

## Safety and Soundness

Capital  
Adequacy  
(C)

Asset  
Quality  
(A)

Management  
(M)

Earnings  
(E)

**Liquidity  
(L)**

Sensitivity to  
Market Risk  
(S)

Other  
Activities  
(O)

# Liquidity

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# Introduction

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The Office of the Comptroller of the Currency's (OCC) *Comptroller's Handbook* booklet, "Liquidity," is prepared for use by OCC examiners in connection with their examination and supervision of national banks, federal savings associations, and federal branches and agencies of foreign banking organizations (collectively, banks). Each bank is different and may present specific risks and issues. Accordingly, examiners should apply the information in this booklet consistent with each bank's individual circumstances. When it is necessary to distinguish among them, national banks, federal savings associations, and covered savings associations are referred to separately.<sup>1</sup> (Updated in version 1.2)

This booklet provides information to examiners on assessing the quantity of liquidity risk exposure and the quality of liquidity risk management. The sophistication of a bank's liquidity management process depends on its business activities and appetite for risk, as well as the overall level of liquidity risk. A well-managed bank, regardless of size and complexity, identifies, measures, monitors, and controls its exposure to liquidity risk in a timely and comprehensive manner. This booklet provides examiners with supplemental procedures for further analyzing the quantity of liquidity risk and quality of liquidity risk management. The expanded procedures in this booklet are for use when review extends beyond the core assessment in the "Community Bank Supervision," "Federal Branches and Agencies Supervision," and "Large Bank Supervision" booklets of the *Comptroller's Handbook*. Examiners should refer to the "Bank Supervision Process" booklet of the *Comptroller's Handbook* for CAMELS rating system information and assessment factors. Additional guidance, particularly for those examiners responsible for examining large and internationally active banks, is provided in the September 2008 "Principles for Sound Liquidity Risk Management and Supervision," issued by the Basel Committee on Banking Supervision (BCBS)<sup>2</sup> and formally adopted by the OCC and other U.S. banking regulatory agencies in that same year.

## Background

Traditionally, banks have relied on local retail deposits (transaction and savings accounts) to support asset growth. Most retail deposit balances are federally insured, stable, and relatively inexpensive. Funding dynamics at community, midsize, and large banks, however, have

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<sup>1</sup> Generally, references to "national banks" throughout this booklet also apply to federal branches and agencies of foreign banking organizations unless otherwise specified. Refer to the "Federal Branches and Agencies Supervision" booklet of the *Comptroller's Handbook* for more information regarding applicability of laws, regulations, and guidance to federal branches and agencies. Certain federal savings associations may make an election to operate as a covered savings association (CSA). For more information, refer to OCC Bulletin 2019-31, "Covered Savings Associations Implementation: Covered Savings Associations" and 12 CFR 101, "Covered Savings Associations."

<sup>2</sup> The BCBS consists of senior representatives of bank supervisory authorities and central banks in Argentina, Australia, Belgium, Brazil, Canada, China, France, Germany, Hong Kong Special Administrative Region, India, Indonesia, Italy, Japan, Luxembourg, Mexico, the Netherlands, Russia, Saudi Arabia, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States. It usually meets at the Bank for International Settlements in Basel, Switzerland, where its permanent secretariat is located.

evolved over time. Technological advances in the delivery of financial products and services, the removal of interstate banking restrictions, and the deregulation of interest rates paid on deposit accounts changed both depositor and banker behavior. Legislative reforms were intended to give depository institutions the tools to compete with other market participants for deposits, but they also increased competition among the banks themselves. The combination of these reforms and technological advances also made it easier for depositors, looking for better returns on their money, to leave their local markets. Consequently, in some cases, retail bank deposit growth did not keep pace with asset growth. Some banks became reliant on alternative deposit, nondeposit, and off-balance-sheet funding sources to cover the shortfall in traditional retail deposit funding.

Changes in technology, product innovation, and funding dynamics create new challenges for liquidity managers. Intense competition and declining customer loyalty increase the rate sensitivity of traditional retail deposits. As banking customers are now using deposit accounts more as transaction vehicles than savings vehicles, thereby maintaining lower average excess balances, bankers can no longer rely upon historically inelastic depositor behavior. Thus, the reliance on alternative sources of funding from the wholesale and brokered markets exposes banks to more rate and liquidity sensitivity than the reliance on traditional retail deposits did. Moreover, many banks have increased their use of products with embedded optionality<sup>3</sup> on both sides of the balance sheet, which makes it more challenging to manage the corresponding cash flows. It is important for liquidity risk management systems to keep pace with these changes and added complexities.

Given these changes in funding dynamics, liquidity management can be complex and warrant robust risk management. To effectively identify, measure, monitor, and control liquidity risk exposure, well-managed banks supplement traditional liquidity risk measures such as static-balance-sheet ratios with more prospective analyses. Examiners should have, at a minimum, a sound understanding of a bank's

- projected funding sources and needs under a variety of market conditions.
- net cash flow and liquid asset positions given planned and unplanned balance sheet changes.
- projected borrowing capacity under stable conditions and under adverse scenarios of varying severity and duration.
- highly liquid asset<sup>4</sup> and collateral position, including the eligibility and marketability of such assets under a variety of market environments.
- vulnerability to rollover risk.<sup>5</sup>
- funding needs for unfunded commitments over various time horizons.

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<sup>3</sup> An option gives the issuer or the holder the right to take a specified action at present or in the future. (Footnote added in version 1.2)

<sup>4</sup> "Highly liquid asset" is defined as the sum of U.S. Treasury and agency securities and excess reserves at the Federal Reserve.

<sup>5</sup> Rollover risk is the risk that a bank is unable to renew or replace funds at reasonable costs when they mature or otherwise come due.

- projected funding costs, as well as earnings and capital positions under varying rate scenarios and market conditions.

## Definition

Liquidity is a bank's capacity to readily meet its cash and collateral obligations at a reasonable cost. A bank's liquidity is adequate when the bank is able to efficiently meet both expected and unexpected cash flows and collateral needs without adversely affecting either daily operations or the financial condition of the bank. A bank's liquidity exists in its assets readily convertible to cash, net operating cash flows, and ability to acquire funding through deposits, borrowings, and capital injections. (Updated in version 1.2)

By definition, liquidity risk is the risk that a bank's financial condition or overall safety and soundness is adversely affected by an inability (or perceived inability) to meet its obligations. A bank's obligations, and the funding sources used to meet them, depend significantly on its business mix, its balance sheet structure, and the cash flow profiles of its on- and off-balance-sheet obligations. In managing their cash flows, banks confront various situations that can give rise to increased liquidity risk. These include funding mismatches, market constraints on the ability to convert assets into cash or accessing sources of funds (i.e., market liquidity), and contingent liquidity events. Changes in economic conditions or exposure to credit, market, operational, legal, and reputation risks also can affect a bank's liquidity risk profile and should be considered in the assessment of liquidity and asset or liability management.

In assessing a bank's liquidity position, examiners should consider a bank's access to funds as well as its cost of funding. Depending on the current interest rate and competitive environments, undue reliance on wholesale or market-based funding may increase a bank's cost structure. The cost of acquiring or renewing such funding is purely market-driven, as opposed to rates paid on retail deposits, which may be set at management's discretion within the parameters of local and national market conditions. Rising or high funding costs, especially compared with peer and market rates, may be a sign of potential liquidity problems. (Updated in version 1.2)

## Importance of Liquidity Risk Management

(Section heading updated in version 1.2)

Liquidity is the lifeblood of any institution, but it is particularly crucial to highly leveraged entities such as banks. More broadly, the financial crisis beginning in 2008 demonstrated how liquidity problems and risks can be transmitted throughout the entire financial system. For all banks, the repercussions of inadequate liquidity risk management can be immediate and dire. Therefore, liquidity risk management should be fully integrated into the bank's risk management processes. (Updated in version 1.2)

The OCC expects all banks to manage liquidity risk with sophistication equal to the risks undertaken and complexity of exposures. Critical elements of sound liquidity risk management include<sup>6</sup>

- effective corporate governance consisting of oversight by the board of directors and active involvement by management in an institution's control of liquidity risk.
- appropriate strategies, policies, procedures, and limits used to mitigate liquidity risk.
- comprehensive liquidity risk measurement and monitoring systems (including assessments of the current and prospective cash flows or sources and uses of funds) that are commensurate with the complexity and business activities of the bank.
- active management of intraday liquidity and collateral.
- an appropriately diverse mix of existing and potential future funding sources.
- adequate levels of highly liquid marketable securities, with no legal, regulatory, or operational impediments, that can be used to meet liquidity needs in stressful situations.
- comprehensive contingency funding plans (CFP) sufficient to address potential adverse liquidity events and emergency cash flow needs.
- internal controls and internal audit processes sufficient to determine the adequacy of the bank's liquidity risk management process.

## Sources of Liquidity

Structural changes in banks' deposit bases have led banks to take advantage of improved access to wholesale and market-based funding sources. Examples of alternative funding sources include federal funds lines, repurchase agreements (repos), correspondent bank lines, Federal Home Loan Bank (FHLB) advances, internet deposits, listing service deposits, deposit-sharing arrangements, and brokered deposits. Access to these sources enables banks to meet funding needs while still maintaining adequate funding diversification. Funds from the wholesale markets can be accessed at a variety of tenors that provide greater flexibility to manage bank cash flows and liquidity needs. (Updated in version 1.2)

On the other hand, too much reliance on wholesale and market-based funding sources elevates a bank's liquidity risk profile. Management teams who are unfamiliar with wholesale funding markets may become overly complacent during stable economic times. Funding through alternative sources exposes banks to the heightened interest-rate and credit sensitivity of these funds providers. Providers of wholesale funding often require a bank's more liquid assets as collateral, which may impair the overall liquidity of a bank's asset base. Further, if that collateral becomes less liquid, or its value becomes uncertain, wholesale funds providers may be unwilling to extend or roll over funding at maturity. A bank's financial condition as well as market or systemic events unrelated to the bank may adversely affect the cost to a bank to acquire funds or its ability to access the wholesale markets. As a bank's reliance on wholesale and market-based funding increases, so should the quality of liquidity risk management. Periodic assessments of a bank's exposure to changes in market conditions are important for maintaining risk management systems commensurate with the bank's risk.

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<sup>6</sup> For more information, refer to OCC Bulletin 2010-13, "Liquidity: Final Policy Statement: Interagency Policy Statement on Funding and Liquidity Risk Management." (Footnote updated in version 1.2)

Asset sales and securitization are also important sources of bank liquidity. Banks of all sizes have increased the use of asset sales and securitization to access alternative funding sources, manage concentrations, improve financial performance ratios, and more efficiently meet customer needs. Some of these transactions, however, carry explicit recourse<sup>7</sup> provisions within contractual documents, as well as the potential implied recourse associated with a bank's desire to maintain access to future funding by repurchasing or otherwise supporting securitizations that exhibit performance problems. As a result, examiners should be aware of situations in which banks might overestimate the risk transfer of sales and securitization or may underestimate the commitment and resources required to manage this process effectively. Such mistakes may lead to highly visible problems during the life of a transaction that could impair future access to the secondary markets. A bank's role and level of involvement in asset sales and securitization activities determine the degree of risk to which it is exposed.

