tolerance and ensures that the bank maintains sufficient liquidity. The strategy should take into account how liquidity risk is affected by other risks, such as credit, market, operational, and reputational.

Basel III proposes several requirements for an effective LRM strategy:

- Management should apply an LRM framework that enables the projection of cash flows as well as the monitoring of risk exposures and funding needs, taking into account limitations to the transferability of liquidity. The framework should enable alignment of incoming and outgoing cash flows to maintain liquidity levels within board-approved limits.
- Management should develop and implement a funding strategy that provides effective diversification of funding source and the ability to monitor the factors that affect the bank's ability to raise funds.
- Intraday liquidity positions and risks should be actively managed under normal and stressed conditions to ensure the bank's ability to fulfill financial obligations.
- Early warning indicators should be established to alert the bank if issues with a funding source or another type of liquidity issue appears. Liquidity crises can spread quickly once established.
- Collateral positions should be actively managed, with encumbered assets distinguished from unencumbered assets.
- A range of liquidity stress scenarios should be tested regularly: bank-specific, marketwide, and a combination of both.

- Based on stress testing outcomes, management should regularly adjust LRM strategies, policies, and positions.
- Management should develop and regularly test contingency funding plans: strategies, policies, and procedures for addressing liquidity shortfalls in emergency situations.
- The bank should maintain a cushion of unencumbered HQLA that can be used without impediments to obtain funding.

Most, if not all, of the risks surrounding liquidity are managed by the ALCO. The policies and procedures that drive the ALCO's decisions and the bank's execution of those decisions need to include clear delineations of authority levels, escalation protocols, limits, and triggers. Internal auditors may evaluate whether the ALCO adequately reviews and monitors:

- The bank's short-term funding strategies to meet anticipated obligations.
- The bank's liquidity position.
- Internal and external risk factors that could negatively impact the organization's liquidity risk profile.
- Management's liquidity forecasts and trends.
- Activities of the bank's subsidiaries and affiliates and its obligations to help them meet their contractual obligations.
- The bank's funding and contingency funding plans.
- Stress testing results.
- Targets or ranges established for liquidity measures.

Management in second-line-of-defense functions, such as risk management, defines and performs stress tests or periodic scenario analyses in order to identify and quantify the institution's exposures to potential liquidity stressors, analyzing their possible impact on cash flows, liquidity position, profitability and solvency of the institution. Because each bank has a different portfolio of products, stress tests must be customized for each bank, incorporating the bank's risk profile and projecting the worst case scenarios.

For assurance engagements covering the measurement and management of liquidity risk, internal auditors should determine whether:

- The bank's stress tests and scenarios represent a sufficient variety of bank-specific and marketwide liquidity risk events.
- The assumptions used in the scenarios are reasonable.
- The scenarios are run frequently enough to incorporate timely changes.

Because stress testing often involves complex quantitative models, the internal audit activity may not have the requisite competencies to evaluate the testing assumptions and effectiveness. According to IIA Standard 1210.A1, for assurance engagements the CAE must obtain competent

advice and assistance, which may involve outsourcing the assessment or employing a subject matter expert or guest auditor.

Public Disclosure

Basel III LRM principle 13 states that a bank should regularly disseminate information to the public on its LRM and liquidity position. Sufficient transparency enables market participants to maintain an informed opinion on the bank's ability to meet its liquidity obligations, ensuring effective market discipline. However, some private banking holding companies do not have to disclose such information. Thus, internal auditors should be familiar with regulations relevant to their organization. As always, internal auditors are expected to uphold the IIA Code of Ethics principle of confidentiality, prudently protecting information in accordance with their legal and professional obligations, as well as supporting the legitimate and ethical objectives of the bank.

The information that the bank disseminates should detail the functions and responsibilities of the relevant committees. The description of the framework will indicate the degree of centralization or decentralization of the treasury function that is responsible for balancing and managing the daily cash flow, liquidity of funds and asset/ liability management. When the functions of treasury and LRM are decentralized, the interaction between the units should be described. Additionally, the information should contain a qualitative explanation of the bank's liquidity indicators, such as the time interval covered, whether the calculations were carried out under normal or stress conditions, the organizational level to which the indicators refer, and any assumptions used.

Internal auditors should evaluate whether the bank has established disclosures that allow market participants to develop an informed opinion on the bank's ability to meet its liquidity needs. The purpose of this Basel III requirement aligns with the requirements set forth in IIA Standard 2130.A1 in that the internal audit activity must evaluate the adequacy and effectiveness of controls related to the organization's achievement of its strategic objectives, the reliability and integrity of its financial and operational information, the effectiveness and efficiency of its operations and programs, its ability to safeguard assets, and its compliance with laws, regulations, policies, procedures, and contracts.

The Role of Supervisors

Supervisors periodically evaluate the bank's general LRM framework and its liquidity position to determine whether the bank is in compliance with regulations related to liquidity management and whether the bank has sufficient capacity to adapt to the liquidity stresses that it might encounter. Internally, the first and second lines of defense are responsible for ensuring that the bank adheres to regulatory requirements and adopts effective measures to correct any deficiencies detected.