Off-balance-sheet positions can serve as both a source of liquidity and a potential, sometimes unexpected, drain on liquidity. Banks with a substantial amount of unfunded loan commitments may be required to fund such obligations unexpectedly and on short notice. Other off-balance-sheet commitments, such as legally binding and non-legally binding support (including the voluntary repurchase of underlying assets) for securitizations, asset-backed commercial paper conduits, and other market-based funding vehicles, can affect a bank's liquidity position. In addition, collateral required for covering adverse mark-to-market changes in derivative hedging and trading activities may reduce the stock of liquid assets. Often, the fulfillment of non-legally binding off-balance-sheet commitments is necessary to preserve a bank's reputation, as well as to allow the bank continued access to that segment of the financial markets. On the other hand, off-balance-sheet activities may provide additional sources of liquidity. Banks can supplement their liquidity position by maintaining lines of credit with correspondent banks or their respective FHLB. Sound liquidity management includes the analysis of and planning for the operational and contingent sources and uses of funds associated with off-balance-sheet activities. (Updated in version 1.2)

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<sup>7</sup> Recourse represents the right of the investor to seek payment from the originator.



# Fundamentals

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Managing liquidity involves estimating present and future cash needs and providing for those needs in the most cost-effective way possible. Banks obtain liquidity from both sides of the balance sheet, as well as from off-balance-sheet activities. A manager who attempts to control liquidity solely by adjustments on the asset side is potentially ignoring less costly sources of liquidity. Conversely, focusing solely on the liability side or depending too heavily on purchased wholesale funds can leave a bank vulnerable to market conditions and influences beyond its control. Effective liquidity managers consider the array of available sources when establishing and implementing their liquidity plans.

Examiners should assess bank management's understanding of the sensitivities of the bank's funds providers, the funding instruments the bank uses, the relationship of funding costs to asset yields, and any market or regulatory constraints on funding. Specifically, examiners should assess how management maintains an understanding of the volume, mix, pricing, cash flows, and risk exposures stemming from the bank's assets and liabilities, as well as other available sources of funds and potential uses of excess cash flow. Examiners should also determine how management identifies risks arising from concentrations in funding sources.

A bank's liquidity and liquidity risk profile can change quickly, and these changes may occur for reasons outside of management's control. In fact, the adequacy of a bank's liquidity position can be affected by the bank's operating environment or by the market's perception of that bank. A bank's liquidity position may be adequate under certain operating environments yet be insufficient under adverse environments. This is particularly true for a bank that is heavily reliant on wholesale or market-based funding sources. During some adverse operating environments, a bank may see a considerable decline in the availability of funding, an increased need for funds, volatile changes in the cost of funds, or a dramatic change in the timing of fund inflows or outflows. Therefore, it is critical for managers to determine the adequacy of liquidity under numerous adverse environments.<sup>8</sup> (Updated in version 1.2)

Key factors that increase a bank's liquidity risk include poor asset quality, high cash-flow volatility, low levels of liquid assets, high or rising funding costs when compared with the characteristic profile of assets funded, concentrations in funding sources, and dependence on credit- and rate-sensitive providers. Effective liquidity management entails the following elements (Updated in version 1.2):

- **Management of operating liquidity:** On an ongoing basis, assessing a bank's current and expected future needs for funds, and ensuring that sufficient funds or access to funds exists to meet those needs at the appropriate time.
- **Management of contingent liquidity:** Providing for an adequate cushion to meet unanticipated cash flow needs that may range from high-probability and low-impact events that could occur in daily operations to low-probability and high-impact events that occur less frequently but may significantly affect a bank's safety and soundness.

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<sup>8</sup> For more information, refer to the "Contingency Funding Plans" section of this booklet.

A bank's liquidity needs depend significantly on the balance-sheet structure, product mix, and cash flow profiles of both on- and off-balance-sheet obligations. External events and internal financial and operating risks (interest rate, credit, operational, compliance, and reputation risks) can influence a bank's liquidity risk.

Bank-specific factors that could affect the bank's liquidity risk include

- deterioration in asset quality,
- events that affect public reputation or market perception (e.g., accounting scandals, adverse consumer or market events),
- deteriorating earnings performance,
- downgrade in a credit rating,
- aggressive balance-sheet growth, and
- breakdowns in internal systems or controls (fraud).

External factors or events that could affect a bank's liquidity risk include

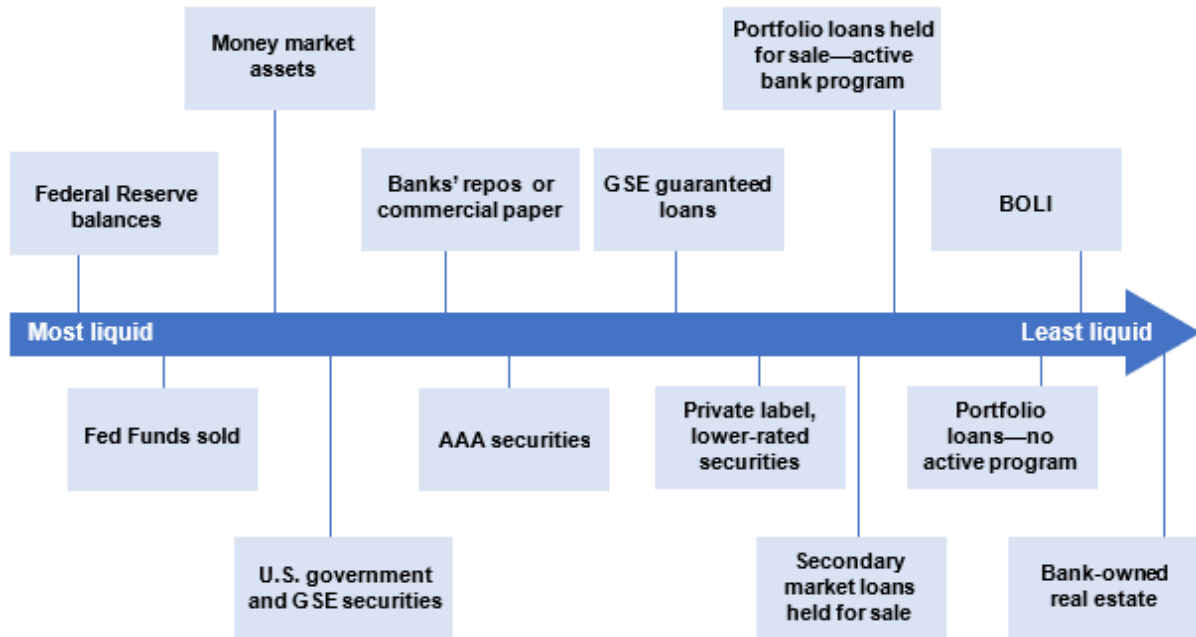
- geographical—deteriorating local economic conditions,
- systemic—major changes in national or global economic conditions or dislocations in financial markets,
- financial sector—financial scandal or failure of major firms affecting public confidence,
- market-oriented—price volatility of certain types of assets in response to market events, and
- operational—disturbances to payment and settlement systems or local natural disasters.

## **Contribution of Balance-Sheet Structure to Liquidity Risk**

Examiners should evaluate the cash flow characteristics, structure, and stability of each major asset and liability category to determine the effect on operating and contingent liquidity. This evaluation, combined with an assessment of the interrelationship of these asset and liability accounts, provides the basis for determining the quantity of liquidity risk.

The cash flow volatility of assets and how quickly assets can be converted to cash without incurring unacceptable loss form the basis for evaluating the liquidity contained in a bank's asset base. Several factors influence this evaluation, including the credit, interest rate, and price risk profiles of the assets. The accounting treatment may influence management decisions, based on the impact to balance sheet and income statement reporting. Figure 1 illustrates the primary assets found on a bank's balance sheet and the relative contribution of these assets to meeting the bank's liquidity needs. (Updated in version 1.2)

**Figure 1: Asset Contribution to Meet Liquidity Needs (Sell or Pledge)**



Note: GSE stands for government-sponsored enterprise. BOLI stands for bank-owned life insurance.

Funding stability of liabilities and the ability to renew or replace liabilities at favorable terms form the basis for assessing the liquidity risk in a bank’s liabilities. The stability of a bank’s liabilities depends on many factors, including the level of deposit insurance, the degree of credit-risk sensitivity to the bank, and the level of market interest-rate sensitivity. Figure 2 illustrates the primary liabilities on a bank’s balance sheet and the relative sensitivity of those funding sources to both interest rate and credit risk.

**Figure 2: Liability Sensitivity**

Increasing Credit Sensitivity →		
↑ Increasing Rate Sensitivity ↓	<b>Insured Retail Deposits</b> Retail Demand Deposits Retail Savings Deposits	<b>Uninsured Retail Deposits</b> Retail Demand Deposits Retail Savings Deposits
	<b>Insured Retail Deposits and Borrowings</b>	<b>Uninsured Interest-Bearing Deposits and Unsecured Borrowings</b>
	Money Market Deposit Accounts Negotiable Order of Withdrawal Accounts Certificates of Deposit Collateralized Borrowings Commercial Demand Deposits Reciprocal Deposits Secured Public Funds Deposit Listing Services & Internet Deposits Brokered Deposits	Unsecured Borrowings Commercial Paper Eurodollar Deposits Brokered Deposits

Banks with large mismatches between liability maturities and asset maturities have greater earnings exposure to changes in interest rates. Changes in market conditions are often unpredictable and sometimes severe. These changes can make it difficult for a bank to secure funds, retain additional funding, and manage the maturity of its funding structure.

Banks that manage liquidity predominantly with liabilities, particularly volatile funding sources, warrant more robust planning, strategies, and management oversight than banks that manage liquidity by relying principally on assets. In banks that manage liquidity predominantly with liabilities, the interrelationship between liabilities and the assets banks fund is critical for sound liquidity risk management. For example, banks that depend heavily on volatile liabilities with high rollover risk generally need a higher level of support from liquid assets. Banks that rely on volatile liabilities to fund assets that are less liquid generally exhibit lower credit quality or produce less predictable cash flows and possess higher liquidity risk profiles. Such banks would typically warrant well-established funding strategies, such as back-up liquidity lines, contingent calls on equity capital, or a countervailing large, high-quality securities portfolio. These banks face the risk that asset cash flows decline at the same time as liabilities mature and roll out of a bank. In addition, if assets with higher credit risk lead to credit quality deterioration and impair a bank's financial condition, some credit-sensitive funding providers may reduce or eliminate their funding to the bank. (Updated in version 1.2)

## Operating Liquidity

A key building block in managing liquidity risk is the estimation of cash inflows (sources of funds) and outflows (uses of funds) for each significant balance-sheet account, given a specific time period. For any given time period, assets and liabilities can have either a net positive or negative impact on cash flows. Specific period aggregate funding mismatches can result in the bank lacking sufficient capacity to fund obligations in the normal course of business (funding gap). Effective management and control of the liquidity risk stemming from funding gaps depends heavily on the use of operational cash flow projections and the reasonableness and accuracy of the assumptions that are applied. Bank-specific factors that affect the development of cash flow assumptions include the following:

- Deteriorating asset quality.
- Highly volatile or unpredictable asset amortization (prepayments), nonmaturity deposits,<sup>9</sup> off-balance-sheet commitments (lines or letters of credit), and other estimated cash flows.
- Unexpected fluctuations in loan demand or deposit balances.
- Unanticipated new business due to poor management reporting or communication.
- Inability or unwillingness of permanent takeout lenders to perform as expected. (Updated in version 1.2)

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<sup>9</sup> Nonmaturity deposits are accounts with no defined maturity, such as demand deposits, NOW accounts, and money market deposit accounts. Refer to the Federal Financial Institutions Examination Council (FFIEC) Instructions for Preparation of Consolidated Reports of Condition and Income. (Footnote added in version 1.2)

Developing multiple scenarios is an effective way to fully assess the impact of these factors on funding gaps and cash flow projections. These scenarios should include institution-specific risk (e.g., the risk of a credit rating downgrade), market risks such as a market-driven liquidity crisis, and a combination of the two.

Funding mismatches can expose a bank to significant liquidity risk that can be exacerbated by unexpected fluctuations in cash flows under both normal business conditions and stressful contingent events, including swings in collateral required to support off-balance-sheet derivative contracts. By estimating and reporting future balance-sheet cash flows, management can identify periodic funding mismatches and cash flow shortfalls and excesses. This allows bank management to take steps to generate funds from a bank's asset base or to obtain or attract additional liabilities before actual cash flow mismatches occur.

## Asset-Based Liquidity Sources

Liquidity managers may look toward a bank's assets as a source for primary (operating liquidity) and secondary (contingent liquidity) funding. Asset-based liquidity sources include cash flows stemming from a bank's various asset classes, the use of assets as collateral for a variety of funding alternatives, or the securitization or liquidation of assets for cash.

### Cash Flows

The primary source of funding stemming from a bank's asset base is the periodic principal and interest cash flow produced by the loan and investment securities portfolios. The cash flow schedules of a bank's assets can be based on the assets' contractual maturity and are predictable and expected, or they may be adjusted by contractual options afforded to the counterparty and occur unexpectedly. A significant impact on a bank's liquidity position typically occurs when counterparties do not pay according to their contractual requirements because of credit problems or other issues.

### Pledging of Assets

Banks routinely pledge various types of assets to secure borrowings or line commitments. Secured or collateralized borrowings generally are more reliable sources of liquidity and are generally lower cost when compared with unsecured funding sources. Secured stand-by commitments are also a common form of liquidity provided by the pledging of assets. Common providers of secured funding are the FHLBs, the Federal Reserve discount window, and broker-dealers (repurchase agreements).

While pledging provides a lower cost and a more stable alternative to unsecured borrowings, it is important for banks to carefully manage the amount of assets available for pledging. A bank should have the ability to calculate all of its collateral positions, including the value of assets currently pledged relative to the amount of security required and unencumbered assets available to be pledged. A bank's level of available collateral should be monitored by legal entity, jurisdiction, and currency exposure. Furthermore, systems should be capable of monitoring shifts between intraday and overnight, or term collateral usage.

Although secured funding providers are less sensitive to a bank's condition and performance than unsecured creditors, credit risk exposure has a significant impact on the ultimate liquidity provided by pledged bank assets. In addition, changes in the following factors may affect counterparty collateral requirements and may force a bank to increase the amount of assets necessary to secure funding:

- The credit quality, underwriting, or performance of pledged loans
- The liquidity or market value of pledged assets
- The bank's financial condition
- The bank's tangible generally accepted accounting principles (GAAP) equity position<sup>10</sup> (Added in version 1.2)
- Collateral margin requirements
- The counterparty advance rates on various types of collateral
- The amount of borrowings or collateral pledged when compared with the overall size of the bank (e.g., total assets, total loans)
- Regulatory actions against the bank.

## Reserve Balances

(Section added in version 1.2)

In March 2020, the Federal Reserve Board (Board) amended Regulation D to set all reserve requirement ratios to zero, eliminating all reserve requirements. Effective July 29, 2021, the Board of Governors of the Federal Reserve System established the initial Interest On Reserve Balances (IORB) rate as a monetary policy tool. Banks earn the IORB on their reserve balances. The Board votes on the level of the IORB rate at each Federal Open Market Committee (FOMC) meeting. Banks manage their level of reserves to balance their liquidity needs, opportunity costs, and interest rates earned. The Federal Reserve account balances are among the most liquid and highest-quality assets that the banks have and are a source of liquidity during normal business conditions and times of stress.

## Liquidation of Assets

Banks obtain funds by reducing or liquidating assets. Most banks incorporate asset liquidation into their ongoing management of operating liquidity. They also use the potential liquidation of a portion of their assets (generally, a portion of their loan or investment portfolio) as a contingent liquidity source under adverse liquidity circumstances. Unencumbered, marketable assets with a low interest-rate and price-risk profile are effective as a contingent liquidity source. The sale of less liquid assets usually requires a bank to

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<sup>10</sup> The FHLBs, municipal/public depositors, U.S. Securities and Exchange Commission-regulated broker dealers, and reciprocal deposit programs may have restrictions, rules, or policies limiting or prohibiting their ability to lend or place deposits in banking institutions with certain levels of tangible GAAP equity capital. Refer to appendix F, "Deteriorating or Declining GAAP Tangible Capital Implications on Bank Liquidity Risk" for additional information. (Footnote added in version 1.2)

engage in an active and ongoing sales program to achieve efficient transactions and favorable market pricing, which limits availability during times of stress.

## Securitization of Assets

Asset securitization is another method that some banks use to fund their activities. Securitization involves the transformation of on-balance-sheet loans (e.g., auto, credit card, commercial, student, home equity, and mortgage) into packaged groups of loans in various forms that are subsequently sold to investors. Depending on the business model employed, securitization proceeds can be a material source of ongoing funding and a significant tool for meeting future funding needs. However, for banks that have not previously used securitization as a funding tool, the operational hurdles for securitization may mean significant delays in obtaining funds. In addition, a bank without experience in using securitization may find that its underwriting and administrative policies and procedures do not meet market requirements or expectations. In addition, banks' securitization structures and activities must adhere to all applicable accounting and regulatory requirements. Securitization activities are sometimes complex, warranting strong risk management. If a bank relies significantly on securitization as a liquidity source, refer to the "Asset Securitization" booklet of the *Comptroller's Handbook* (national banks) and Office of Thrift Supervision *Examination Handbook* section 221, "Asset-Backed Securitization" (federal savings associations), for more information on how to examine these activities. The examination of securitization activities should be closely coordinated with the assessment of liquidity risk.

## Liability-Based Liquidity Sources

Liability funding sources are typically characterized as retail or wholesale. Banks distinguish between retail and wholesale funding because the two sources of funding have different sensitivities to credit risk and interest rates and react differently to changes in economic conditions and the financial condition of a bank.

### Retail Deposits

Retail deposits from consumers and small businesses are often important and relatively stable sources of funds for banks. In many instances, the decision made by consumers and business owners to deposit funds in a bank is driven by service and relationship factors, and not merely by the rate of return. Banks focusing on retail deposit generation can build a more diversified and stable funding base, one that is less sensitive to changes in market interest rates and a bank's financial condition. The protection afforded by Federal Deposit Insurance Corporation (FDIC) deposit insurance also provides insured banks with an advantage over other money market participants. During times of bank stress, insured depositors have proven to be a bank's most reliable funding source and, therefore, play an integral role in mitigating liquidity risk during crisis scenarios. Banks can generate interest-bearing retail deposits more quickly by offering interest rates significantly higher than local and national market levels. However, they risk substantially increasing their funding costs if existing customers switch their relationships to the new, higher-cost deposit products. In addition, any new funds

generated by high interest rate deposits may prove highly rate-sensitive, requiring a bank to match market rates to retain the funding. Noninterest costs can also be substantial. Costs from generating a large volume of new accounts can include personnel, advertising, and operating costs, as well as the costs associated with branch expansion.

## Wholesale Funding

(Section heading added in version 1.2)

### **Public or Municipal Deposits**

Public or municipal deposits are another source for bank funding. Although similar to retail deposits, public deposits are usually in larger denominations, often placed by a professional money manager or through a bidding process, and may require collateral in the form of high-quality investment securities. Pledging requirements vary by state and are based on banks' financial condition metrics. Banks usually pledge investment securities as collateral but may participate in state pledging pools, substitute FHLB letters of credit, or offer reciprocal deposits to their public funds depositors as alternatives. A bank may have existing financial relationships with local municipalities that give the bank a competitive advantage in attracting deposit accounts. Nonetheless, public funds are generally more sensitive to interest rates than retail deposits and often have competitive rates at placement and subsequent rollover dates. Municipalities have a fiduciary responsibility for the safe placement of funds and typically are mandated to place funds only in banks that are sufficiently capitalized and in otherwise sound financial condition. Therefore, public funds are also more sensitive to the financial condition of the depository and may react to a bank's negative press or deteriorating financial condition more rapidly than retail depositors. The sensitivities of public-funds providers are important considerations in a bank's operational and contingency planning activities. Public funds have become more complex over time. (Updated in version 1.2)

### **Borrowed Funds**

A bank can also generate funds through borrowings from various counterparties. Borrowed funds include secured and unsecured debt obligations across the maturity spectrum. In the short term, borrowed funds include purchased federal funds and securities sold under agreements to repurchase (repos). Longer-term borrowed funds include various types of collateralized loans and the issuance of corporate debt. Depending on their contractual characteristics and the behavior of funds providers, borrowed funds vary in maturity and availability because of their sensitivity to the perceived risk of the bank, general trends in interest rates, and other market factors.

When a bank relies on borrowed funds for ongoing or contingent funding, it is important for bank management to understand the credit standards of the entities lending to it. Bank management typically determines the credit policies of key funds providers and uses that information to estimate the amount of funding that would be available to the bank as its financial condition changes. This is an integral part of planning for funding contingencies. Some funds providers may be less sensitive to the financial condition of a bank since the



lenders are primarily focused on the quality and liquidity of collateral and are looking to the pledged assets to ensure repayment. However, other funds providers, including sellers of overnight funds and the FHLBs, usually have credit policies that lead them to require alternative or additional collateral if the actual or perceived condition of the bank begins to deteriorate. For example, if a bank's tangible GAAP equity falls below a specified threshold or becomes negative, statutory restrictions or program requirements can reduce the bank's options to use various funds providers, which can increase funds sensitivity. Funds providers might also freeze or reduce funding provided to a bank that is experiencing a deteriorating financial condition. (Updated in version 1.2)

## **Federal Home Loan Bank Borrowings**

(Section added in version 1.2)

A bank may borrow from one of the FHLBs. There are 11 FHLBs organized into regional districts that provide wholesale funding to member banks. The FHLBs are cooperatively owned by member banks, with each member purchasing stock in its FHLB. Each FHLB has its own credit standards and collateral requirements. The FHLBs provide both short-term and long-term secured loans, called advances. These advances are backed by mortgage loans and other types of collateral. The FHLBs also provide to member banks a suite of lending products, including fixed-rate advances, variable-rate advances, hybrid advances, letters of credit, and convertible advances. The FHLBs limit the amount of advances for each member bank to between 20 percent and 60 percent of member total assets. FHLB borrowings provide banks with a secure, flexible, low-cost source of funds and are commonly used by community and midsize banks.

## **Federal Reserve Discount Window**

(Section added in version 1.2)

The Federal Reserve discount window can help banks control liquidity risk. Examiners should apply additional scrutiny in assessing funding strategies in banks that place significant reliance on the discount window to meet recurring liquidity needs or liquidity needs over a prolonged period. Discount window borrowings have tight restrictions, especially for banks that are adversely rated or less than adequately capitalized under prompt corrective action (PCA). During times of unusual market stress, such as the COVID-19 pandemic, discount window access can be useful for short-term or unanticipated needs. The discount window is available to relieve liquidity strains for individual banks as well as the banking system, but the Federal Reserve Banks are not required to lend through the discount window.

The discount window offers three types of credit facilities: primary, secondary, and seasonal.<sup>11</sup>

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<sup>11</sup> For more information about the discount window, refer to 12 CFR 201, "Extensions of Credit By Reserve Banks (Regulation A)." (Footnote added in version 1.2)

- **Primary credit facility:** Available to banks that are in sound financial condition; problem banks do not qualify for primary credit.
- **Secondary credit facility:** Available to banks that do not qualify for primary credit. The secondary credit facility requires banks to pledge strong collateral and generally restricts funding to overnight. Secondary credit may extend for a longer term if such credit would facilitate a timely return to reliance on market funding or an orderly resolution of a failing bank, subject to statutory requirements.
- **Seasonal credit facility:** Available to banks that have significant seasonality in their balance sheets.