Banks must demonstrate practices of prudent management of risks to supervisors, which includes maintaining liquidity appropriate to the size and complexity of their operations and services. Additionally, regulations specific to the management of liquidity risk establish a number of minimum

requirements. Internal auditors may assess the accuracy of information to be submitted to supervisors and determine whether it was submitted timely. Supervisors typically request the following information:

- Daily cash and liquidity position.
- Monthly liquidity position.
- Liquidity table by maturity.
- LCR.
- NSFR.
- Stress test results (simulation and scenario analysis).
- Contingency funding plan.

Supervisors generally communicate with each other and with appropriate public authorities, such as central banks, both within and outside their national jurisdictions, to effectively cooperate and coordinate supervisory efforts. While such communication is periodic under normal conditions, it typically becomes more frequent during periods of stress. Per IIA Standard 2050 – Coordination and Reliance, the CAE should share information, coordinate activities, and consider relying upon the work of other internal and external assurance and consulting service providers. Internal auditors routinely work with supervisors to ensure information provided to them is accurate and timely. They will also work with the supervisor to interpret their audit reports and understand the procedures performed both in house and by third parties. In general, the internal audit activity can be considered a key liaison to assist the supervisors and the bank in fulfilling their responsibilities to each other and the public.

Appendix A. Related IIA Standards and Guidance

The following selections from The IIA's *International Standards for the Professional Practice of Internal Auditing* are relevant to assessing liquidity risk. Please refer to the *Standards* for the complete pronouncement. To assist with the implementation of the *Standards*, The IIA recommends that internal auditors refer to each standard's respective Implementation Guide.

Standard	Implementation Guidance
1210 – Proficiency	IG1210 – Proficiency
2010 – Planning	IG2010 – Planning
2050 – Coordination and Reliance	IG2050 – Coordination and Reliance
2110 – Governance	IG2110 – Governance
2120 – Risk Management	IG2120 – Risk Management
2130 – Control	IG2130 – Control
2310 – Identifying Information	IG2310 – Identifying Information
2330 – Documenting Information	IG2330 – Documenting Information

Appendix B. Glossary

Terms identified with an asterisk (*) are taken from The IIA's *International Professional Practices Framework* "Glossary," 2017 edition.

Liquidity – The ability of a bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses.¹¹

Risk* – The possibility of an event occurring that will have an impact on the achievement of objectives. Risk is measured in terms of impact and likelihood.

Risk appetite* – The level of risk that an organization is willing to accept.

Risk appetite framework – The overall approach, including policies, processes, limits, controls and systems, through which risk appetite is established, communicated and monitored. It includes a risk appetite statement, risk limits, and an outline of the roles and responsibilities of those overseeing the implementation and monitoring of the RAF. The RAF should consider material risks to the bank, as well as to its reputation vis-à-vis policyholders, depositors, investors, and customers. The RAF aligns with the bank's strategy.¹²

Risk appetite statement – The written articulation of the aggregate level and types of risk that a bank will accept, or avoid, in order to achieve its business objectives. It includes quantitative measures expressed relative to earnings, capital, risk measures, liquidity and other relevant measures as appropriate. It should also include qualitative statements to address reputation and conduct risks as well as money laundering and unethical practices.¹³

Risk management* – A process to identify, assess, manage, and control potential events or situations to provide reasonable assurance regarding the achievement of the organization's objectives.

Risk tolerance – The acceptable variation in outcomes related to specific performance measures that are linked to objectives the entity seeks to achieve.¹⁴

¹¹ Basel Committee on Banking Supervision. *Principles for Sound Liquidity Risk Management and Supervision*. (Basel, Switzerland: Bank for International Settlements), 2008.

¹² Financial Stability Board. *Principles for an Effective Risk Appetite Framework* (Basel, Switzerland: Bank for International Settlements), 2013.

¹³ Ibid.

¹⁴ Beasley, Mark S., Bonnie V. Hancock, and Bruce C. Branson for Committee of Sponsoring Organizations of the Treadway Commission. *Strengthening Enterprise Risk Management for Strategic Advantage* (Durham, North Carolina: American Institute of CPAs), 2009.

Appendix C. Basel III Principles for the Management and Supervision of Liquidity Risk

Since 2008, regulators and governing bodies around the world have developed and discussed guiding principles for managing and monitoring liquidity risk. Internationally, the 17 principles detailed in Basel III are widely recognized.

Fundamental Principle for the Management and Supervision of Liquidity Risk

- 1 A bank is responsible for the sound management of liquidity risk. A bank should establish a robust liquidity risk management framework 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. Supervisors should assess the adequacy of both a bank's liquidity risk management framework and its liquidity position and should take prompt action if a bank is deficient in either area in order to protect depositors and to limit potential damage to the financial system.