## Deposit Listing Services and Internet Deposits

(Section heading updated in version 1.2)

A bank may use a national deposit listing service or internet-based deposits to raise the volume of time and money market deposits. This source of funding can be convenient and usually involves minimal noninterest costs. The bank can also tailor the tenor of listed deposits to meet its funding needs. It is sometimes difficult, however, to control the volume of funds generated from listing services. Further, funds generated from listing services or internet-based deposits tend to be more rate-sensitive than deposits raised locally, because the relationship with the depositor is based principally on the offering rate. Funding strategies that incorporate deposit listing services or internet-based deposits should be complemented with risk management systems to control associated risks. Because the depositor relationship with a bank is motivated primarily through rates paid, deposits obtained through the use of a listing service or the internet have behavioral characteristics similar to deposits gathered through a broker. These deposits generally do not meet the formal definition of brokered deposits, however, because the service merely involves the listing of offering rates and does not employ the use of a third party to communicate with the customer. (Updated in version 1.2)

### Brokered Deposits

Brokered deposits<sup>12</sup> are deposits obtained or placed through the use of or relationship with a third party (deposit broker). Banks obtain brokered deposits typically through arrangements with securities brokerage firms. Brokered deposits can, however, be gathered through other means as well, including a deposit listing service. Brokered deposits can also be obtained through a sweep arrangement with an independent or an affiliated broker-dealer. While sweep accounts pay a market rate, these accounts are established to maximize insurance coverage for deposit holders. The use of brokered deposits provides a means for banks to raise large amounts of funds quickly with a predetermined maturity structure. However, similar to deposits gathered via a listing service, the primary motivation for placing or depositing funds is the offering rate. These funds are highly rate-sensitive. Thus, at maturity, a bank ordinarily needs to match prevailing market rates to successfully roll over or renew the deposit. Brokered deposits with short-term or immediate maturities (e.g., money market

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<sup>12</sup> See appendix A, “Brokered Deposit Use and Restrictions,” for additional information.

deposit accounts) are particularly subject to rollover risk and should be closely monitored and managed. When a bank relies materially on brokered deposits, management should identify and maintain committed alternative funding sources for short-term deposit maturities as conditions warrant. Funding strategies should generally also address the potential higher costs associated with renewing or replacing funds garnered through a deposit broker. In addition, banks that do not meet regulatory requirements to be “well capitalized” (under 12 CFR 6, “Prompt Corrective Action”) will find their ability to access or renew brokered funds restricted or eliminated.<sup>13</sup> Banks that rely on brokered deposits should also incorporate PCA-related downgrade triggers into their CFPs, since a change in PCA capital category could have a material bearing on the availability of this funding source. (Updated in version 1.2)

## **Reciprocal Deposits**

(Section added in version 1.2)

Reciprocal deposits are deposits that the bank receives through a deposit placement network in exchange for placing a matching aggregate amount of deposits with the same maturity (if any) at other member banks in the network. Each bank in the network sets the interest rate to be paid on the entire amount of funds it places with other network member banks. With a deposit network service, the member bank can provide its customers with access to FDIC deposit insurance above the deposit insurance limit by splitting the large deposit into smaller deposits, each under the deposit insurance limit, and placing the smaller deposits with banks in the deposit network. Each bank in the network performs a similar function for its customers by breaking up large deposits into smaller deposits for placement throughout the network, with each bank placing and receiving equal amounts. (Updated in version 1.2 )

While reciprocal deposits are generally considered brokered deposits under 12 CFR 337.6(e), reciprocal deposits that do not exceed the lesser of \$5 billion or 20 percent of a bank’s liabilities are not considered brokered deposits for a bank that

- is well-capitalized and has an “outstanding” or “good” composite rating,<sup>14</sup> or
- is adequately capitalized and has a waiver from the FDIC allowing it to take brokered deposits.

If a bank falls below well-capitalized or a “good” composite rating and does not have an FDIC waiver, reciprocal deposits are not treated as brokered deposits if the amount of reciprocal deposits does not exceed the average amount of reciprocal deposits for the prior four quarters.

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<sup>13</sup> Refer to 12 CFR 303, “Filing Procedures,” and 337.6, “Brokered Deposits.”

<sup>14</sup> “Outstanding” is a composite 1 rating and “Good” is a composite 2 rating, as noted in 84 Fed. Reg. 1346, 1347-48 (Feb. 4, 2019). For more information, refer to the applicable FDIC regulation at 12 CFR 337.6. (Footnote added in version 1.2)

A bank that is not well capitalized is subject to the interest rate cap (12 CFR 337.7) for all deposits, including reciprocal deposits.

The FDIC measures reciprocal deposit amounts as of the call report date.

## **Sweep Deposits**

(Section added in version 1.2)

Sweep deposits are deposits that are “swept” into the bank from an affiliate or non-affiliate financial company by a contractual arrangement. Generally, the deposits are swept from an affiliate broker-dealer of the bank; however, the deposits may also be swept by an unaffiliated broker-dealer or third-party financial company. While these deposits are usually swept from a broker-dealer, they are not necessarily categorized as brokered deposits under 12 CFR 337.6.<sup>15</sup>

## **Funding From the Financial Markets**

Some banks, particularly larger domestic and multinational banks, turn to the financial markets for funding. Today, financial markets provide funding to banks in a variety of ways, including asset purchases, repurchase agreements, and equity and debt issuances. These sources provide a broader and more diversified funding base to larger banks. Often these market-based funding programs, when conducted on a broad scale, allow banks to access funds at costs below those associated with more traditional retail deposit gathering.

A bank’s reliance on the financial markets for funding, however, can also increase the level, uncertainty, and complexity of a bank’s liquidity risk profile. The acceptance of bank products and services by the financial markets can be affected by a multitude of factors not usually associated with more traditional bank funding strategies. In addition to the customary bank-specific liquidity risks associated with most wholesale funding regimes, funding from financial markets also exposes a bank to heightened systemic liquidity risk. Increased liquidity risks can arise from the volatility of global and domestic funds supply and demand, unexpected disruptions in normal market trading and pricing, settlement and operational interruptions, and pronounced adjustments in a market’s risk pricing and acceptance. Debt providers may have provisions that link to GAAP tangible capital measures. Such provisions may trigger debt payment acceleration or other actions if the GAAP tangible capital measure falls below certain thresholds. Such provisions, however, are likely to make the debt instrument ineligible to qualify as tier 2 capital.<sup>16</sup> (Updated in version 1.2)

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<sup>15</sup> Refer to FDIC regulation 12 CFR 337.6, “Brokered Deposits,” for brokered deposit definitions. (Footnote added in version 1.2)

<sup>16</sup> See tier 2 eligibility requirements at [12 CFR 3.20\(d\)\(1\)\(vi\)](#): “The holder of the instrument must have no contractual right to accelerate payment of principal or interest on the instrument, except in the event of a receivership, insolvency, liquidation, or similar proceeding of the national bank or federal savings association.” (Footnote added in version 1.2)

Many financial market funding vehicles that remove assets from a bank's balance sheet sometimes carry with them both contractual and noncontractual funding commitments. These noncontractual or implied commitments are usually not exercised during normal market conditions. However, during market disruptions or times of stress, these commitments to financial investors and other market participants may necessitate substantial and unexpected use of funds or require a bank to repurchase underlying assets. Often, the fulfillment of these non-legally binding commitments is necessary to preserve the reputation of the bank and allow a bank continued access to that segment of the financial markets. When the quality and performance of these assets has deteriorated, this condition may elevate the issuing bank's liquidity risk profile.

When a bank relies on funding from the financial markets, it is important for operating and contingent liquidity management and planning programs to incorporate strategies designed to mitigate these unique and sometimes complex liquidity risks.

## Risks Associated With Liquidity

From a supervisory perspective, risk is the potential that events will have an adverse effect on a bank's current or projected financial condition<sup>17</sup> and resilience.<sup>18</sup> The OCC has defined eight categories of risk for bank supervision purposes: credit, interest rate, liquidity, price, operational, compliance, strategic, and reputation. These categories are not mutually exclusive. Any product or service may expose a bank to multiple risks. Risks also may be interdependent and may be positively or negatively correlated. Examiners should be aware of and assess this interdependence. Examiners also should be alert to concentrations that can significantly elevate risk. Concentrations can accumulate within and across products, business lines, geographic areas, countries, and legal entities. Refer to the "Bank Supervision Process" booklet of the *Comptroller's Handbook* for an expanded discussion of banking risks and their definitions.

## Credit Risk

Credit risk is the risk to current or projected financial condition and resilience arising from an obligor's failure to meet the terms of any contract with the bank or otherwise perform as agreed. Credit risk exists any time bank funds are extended, committed, invested, or otherwise exposed through actual or implied contractual agreements, whether reflected on or off the balance sheet. Credit risk, however, encompasses more than the traditional definition associated with lending activities. Credit risk also arises in conjunction with a broad range of bank activities, including selecting investment portfolio products, derivatives trading partners, or foreign exchange counterparties. Credit risk also arises because of country or sovereign exposure, as well as indirectly through guarantor performance.

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<sup>17</sup> Financial condition includes impacts from diminished capital and liquidity. Capital in this context includes potential impacts from losses, reduced earnings, and market value of equity.

<sup>18</sup> Resilience recognizes the bank's ability to withstand periods of stress.

Credit risk exists in the form of loan customers and debt issuers on the asset side of the balance sheet and retail depositors, brokered depositors, and wholesale funds providers on the liability side of the balance sheet. Concentrations within a highly credit-sensitive product/customer/depositor/provider can exacerbate liquidity levels during periods of market stress. If a bank has a high concentration in a credit-sensitive deposits (i.e., brokered deposits, municipal deposits, corporate deposits, etc.) and the bank's credit rating is downgraded, there is the possibility that those credit-sensitive deposits would go to another bank, leaving the bank with a gap in funding that will need to be filled with either cash flows, borrowings, or other retail deposits. Because of the rating downgrade, it may be more difficult for the bank to obtain deposits or borrowings at a reasonable cost.

## Interest Rate Risk

Interest rate risk (IRR) is the current or prospective risk to earnings and capital arising from adverse movements in interest rates. IRR results from differences between the timing of rate changes and the timing of cash flows (repricing risk); changing rate relationships among different yield curves affecting bank activities (basis risk); changing rate relationships across the spectrum of maturities (yield curve risk); and interest-related options embedded in bank products (options risk).

Interest rate fluctuations affect pricing on investments, deposits, and borrowings. As interest rates increase, bond prices fall, which causes depreciation in the investment portfolio. Therefore, an increasing interest rate environment diminishes readily available liquidity should a bank have to sell or pledge bonds for funding purposes.

Increases in interest rates typically increase a bank's cost of funds by increasing the amount it pays on deposits to retain customers. Borrowing costs (e.g., FHLB, correspondent banking lines, and other secured and unsecured funding lines) also rise in an increasing rate environment. Call features in a bank's borrowings (e.g., FHLB borrowings) could affect a bank's liquidity risk because borrowings might be called in an increasing rate environment. If borrowings are called, the bank would need to replace those funds by either borrowing at a higher rate or with another form of liquidity.

## Price Risk

Price risk is the risk to current or projected financial condition and resilience arising from changes in the value of either trading portfolios or other obligations that are entered into as part of distributing risk. These portfolios typically are subject to daily price movements and are accounted for primarily on a mark-to-market basis. This risk occurs most significantly from market-making, dealing, and position-taking in interest rate, foreign exchange, equity, commodities, and credit markets. Price risk also arises from bank activities whose value changes are reflected in the income statement, such as in lending pipelines, other real estate owned, and mortgage servicing rights (MSR).

Banks that maintain trading portfolios or otherwise hold assets classified as "held-for-trading" have exposure to price risk that arises from changes in interest rates. Trading

portfolios could negatively affect the bank's liquidity position as well as liquidity coverage ratio (LCR) requirements because of their mark-to-market nature.

The cash flow volatility of assets and how quickly they can be converted to cash without incurring unacceptable loss form the basis for evaluating the liquidity contained in a bank's asset base. Changes in market value and price volatility of various asset types, such as securities and derivatives, could negatively impact a bank's liquidity position depending on the level of open positions on a bank's balance sheet.

Market volatility could also negatively impact MSR valuation if a bank has a mortgage banking operation. MSRs should be recorded at fair value when first booked, and on subsequent report dates, reported at fair value or at the lower of cost or fair value. Therefore, declines in market interest rates can cause prepayment speeds to increase and the fair value of the MSR to decline, sometimes resulting in a large MSR write-off. (Updated in version 1.2)

## Operational Risk

Operational risk is the risk to current or projected financial condition and resilience arising from inadequate or failed internal processes or systems, human errors or misconduct, or adverse external events. Operational losses may result from internal fraud; external fraud; inadequate or inappropriate employment practices and workplace safety; failure to meet professional obligations involving clients, products, and business practices; damage to physical assets; business disruption and systems failures; and failures in execution, delivery, and process management. Effective challenge and internal audit play a critical role in preventing and detecting operational errors.

Intraday liquidity monitoring is an important component of the liquidity risk management process for banks engaged in significant payment, settlement, and clearing activities. Federal Reserve Banks expect banks to monitor compliance with their agreed-upon account exposure positions.<sup>19</sup> A bank's failure to manage intraday liquidity effectively, under normal and stressed conditions, could leave the bank unable to meet payment and settlement obligations in a timely manner, adversely affecting its own liquidity position and that of its counterparties. Operational risk can occur in wholesale payments when a bank is unable to meet its daylight overdrafts with the Federal Reserve Banks. (Updated in version 1.2)

Operational risk is introduced when monitoring and reporting systems are inaccurate or not sufficient for the needs of the bank. This is especially true for banks with dynamic and complex funding needs or funding dependencies.

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<sup>19</sup> For more information, refer to the "Guide to the Federal Reserve's Payment System Risk Policy on Intraday Credit" effective January 20, 2022. (Footnote added in version 1.2)

## Compliance Risk

Compliance risk is the risk to current or projected financial condition and resilience arising from violations of laws or regulations, or from nonconformance with prescribed practices, internal bank policies and procedures, or ethical standards. Compliance risk is not limited to risk from failure to adhere to consumer protection laws; it encompasses the risk of noncompliance with *all* laws and regulations, as well as prudent ethical standards and contractual obligations. It also includes the exposure to litigation (known as legal risk) from all aspects of banking, traditional and nontraditional.

A bank's failure to maintain a "well-capitalized" status under 12 CFR 6 is subject to brokered deposit restrictions, which can affect the bank's liquidity. Moreover, for banks that are not well-capitalized, the effective yield on the deposits cannot be more than 75 basis points greater than the yield on a comparable deposit offered in the normal market area.<sup>20</sup> Undercapitalized, significantly undercapitalized, and critically undercapitalized banks may not accept, renew, or roll over any brokered deposit.

Banks are also subject to limits on the transfer of liquidity among regulated entities. These limits can constrain a bank's liquidity during economically stressed periods. Other relevant requirements include those related to correspondent banking relationships,<sup>21</sup> the LCR,<sup>22</sup> and the net stable funding ratio (NSFR).<sup>23</sup> For example, the bank must notify the OCC if its LCR falls below the minimum requirements and take certain actions as prescribed in the regulation.

Liquidity could be negatively affected if the bank incurs fines or civil money penalties for failure to comply with laws and regulations. If fines and penalties are significant enough, the bank's liquidity position could deteriorate. Also, increased compliance risk could result in a negative reputation for the bank, which could affect customer retention and the bank's ability to attract customers.

## Strategic Risk

Strategic risk is the risk to current or projected financial condition and resilience arising from adverse business decisions, poor implementation of business decisions, or lack of responsiveness to changes in the banking industry and operating environment. This risk is a function of a bank's strategic goals, business strategies, resources, and quality of implementation.

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<sup>20</sup> Refer to 12 CFR 337.6(b)(2)(ii)(A).

<sup>21</sup> Refer to 12 CFR 206.3(b) and (c).

<sup>22</sup> Refer to 12 CFR 50, "Liquidity Risk Measurement Standards." The full LCR requirement generally applies to advanced approaches banking organizations and to their depository institution subsidiaries with total consolidated assets equal to \$10 billion or more. The LCR does not apply to federal branches and agencies.

<sup>23</sup> Refer to 12 CFR 50.100.



The failure to consider liquidity risk in strategic business plans can hinder a bank's ability to obtain and maintain liquidity levels at a reasonable cost both in a normal and stressed operating environment. Strategic plans and budgets typically consider multiple funding avenues and associated costs when considering new product or growth strategies. Not understanding the structure of the funding, pledging requirements, and any optionality within funding could cause unnecessary risk within the balance sheet. Strategic plans that use innovative products or approaches, such as bank accounts offered through a financial technology partner, could introduce risk. The failure to consider all relevant information or the full range of possible outcomes results in ineffective risk management. (Updated in version 1.2)

During a decline in economic and lending activity, deposit balances tend to surge above historical levels. These large inflows of deposits occurred after the 2008 financial crisis and again during the pandemic in 2020. The behavior of these surge deposits is difficult to predict and may not be consistent with deposits gathered under normal conditions. Surge deposits may exhibit less stability and have different characteristics than a bank's typical deposits. Surge deposit flows can reverse rapidly as economic and market conditions change. Similar to brokered deposits, surge deposits are more sensitive to rates and market conditions, so examiners should determine whether the bank appropriately monitors and manages the volume of surge deposits. (Added in version 1.2)

## Reputation Risk

Reputation risk is the risk to current or projected financial condition and resilience arising from negative public opinion. This risk may impair a bank's competitiveness by affecting its ability to establish new relationships or services or continue servicing existing relationships. Reputation risk is inherent in all bank activities, and management should exercise an abundance of caution in dealing with stakeholders, such as customers, counterparties, correspondents, investors, regulators, employees, and the community.

Reputation issues, whether real or perceived, (e.g., negative information shared on social media, fraud, money laundering, consumer harm) could cause or accelerate a run on deposits or cause funds providers to call borrowings before anticipated, consequently causing liquidity stress.

# Risk Management

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Each bank should identify, measure, monitor, and control risk by implementing an effective risk management system appropriate for the bank’s size, complexity, and risk profile. When examiners assess the effectiveness of a bank’s risk management system, they consider the bank’s policies, processes, personnel, and control systems. Refer to the “Corporate and Risk Governance” booklet of the *Comptroller’s Handbook* for an expanded discussion of risk management. (Updated in version 1.2)

Sound liquidity risk management identifies, measures, monitors, and controls a bank’s liquidity risk exposure. Well-managed banks have their liquidity risk management process integrated into the bank’s overall risk management framework.

The key components of a sound liquidity risk management process include

- corporate governance and accountability.
- policies, procedures, and limits. (Updated in version 1.2)
- risk measurement and monitoring systems.
- management information systems. (Updated in version 1.2)
- intraday liquidity and collateral management.
- funding diversification.
- highly liquid assets cushion. (Updated in version 1.2)
- comprehensive CFPs.
- internal audit of the adequacy of liquidity risk management processes.
- third-party risk management. (Added in version 1.2)

## Corporate Governance and Accountability

(Section heading updated in version 1.2)

Boards of directors and bank management have the responsibility to implement an effective liquidity risk management process. Both work to ensure that the staffing and structure are commensurate with a bank’s level of liquidity risk. A bank should have a reliable management information system designed to provide the board of directors, senior management, and other appropriate personnel with timely and forward-looking information on the liquidity position of the bank.

The board’s responsibility centers on setting the strategic direction for the bank. Part of this process includes an assessment of the board’s liquidity risk appetite as well as the liquidity needed to fulfill strategic initiatives. The board implements policies that govern liquidity risk management under both business-as-usual and stressed conditions. These policies should clearly define the roles and responsibilities of board committees, senior management, and senior management committees with appropriate segregation of duties between execution and oversight of liquidity risk. It is also appropriate for bank policies to define the board’s desired risk tolerance by establishing key liquidity risk limits. The board should regularly receive

reports that detail a bank's liquidity position and be immediately informed of any material changes in a bank's liquidity risk profile. In multibank holding companies, the board should also understand the liquidity profile of important affiliates and their impact on a bank.

## Policies, Procedures, and Limits

Banks should have policies and procedures for identifying, measuring, monitoring, and controlling liquidity risk exposures. These should translate the board's goals, objectives, and risk tolerances into operating standards. Formal policies and procedures approved by the board should provide a consistent approach to identifying, measuring, monitoring, and controlling liquidity risk.<sup>24</sup> (Updated in version 1.2)

Policies should assign responsibility for managing liquidity throughout the bank, including separate legal entities, relevant operating subsidiaries, and affiliates, when appropriate. Policies should also discuss the approach for managing liquidity, set liquidity risk tolerances, and discuss to what extent liquidity risk management will be centralized or decentralized.

Policies communicate how much emphasis a bank places on asset liquidity, liability gathering, and operating cash flows to meet its day-to-day and contingent funding needs. Policies include both quantitative and qualitative targets. Examples include

- cash flow projections that include discrete and cumulative cash flow mismatches or gaps over specified future time horizons under both expected and adverse business conditions.
- target amounts of unencumbered liquid asset reserves.
- measures used to identify unstable liabilities and liquid asset coverage ratios. For example, these may include ratios of wholesale funding to total liabilities, potentially volatile retail (e.g., high-cost or out-of-market) deposits to total deposits, and other liability dependency measures, such as short-term borrowings as a percent of total funding.
- asset concentrations that could increase liquidity risk through a limited ability to convert to cash (e.g., complex financial instruments, bank-owned [corporate-owned] life insurance, and less marketable loan portfolios), funding concentrations that address diversification of funding sources and types such as large liability and borrowed funds dependency, secured versus unsecured funding sources, exposures to single providers of funds, exposures to funds providers by market segments, and different types of brokered deposits or wholesale funding.
- funding concentrations that address the term, repricing, and market characteristics of funding sources with consideration given to the nature of the assets they fund. This may include diversification targets for short-, medium-, and long-term funding; instrument type and securitization vehicles; and guidance on concentrations for currencies and geographical markets.
- contingent liability exposures such as unfunded loan commitments, lines of credit supporting asset sales or securitizations, and collateral requirements for derivatives transactions and various types of secured lending.

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<sup>24</sup> For more information, refer to OCC Bulletin 2010-13.

- exposures of material activities such as securitization, mortgage banking,<sup>25</sup> derivatives, trading, transaction processing, and international activities, to broad systemic and adverse financial market events. This is most applicable to institutions with complex and sophisticated liquidity risk profiles. (Updated in version 1.2)
- alternative measures and conditions that may be appropriate for certain institutions.

Policies should also identify the primary objectives and methods to use in meeting daily operating cash outflows, providing for seasonal and cyclical cash flow fluctuations, and addressing various adverse liquidity scenarios. This includes formulating plans and courses of actions for dealing with potential temporary, intermediate-, and long-term liquidity disruptions.

Formal written policies and procedures should define management responsibilities. These should address the lines of authority for the following:

- Developing liquidity risk management policies, procedures, and limits.
- Developing and implementing strategies and tactics used in managing liquidity risk.
- Conducting day-to-day liquidity management.
- Establishing and maintaining liquidity risk measurement and monitoring systems.
- Authorizing exceptions to policies and limits.
- Identifying potential liquidity risk and related issues arising from the introduction of new products and activities.