Governance of Liquidity Risk Management

- 2 A bank should clearly articulate a liquidity risk tolerance that is appropriate for its business strategy and its role in the financial system.
- 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 of directors on a regular basis. A bank's board of directors 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.
- 4 A bank should incorporate liquidity costs, benefits and risks in the internal pricing, performance measurement and new product approval process for all significant business activities (both on- and off-balance sheet), thereby aligning the risk-taking incentives of individual business lines with the liquidity risk exposures their activities create for the bank as a whole.

Measurement and Management of Liquidity Risk

5	A bank should have a sound process for identifying, measuring, monitoring and controlling liquidity risk. This process should include a robust framework for comprehensively projecting cash flows arising from assets, liabilities and off-balance sheet items over an appropriate set of time horizons.
6	A bank 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.
7	A bank 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. A bank 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 fund raising capacity remain valid.
8	A bank should actively manage its intraday liquidity positions and risks to meet payment and settlement obligations on a timely basis under both normal and stressed conditions and thus contribute to the smooth functioning of payment and settlement systems.
9	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.
10	A bank 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. A bank should use stress test outcomes to adjust its liquidity risk management strategies, policies, and positions and to develop effective contingency plans.
11	A bank should have a formal contingency funding plan (CFP) 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.
12	A bank 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.

Public Disclosure

- 13 A bank 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.

The Role of Supervisors

- 14 Supervisors should regularly perform a comprehensive assessment of a bank's overall liquidity risk management framework and liquidity position to determine whether they deliver an adequate level of resilience to liquidity stress given the bank's role in the financial system.
- 15 Supervisors should supplement their regular assessments of a bank's liquidity risk management framework and liquidity position by monitoring a combination of internal reports, prudential reports and market information.
- 16 Supervisors should intervene to require effective and timely remedial action by a bank to address deficiencies in its liquidity risk management processes or liquidity position.
- 17 Supervisors should communicate with other supervisors and public authorities, such as central banks, both within and across national borders, to facilitate effective cooperation regarding the supervision and oversight of liquidity risk management. Communication should occur regularly during normal times, with the nature and frequency of the information sharing increasing as appropriate during times of stress.

Appendix D: Examples of Liquidity Risks and Controls

The following table lists some of the main risk areas and controls that internal auditors consider when performing a liquidity risk engagement. The list is neither exhaustive nor meant to be used as an engagement work program or checklist. In practice these risk areas should be broken down into their appropriate balance sheet accounts, product lines, or similar categories used by the particular organization and analyzed for relevant risks. The controls are broadly represented in categories of elements, such as strategies, documents, models, data flows, reports, and analyses that could be utilized to mitigate risks that may occur in the listed risk areas.

Liquidity Risk Area	Control Category
<p>Equity capital and/or risk-weighted assets include inappropriate variations in products or investments.</p>	<ul style="list-style-type: none"> ■ Stress testing multiple scenarios has been performed. ■ Equity capital and risk-weighted assets are regularly examined for appropriateness and completeness according to Basel III requirements and any local requirements.
<p>Liabilities cannot be met when they come due or can only be met at an uneconomic price.</p>	<ul style="list-style-type: none"> ■ Contingency funding plans for a variety of scenarios have been established. ■ Cash buffers are increased through sale of fixed assets. ■ Short-term financing sources are adequate. ■ Monitoring metrics that trigger a cutback in lending activities are in place. ■ Excess reserves to cash are converted to cash.
<p>Assets cannot be converted into cash.</p>	<ul style="list-style-type: none"> ■ Asset liability management policy and procedures are in place. ■ Assets have been securitized and illiquid assets have been removed from the bank's balance sheet. ■ Repurchase agreements (repos) have been increased. ■ Commercial paper or bonds have been issued. ■ Quantity and type of high quality liquid assets are appropriate for the bank's liquidity risk profile. ■ Increase unencumbered assets.

Liquidity Risk Area	Control Category
Off-balance sheet obligations are not properly reported.	<ul style="list-style-type: none"> ■ Protocols for testing off-balance sheet commitments are in place (e.g., FASB requirements 2016-02 ASC 842 and IFRS testing protocols).
Foreign exchange fluctuations are unfavorable.	<ul style="list-style-type: none"> ■ Hedge exposures via currency swaps. ■ Hedge exposures naturally.
Bank's liquidity metrics are not aligned with its risk appetite.	<ul style="list-style-type: none"> ■ ALCO regularly reviews the liquidity risk profile and monitors the bank's compliance with the risk appetite as stated by the board. ■ Control functions collaborate to ensure liquidity risk information is shared across the organization. ■ Intraday liquidity metrics are monitored on a real-time basis.
Liquidity events are not identified early enough to react.	<ul style="list-style-type: none"> ■ A process for responding to early warning indicators has been established. ■ Liquidity risk metrics, triggers, and limits are regularly monitored. ■ Macro- and micro-economic environments are regularly monitored. ■ Geopolitical environments in relevant markets are regularly monitored.
Board is not updated completely, clearly, and/or timely.	<ul style="list-style-type: none"> ■ ALCO or other relevant committee regularly reports on liquidity risks to the board.

Appendix E. References and Additional Reading

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