Policies and procedures should identify the individuals or committees responsible for liquidity risk management decisions. Less complex banks often assign these responsibilities to the chief financial officer or an equivalent-level senior management official. Other banks assign responsibility for liquidity risk management to a committee of senior managers, sometimes called a finance committee or asset/liability committee (ALCO). Policies should clearly identify the individual or the committee's duties and responsibilities, the extent of their decision-making authority, and the form and frequency of periodic reports to senior management and the board of directors. When a bank uses an ALCO or other senior management committee, the committee should monitor the liquidity profile of the bank and include representation from all major business lines that can affect liquidity risk (e.g., lending, investment, deposit-gathering, funding, operations). Committee members should include senior managers who have clear authority to execute strategies and transactions that affect liquidity. The committee should ensure that the liquidity risk measurement system identifies and quantifies all primary liquidity risk exposures. They should also ensure that the reporting process communicates accurate, timely, and relevant information about the level and sources of risk exposure.

Liquidity risk tolerances or limits should be consistent with a bank's complexity and liquidity risk profile. Risk tolerances should reflect both quantitative targets and qualitative guidelines. These limits, tolerances, and guidelines may include the following:

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<sup>25</sup> For more information, refer to the "Mortgage Banking" booklet of the *Comptroller's Handbook*. (Footnote added in version 1.2)

- Limits on projected net cash flow positions (sources and uses of funds) over specified time horizons. Projected sources and uses statements are dynamic statements of cash flow and should include on- and off-balance-sheet change projections (e.g., loan growth, deposit outflows). Limits may be placed on liquidity projection ratios (e.g., total projected sources/ total projected uses), or on the capacity coverage ratio (total available secondary funding/net projected cash flow) over various time frames (e.g., daily, weekly, monthly, semiannually, annually).<sup>26</sup>
- Limits on discrete or cumulative funding mismatches or gaps over specified short- and long-term time horizons (e.g., next day, one week, two weeks, one month, six months).<sup>27</sup>
- Target amounts of highly liquid asset reserves expressed as aggregate amounts or as ratios calculated in relation to, for example, coverage of net cash outflows, or expected liquidity needs under stress scenarios.
- Limits or triggers on the structure of short- and longer-term funding of the asset base, under both normal and stressed conditions.
- Limits or triggers on funding concentrations or guidelines that promote funding diversification such as limits on large liability and borrowed funds dependency, limits on single funds providers, limits on exposure to market segment funds providers, and limits on specific types of brokered deposits or other wholesale funding.
- Limits or triggers on contingent liabilities such as unfunded loan commitments and lines of credit supporting asset sales or securitizations.
- Guidance on the minimum and maximum average maturity of different categories of assets and liabilities.

Banks may use other risk indicators in specifying limits: loans-to-deposit ratios; loans-to-equity capital; purchased funds-to-total assets; and other common balance sheet measures and comparisons. In using these measures, however, banks should be fully aware that they might not address the time dimension and scenario-specific characteristics of a bank's liquidity risk profile. Static balance sheet measures may hide significant liquidity risk that can occur in the future under normal and adverse business conditions. Therefore, they should not be the exclusive measures that banks use to monitor and manage liquidity.

Well-managed banks develop policies governing the creation and maintenance of a written, comprehensive, and up-to-date liquidity contingency funding plan. Policies should also ensure that, as part of ongoing liquidity risk management, senior management identifies early warning indicators of potential liquidity problems.

Policies and procedures ordinarily take into account compliance with appropriate laws and regulations that can have an impact on the bank's liquidity risk management and liquidity risk profile. These laws and regulations include the Dodd–Frank Act, Federal Deposit Insurance Corporation Improvement Act, the Federal Reserve Act, and certain regulations issued thereunder. Procedures for determining a bank's compliance with certain laws and regulations are included in “Quality of Risk Management” at the end of this booklet, but this section does not address all laws and regulations that may be applicable. The *Consumer*

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<sup>26</sup> See appendixes B, C, E, G, H, and I for examples of these types of reports.

<sup>27</sup> See appendix C, “Example–Bank Liquidity Gap Report.”

*Compliance* series of the *Comptroller's Handbook* contains examination procedures related to deposit regulations.

## Liquidity Risk Measurement and Monitoring Systems

(Section heading updated in version 1.2)

A bank's liquidity risk measurement process should be commensurate with its size, complexity, and liquidity risk profile. Similar to a bank's policy limits and targets, the measurement of liquidity should be comprehensive and prospective. Comprehensive liquidity measurement should incorporate all the cash flows and liquidity implications from all material assets, liabilities, off-balance-sheet positions, and other activities, including the potential optionality embedded in the bank's assets and liabilities. In order for measurement to be prospective, the measurement should be forward-looking by attempting to identify potential future funding mismatches, as well as those that currently exist. Analysis of liquidity should include both quantitative and qualitative factors. This analysis, at a minimum, should address the following:

- The bank's sources and uses of cash and their relevant trends.
- Pro-forma cash flow statements and funding mismatch gaps over different time horizons.
- New products and their effect on liquidity.
- Trends and expectations in the volume and pricing of assets, liabilities, and off-balance-sheet items that may significantly affect the bank's liquidity.
- Trends in the relative cost of funds needed for existing and alternative funds providers and the impact on net interest income and margin.
- The diversification of funding sources and trends in funding concentrations.
- Asset quality trends.
- The sensitivity of funds providers to both financial market and institutional trends and events.
- Statutory or other restrictions that third-party funds providers must follow (e.g., tangible GAAP capital-based restrictions).<sup>28</sup> (Added in version 1.2)
- The bank's exposure to both broad-based market and bank-specific contingent liquidity events.
- A discussion of highly liquid assets, trends in those assets, and the market dynamics that could affect their conversion to cash.
- The market's perception of the bank as indicated by excess spread paid relative to similar banks.
- If applicable, the impact of cash flows related to the repricing, exercise, or maturity of financial derivatives contracts, including the potential for counterparties to demand additional collateral in the case of a weakening of the market's perception of the bank.
- If applicable, the impact on cash flows by providing correspondent, custodian, and settlement activities.

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<sup>28</sup> Refer to appendix F, "Deteriorating or Declining GAAP Tangible Capital Implications on Bank Liquidity Risk," for additional information. (Footnote added in version 1.2)

- If applicable, the bank's 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.

In addition to a review of the bank's specific sources and uses of funds, measurement of liquidity should also take into consideration relevant national and local trends. These should include the following:

- Economic and financial market developments, such as trends in interest rates and funding costs.
- General credit conditions in the bank's target market.
- General corporate earnings trends and projections.

A fundamental measure of prospective liquidity risk is the projection of the bank's cash flows under alternative scenarios. These projections include business-as-usual scenarios that incorporate relevant seasonality, growth assumptions, or alternative business plans and various adverse stress scenarios. Management's analysis of the trends in the bank's funding sources and balance-sheet structure should be used to develop these cash flow projections. The level of sophistication can range from simple spreadsheets to very detailed analytical reports; these projections should be consistent with the bank's complexity and its liquidity risk profile.

Assumptions play a critical role in the construction of liquidity measures and the development of cash flow projections. Liquidity risk managers need to ensure that all assumptions used are reasonable and appropriate. Key assumptions should be reviewed, documented, and approved annually.

Assumptions used in assessing the liquidity risk of assets, liabilities, and off-balance-sheet positions with uncertain cash flows, market values, or maturities should be subject to documentation and review. Banks with material amounts of complex or uncertain cash flows should perform stress tests to determine what effect changes to their material assumptions have on their liquidity profile.

Assumptions surrounding the stability of retail deposits and brokered deposits as well as secondary market borrowings are important, particularly when evaluating the availability of alternative sources under adverse contingent scenarios. Analysis of these assumptions should consider, at a minimum

- historic behavior of deposit customers and other funds providers.
- current and future business conditions that may change the historic responses of customer and funds providers' behavior.
- material changes to the mix of customers or funds providers that may cause funding sources to respond differently to current or future business conditions. (Added in version 1.2)
- general conditions and characteristics of the bank's market for various types of funds, including the degree of competition.

- anticipated pricing behavior of funds providers under each scenario.

Banks that rely significantly on secured financing should have strong processes in place to evaluate asset liquidity under a variety of business-as-usual and stress conditions. They should also include a determination of whether the asset is free to be used as collateral, an assessment of market haircuts, market capacity constraints, access to the central bank borrowings, concentrations in collateral, potential name-specific concerns, and the ability to complete the transaction.

Methods used to measure and monitor liquidity risk should be sufficiently robust and flexible to allow for timely computation of the metrics used in ongoing liquidity risk management. Risk monitoring and reporting should be able to provide information for day-to-day risk management and control. Additionally, the frequency and scope of risk monitoring systems should be developed so they are easily expandable during times of stress.

## Management Information Systems

(Section heading added in version 1.2)

The complexity and sophistication of management reporting and management information systems (MIS) should be consistent with the bank's liquidity risk profile. Liquidity MIS should be sufficiently detailed to allow management to assess the sensitivity of the bank to changes in market conditions, its own financial performance, and other risk factors. Reports may include

- cash flow projections that assess both "business-as-usual" and contingent liquidity scenarios. These may be both static (to identify recent trends) and forward-looking (to identify prospective needs).
- funding concentration reports that highlight the dependence on sources of funds that may be highly sensitive to bank-specific contingent liquidity risk.<sup>29</sup>
- critical assumptions employed in cash flow projections and other measures as well as their implications.
- the status of key early warning signals or risk indicators.
- the status of contingent funding sources or collateral usage.
- a selected set of appropriate liquidity ratios that highlight the liquidity risk profile of the bank and trends in these ratios.
- the impact of new product and investment activities.
- measures and ratios tailored to the bank's primary liquidity management and funding strategies, liquidity risk profile, and significant activities.<sup>30</sup>

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<sup>29</sup> Examples of reports on funding concentrations include information on the types and amounts of negotiable certificates of deposit (CD) stratified by size and origin (e.g., community or market area; brokered, deposit-splitting networks; internet-rate listed) and other obligations, as well as the collateral and credit triggers or policies of major wholesale funds providers.

<sup>30</sup> Examples include reports on the quality, pledging status, and maturity distribution of the investment



- when appropriate, both consolidated and unconsolidated liquidity risk reports for banks with multiple offices, international branches, and subsidiaries.

## Intraday Liquidity and Collateral Management

(Section heading updated in version 1.2)

Intraday liquidity monitoring is an important component of the liquidity risk management process for banks, particularly for those engaged in significant payment, settlement, and clearing activities. A bank's failure to manage intraday liquidity effectively, under normal and stressed conditions, could leave it unable to meet payment and settlement obligations in a timely manner, adversely affecting its own liquidity position and that of its counterparties. Among large, complex organizations, the interdependencies that exist among payment systems and the inability to meet certain critical payments have the potential to lead to systemic disruptions that can prevent the smooth functioning of all payment systems and money markets. Therefore, banks with material payment, settlement, and clearing activities should actively manage their intraday liquidity positions and risks to meet payment and settlement obligations on a timely basis under both normal and stressed conditions. Senior management should develop and adopt an intraday liquidity strategy that allows the bank to do the following:

- Monitor and measure expected daily gross liquidity inflows and outflows.
- Manage and mobilize collateral when necessary to obtain intraday credit.
- Identify and prioritize time-specific and other critical obligations in order to meet them when expected.
- Settle other less critical obligations as soon as possible.
- Control credit to customers when necessary.
- Manage the collateral and liquidity needed for payment-system obligations

For small, noncomplex banks, intraday liquidity management processes typically focus on the adequacy of funds and credit within the bank's Federal Reserve or correspondent settlement and clearing account, and usually encompass the following: (Updated in version 1.2)

- Active monitoring of significant intraday settlement and clearing activity.
- Maintenance of sufficient cash balances and daylight overdraft capacity,<sup>31</sup> when necessary.

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securities portfolio in those banks that are heavily reliant on those assets as a primary source of contingent liquidity. Alternatively, a bank reliant on securitizations or loan sales as a primary source of funding should develop reports that target the liquidity risks inherent in those activities.

<sup>31</sup> A daylight overdraft occurs when funds in an institution's Federal Reserve account are insufficient to cover outgoing transactions, for example, Fedwire funds transfers or incoming securities or other payment activity processed by a Federal Reserve Bank, such as check or automated clearinghouse (ACH) transactions. Refer to the Federal Reserve's payment systems risk policy for more information. (Footnote added in version 1.2)

- Adequacy of collateral pledged to the Federal Reserve account to cover both expected and unexpected intraday funding needs.
- Incorporation of intraday liquidity maintenance into contingency funding planning and scenarios.

## Funding Diversification

A bank should establish a funding strategy that provides effective diversification in the sources and tenor of funding. A bank should diversify available funding sources in the short-, medium-, and long-term. Diversification targets should be part of medium- to long-term funding plans and should be aligned with the budgeting and business planning process.<sup>32</sup>

Funding plans should take into account correlations between sources of funds and market conditions. Management should also consider the funding implications of any government programs or guarantees that a bank uses. The desired diversification should include limits by counterparty, secured versus unsecured market funding, instrument type, securitization vehicle, and geographic market.

Banks that rely on market-based funding sources should maintain an ongoing presence in their 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. The bank 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.

An essential component of ensuring funding diversity is maintaining market access. Market access is critical for effective liquidity risk management, as this access affects the ability to both raise new funds and liquidate assets. A bank should identify and build strong relationships with current and potential investors, even in funding markets facilitated by brokers or other third parties. Building strong relationships with various key providers of funding can give a bank insight into providers' behavior in times of bank-specific or market-wide shocks. Senior management should ensure that market access is being actively managed, monitored, and tested by the appropriate staff.

A bank should identify diversified alternative sources of funding that strengthen its capacity to withstand a variety of severe bank-specific and market-wide liquidity shocks. Depending on the nature, severity, and duration of the liquidity shock, potential sources of funding include, but are not limited to, the following actions:

### Tactical actions

- Sale (either outright or through repurchase agreements) or pledging of liquid assets.
- Drawing down committed facilities.
- Wholesale deposit growth.

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<sup>32</sup> For more information, refer to OCC Bulletin 2010-13.

- Lengthening maturities of new liabilities.
- Borrowings.

#### **Strategic actions**

- Retail deposit growth.
- Raising capital.
- Issuance of debt instruments.
- Sale of subsidiaries or lines of business.
- Asset securitization.

## **Cushion of Highly Liquid Assets**

Liquid assets are an important source of both primary (operating liquidity) and secondary (contingent liquidity) funding at many banks. Indeed, a critical component of a bank's ability to effectively respond to potential liquidity stress is the availability of a cushion of unencumbered highly liquid assets without legal, regulatory, or operational impediments that can be sold or pledged to obtain funds in a range of stress scenarios. These assets should be held to protect against a range of liquidity stress scenarios, including those that involve the loss or impairment of typically available unsecured or secured funding sources. The size of the cushion of such high-quality liquid assets should be supported by estimates of liquidity needs revealed by a bank's stress testing, as well as being aligned with the risk tolerance and risk profile of the bank. Management estimates of liquidity needs during periods of stress should incorporate both contractual and noncontractual cash flows, including the possibility of funds being withdrawn. Such estimates should also assume the inability to obtain unsecured funding and the loss or impairment of access to funds secured by assets other than the safest, most liquid assets.

Management should ensure that highly liquid assets are readily available and are not pledged to payment systems or clearinghouses. The quality of unencumbered liquid assets is important as it ensures accessibility during the time of most need. For example, a bank could use its holdings of high-quality U.S. Treasury securities or similar instruments and enter into repurchase agreements in response to the most severe stress scenarios.<sup>33</sup>

## **Contingency Funding Plans**

A CFP includes policies, procedures, projection reports, and action plans designed to ensure that a bank's sources of liquidity are sufficient to fund normal operating requirements under contingent liquidity events. The objectives of the CFP are to do the following:

- Provide a plan for responding to various and increasing levels of a bank's liquidity stress.
- Designate management responsibilities, crisis communication methods and channels, and reporting expectations.

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<sup>33</sup> For more information, refer to OCC Bulletin 2010-13.

- Identify a menu of contingent liquidity sources that a bank can use under various and increasingly adverse liquidity circumstances.
- Describe steps that should be taken to ensure that the bank’s sources of liquidity are sufficient to fund scheduled operating needs and meet the bank’s commitments with minimal costs and disruption.

Contingent events arise from both unexpected circumstances and ongoing adverse business conditions. They increase the risk that a bank will not have sufficient funds to meet its liquidity needs. These conditions are caused by bank-specific events or by external occurrences or circumstances. Bank-specific events are usually the result of the unique credit, market, operational, or strategic risks that occur because of a bank’s business activities. They can arise from the inability to fund asset growth, the inability to renew or replace maturing liabilities, the exercise of options by customers to withdraw deposits or use off-balance-sheet commitments, a change in the bank’s PCA capital category, or other unforeseen events. External events may be systematic financial market occurrences, such as changes in the price volatility of securities, changes in economic conditions, or dislocations in financial markets. CFPs and stress testing plans should consider and incorporate the potential statutory or other restrictions on third-party funds providers (e.g., tangible GAAP capital-based restrictions).<sup>34</sup> (Updated in version 1.2)

Contingent liquidity events range from high-probability and low-impact events that occur during the normal course of business to low-probability but high-impact events. These may develop from liquidity pressures that are immediate and short-term in nature. They may also present longer-term or sustained situations that may grow over time and have long-term liquidity implications. The duration of an identified stress event is a primary factor when developing contingency plans.

Well-managed banks incorporate planning for high-probability and low-impact liquidity risks into the day-to-day management of their sources and uses of funds. Banks generally accomplish this by assessing possible variations around expected cash flow projections and providing for adequate liquidity reserves and other means of raising funds in the normal course of business. It is bank management’s responsibility to ensure that sufficient sources of liquidity are maintained, and to be aware of the implications of any financial deterioration of funds providers. (Updated in version 1.2)

The CFP primarily addresses low-probability and high-impact events. It addresses both the severity and the duration of negative liquidity events. The CFP should accomplish the following:

- Identify plausible stress events.<sup>35</sup>
- Evaluate those stress events under different levels of severity.

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<sup>34</sup> Refer to appendix F, “Deteriorating or Declining GAAP Tangible Capital Implications on Bank Liquidity Risk,” for additional information. (Footnote added in version 1.2)

<sup>35</sup> Refer to appendix D, “Examples of Liquidity Stress Events, Triggers, and Monitoring Items or Reports,” for additional guidance.

- Make a quantitative assessment of funding needs under stress events.<sup>36</sup>
- Identify potential and viable funding sources in response to a stress event.
- Provide for management processes, reporting, and internal as well as external communication throughout the stress event.

Within the CFP, management should identify the stress events that threaten a bank's ability to fund both short-term (e.g., intraday, daily, weekly, monthly) and long-term operating and strategic needs. These events include those situations that have a significant negative impact on the bank's liquidity, earnings, or capital because of its balance-sheet composition, business activities, or management structure. Possible stress events include the following:

- Deterioration in credit quality.
- Decline in the bank's composite rating.
- Change in PCA capital category.<sup>37</sup> (Updated in version 1.2)
- Negative press coverage.
- Public cybersecurity-related event.
- Rising reputation risks.
- Material changes in customer relations and perceptions.
- Actual or threatened adverse action related to the bank's external credit rating.
- Actual or anticipated changes in senior and short-term debt ratings.
- Rapid asset growth, particularly when funded with potentially volatile liabilities.
- Deterioration in financial condition that may jeopardize access to market, wholesale, and central bank funding.
- External events such as natural disasters and disruptions in the markets from which the bank obtains funds.

The CFP scenarios should delineate the various levels of stress severity that could occur during a liquidity crisis. The events, stages, and severity levels should be tailored to the bank's specific funding structure.

A critical element of the CFP is the quantitative projection and evaluation of expected cash flows and the ability of the bank to meet any shortfalls during a stress event. The bank should identify a series of actions it will take during a stress event and commit sources of funds for contingent needs in advance of those stress events. To evaluate a potential stress event, the bank should evaluate the potential erosion in funding as well as the cash flow mismatches at alternative stages of the stress event. As an event worsens, banks should assume that funding sources could further erode or become cost-prohibitive. This evaluation should be based on realistic estimates of funds providers' behavior and collateral expectations and should include both on-balance- and material off-balance-sheet cash flows.

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<sup>36</sup> Refer to appendix E, "Example–Bank Liquidity Contingency Funding Scenarios."

<sup>37</sup> A change in PCA capital category to less than well-capitalized triggers restrictions, including limits on accepting brokered deposits and interest rates paid on deposits. Refer to 12 CFR 337.6 and 337.7. (Footnote added in version 1.2)

Because a high potential exists for liquidity pressures to spread from one source to another during a significant event, banks should identify alternative sources of liquidity and ensure access to emergency standby funding sources. Banks should conduct advanced planning to ensure that these sources would be readily available. If a bank intends to use asset securitization to meet standby liquidity needs, this planning and analysis should include an assessment of the market's depth and the implications for those markets if the liquidity crisis is the result of a broader market stress event rather than a name-specific event.

The CFP should identify a reliable crisis management team and administrative structure, including realistic action plans for given levels of stress. It should also be integrated with other contingent planning activities such as the continuity of business planning. It should provide for frequent communication among the crisis team, the board of directors, management, and other interested parties. This communication optimizes the effectiveness of the contingency plan by ensuring that business decisions are coordinated to reduce the impact on a bank's liquidity position. Effective crisis management may also include increased preparation of regular liquidity reports as well as additional reports that are not normally prepared. Reports that are generally prepared during a crisis include but are not limited to the following:

- Levels and trends in uninsured deposit relationships.
- Cash flow projections and run-off reports.
- Reports on performance in relation to liquidity limits and benchmarks.
- Funding capacity reports by funding type.
- Certificate of deposit (CD) breakage or early redemption reports.
- Funding source concentration reports.
- Reports on alternative funding sources of incremental liquidity, including standby emergency sources of liquidity.
- Vault cash management reports.
- Intraday settlement and clearing activity reports.
- Daylight overdraft reports.
- Wire transfer activity.
- Information and reports on the stability, pricing, and performance of the markets from which funds would be obtained.

To ensure the effective and timely implementation of the CFP, banks should develop a process for identifying a potential liquidity event before it becomes a crisis. This can be accomplished through the use of early warning indicators and event triggers that are readily observable during the bank's normal reporting process. These should be tailored to the bank's specific liquidity risk profile. For example, a bank should have early warning indicators that signal whether embedded triggers in certain products (i.e., callable public debt, over-the-counter derivatives transactions) are about to be breached, or whether contingent risks are likely to materialize, such as backup lines to off-balance-sheet conduits (i.e., asset-backed commercial paper), which would force a bank to provide additional liquidity support for the product or bring assets back onto the balance sheet. Early recognition of a potential event allows bank management to enhance a bank's readiness as the event actually evolves. Early warning signals may include the following:

- Rapid asset growth funded with volatile liabilities.
- A reluctance of traditional funds providers to continue funding at historic levels.
- Rating agency credit watches for potential downgrades.
- Pending criminal action against the bank, regulatory action (both formal and informal), or component or composite rating downgrade(s).
- Significant deterioration in the bank's asset quality.
- Widening of spreads on senior and subordinated debts, credit default swaps, and stock price declines.
- Negative publicity regarding credit quality or reputation.
- Difficulty in accessing long-term debt markets.
- Reluctance of trust managers, money managers, public entities, and credit-sensitive funds providers to place funds.
- Reluctance of broker-dealers to show the bank's name in the market.
- Market rumors or concerns that customers have discussed with the bank's staff.
- Rising funding costs in an otherwise stable market.
- Increased redemptions of CDs over \$250,000 before maturity.
- Counterparty resistance to off-balance-sheet products or increased margin requirements.
- Market reluctance to carry out planned loan sales.
- The elimination of committed credit lines by counterparties.
- Impending triggers in debt issuance and securitization documentation.
- Rapidly rising credit spreads or disruptions in the markets from which a bank obtains its funds.

Banks that issue public debt, use warehouse financing, securitize assets, or engage in material over-the-counter derivatives transactions have material exposure to conditions embedded in the contracts. These triggers should also be included in the event-trigger monitoring processes.

Sound CFP planning includes methods for revising both stress scenarios and contingent funding availability to reflect current market conditions and bank-specific circumstances. Often, the reaction of significant funds providers can vary widely and may reflect the bank's unique crisis situation. As conditions and circumstances change, CFP plans should be continually revised to most accurately project the amount of funding needs and availability of primary and contingent sources.

Banks should test components of their contingency funding plan to assess its reliability under times of stress. Identified actions such as loan sales, repurchasing securities, and central bank borrowing should be periodically tested to ensure that they function as envisioned. Larger, more complex banks can benefit from employing simulations to test communications, coordination, and decision-making processes. For example, late-day simulations can point out specific problems, such as difficulties in selling assets or borrowing new funds when the markets are winding down or staff may become inefficient. In the event that the bank experiences stress, it is important to know that a CFP not only exists but has been tested and is effective in guiding management actions. (Updated in version 1.2)

## Internal Controls

A bank's internal controls consist of procedures, approval processes, reconciliations, reviews, and other mechanisms designed to provide reasonable assurance that the bank achieves its objectives for liquidity risk management. Appropriate controls address all aspects of liquidity risk management, including policy adherence, the adequacy of risk identification, the accuracy and appropriateness of risk measurement and reporting, fraud prevention and internal manipulation of reports, and compliance with applicable laws and regulations. Controls over assumptions and changes to assumptions are critical. Therefore, internal controls should ensure that assumptions are not changed without clear justification consistent with approved strategies. Documentation for cash flow assumptions should be readily accessible, understandable, and in an auditable format.

Independent reviews of various components of a bank's liquidity risk management processes should be conducted regularly. These reviews should test and document the current measurement processes, evaluate the system's accuracy, and recommend solutions for identified weaknesses. Independent reviews should also assess compliance with policies and procedures.

Noncompliance should be reported to the appropriate level of management to ensure that corrective action is taken.

## Third-Party Risk Management

(Section added in version 1.2)

The OCC expects a bank to practice effective risk management regardless of whether the bank performs the activity internally or through a third party. A bank's use of third parties does not diminish the responsibility of its management to ensure that the activity is performed in a safe and sound manner and in compliance with applicable laws. The OCC expects a bank to have risk management processes that are commensurate with the level of risk and complexity of its third-party relationships and the bank's organizational structures.

Common third-party activities related to liquidity include brokered deposit relationships; asset-liability MIS reporting, including investment valuation; model development; and FHLB account and collateral reporting. Such third-party activities should be incorporated into the bank's third-party risk management processes.

## Liquidity Coverage Ratio

This section applies to category I and II banking organizations and category III banking organizations with more than \$75 billion in weighted short-term wholesale funding (STWF). A reduced LCR requirement, calibrated at 85 percent of the full LCR requirement, applies to category III banking organizations with less than \$75 billion in STWF, and a requirement of



70 percent of the full LCR requirement applies to category IV banking organizations with \$50 billion or more in STWF.<sup>38</sup>

The LCR promotes short-term resiliency by requiring banks to have sufficient high-quality liquid assets (HQLA) to meet their total stressed net cash outflows over a 30-day period. It enhances the ability of individual banks and the industry to survive a significant short-term stress period. The LCR provides standardized liquidity metrics and comparability across banks and jurisdictions. It reduces potential counterparty flight during a stress period, enhances bank liquidity management, improves systems and reporting, provides a daily snapshot of complete bank and holding company liquidity positions, enhances deposit balance forecasting, and increases control and transparency of HQLA.

The LCR is a ratio consisting of the HQLA, the numerator, necessary to cover the total net outflows over a prospective 30-day stress period, the denominator. A bank must maintain an LCR that is equal to or greater than 1.0 on each business day.<sup>39</sup> The LCR is calculated as follows:

$$LCR = \frac{HQLA\ Amount}{Total\ Net\ Cash\ Outflow\ Amount}$$

The total net cash outflow amount in the denominator consists of two parts. The first part takes the net of all outflows and inflows, with inflows subject to a cap of 75 percent of outflows, and the addition of the largest net outflow during the 30-day period due to a maturity mismatch or a maturity mismatch add-on. The second part multiplies the first part by the outflow adjustment percentage based on the tailoring category. The total net cash outflow amount is calculated as follows:

$$\begin{aligned} & \textit{Total net cash outflow amount} \\ &= (\textit{Total outflows} - \min(\textit{Total inflows}, 0.75 \times \textit{Total outflows}) \\ &+ \textit{Maturity mismatch add on}) \times \textit{Outflow adjustment percentage} \end{aligned}$$

## High-Quality Liquid Assets

The LCR numerator consists of HQLA, which are assets that can be easily converted into cash to meet funding obligations during a 30-day stress period. HQLA is defined as highly liquid, unencumbered assets that can be efficiently and immediately converted into cash in private markets with little or no expected loss of value during a period of stress. HQLA is intended to be usable by the bank to cover funding obligations during times of stress. A bank is required to maintain an amount of HQLA sufficient to cover the net cash outflows during a prospective 30-day stress period.

There are three levels of HQLA. Level 1 is the highest quality and most liquid. Level 2A and 2B liquid assets are associated with relatively stable and significant sources of liquidity, but

<sup>38</sup> Refer to 12 CFR 50.1(b).”

<sup>39</sup> Refer to 12 CFR 50.10(a).

not to the same degree as level 1 liquid assets. Thus, level 2A and level 2B assets are subject to haircuts and composition caps. Level 2A liquid assets are subject to a 15 percent haircut and when combined with level 2B liquid assets, cannot exceed 40 percent of the HQLA amount. Level 2B liquid assets are subject to a 50 percent haircut and cannot exceed 15 percent of the HQLA amount.

The composition caps ensure that at least 60 percent of the numerator is composed of the most highly liquid level 1 assets. The HQLA amount in the numerator reflects the total qualifying HQLA the bank holds that satisfy the operational and composition limits.

To be included in HQLA, assets should be low risk, remain liquid during times of stress, have active sale and repurchase markets, high trading volume, low bid-ask spreads, a diverse set of market participants, and low-price volatility. Level 1 assets generally consist of reserve balances, securities issued or guaranteed by the U.S. government and securities issued or guaranteed by certain sovereigns or sovereign entities. Level 2A generally consists of securities issued or guaranteed by U.S. government-sponsored entities (GSE) and certain 20 percent risk-weighted sovereign securities. Level 2B consists of corporate debt and municipal obligations that are investment grade under 12 CFR 1, and publicly traded common equities that are part of the Russell 1000 index. Other securities such as asset-backed securities, private-label mortgage-backed securities (MBS), and covered bonds are not eligible as HQLA.<sup>40</sup> Table 1 compares levels 1, 2A, and 2B HQLA and summarizes restrictions.

**Table 1: HQLA Comparison**

	<b>Level 1</b>	<b>Level 2A</b>	<b>Level 2B</b>
Asset type	<ul style="list-style-type: none"> <li>Reserve bank balances and foreign withdrawable reserves</li> <li>U.S. Treasury securities</li> <li>Other securities guaranteed by the U.S. government*</li> <li>Securities guaranteed by a zero percent risk-weighted foreign sovereign, Bank of International Settlements, International Monetary Fund, European Central Bank, European Community, or a multilateral development bank*</li> <li>Securities issued by certain sovereigns*</li> </ul>	<ul style="list-style-type: none"> <li>Securities issued by, or guaranteed as to the timely payment of principal and interest by, a U.S. GSE (Federal National Mortgage Association, Federal Home Loan Mortgage Corporation, Farm Credit System, FHLB) *</li> <li>Certain securities guaranteed by a 20 percent risk-weighted foreign sovereign or multilateral development bank and that are not level 1 assets*</li> </ul>	<ul style="list-style-type: none"> <li>Publicly traded equity securities included in Russell 1000 index or equivalent*</li> <li>Investment grade corporate debt*</li> <li>Investment grade municipal obligations*</li> </ul>
Composition cap	<ul style="list-style-type: none"> <li>No composition cap</li> </ul>	<ul style="list-style-type: none"> <li>Combined level 2A and level 2B assets cannot exceed 40 percent of HQLA.</li> </ul>	<ul style="list-style-type: none"> <li>Level 2B assets cannot exceed 15 percent of HQLA.</li> </ul>

<sup>40</sup> Refer to 12 CFR 50.20.

Haircut	• No haircut	• 15 percent haircut applied	• 50 percent haircut applied
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\* Asset must also be liquid and readily marketable.

## HQLA Operational Requirements

To be included in the numerator HQLA amount, an asset must be one of the eligible level 1, 2A, or 2B asset types and meet certain operational and eligibility criteria. Except for reserve bank balances, foreign withdrawable reserves, and securities issued by or guaranteed by the U.S. government, assets must be liquid and readily marketable to be included in the HQLA amount. A security is liquid and readily marketable if it is traded in an active secondary market with more than two committed market makers, a large number of nonmarket maker participants on both the buying and selling sides of transactions, timely and observable market prices, and a high trading volume.

Management must maintain policies, procedures, and systems that demonstrate the operational capability to monetize HQLA at any time. In addition, policies and procedures should show that eligible HQLA is unencumbered and under the control of the liquidity risk management function (e.g., the Treasury function).

Management must demonstrate that a security is HQLA-eligible throughout the life of the security by periodically monetizing a representative sample of the portfolio. For the most liquid securities, such as U.S. Treasuries, that can be accomplished through the ordinary course of business. Management should outline the frequency of monetization by security type within the bank's LCR policy.

HQLA must be free of any legal, contractual, and regulatory restrictions. Eligible HQLA cannot include assets that the bank received with rehypothecation (banks using, for their own purposes, assets that have been posted by their clients as collateral) rights if the beneficial owner has a contractual right to withdraw the assets without paying more than de minimis remuneration (minimal fee for services provided) in the next 30 calendar days. Assets cannot be designated to cover operational costs.

## HQLA Amount

The amount of HQLA in the numerator is the total eligible HQLA held by the bank that meet all the operational requirements and are within the level 2A and 2B compositional caps. To calculate the HQLA amount, the bank sums its level 1, level 2A, and level 2B assets that meet all the operational requirements and then identifies the excess amount above the caps on both day zero and day 30 after unwinding certain secured transactions. The larger of the day zero and day 30 excess amounts are then subtracted from the total of the level 1, level 2A, and level 2B asset amounts, which results in the total HQLA amount. The numerator HQLA amount is calculated as follows:

$$\begin{aligned}
 & \textit{HQLA Amount} \\
 & = \textit{Level 1 liquid asset amount} + \textit{Level 2A liquid asset amount} \\
 & + \textit{Level 2B liquid asset amount} \\
 & - \max(\textit{unadjusted excess HQLA amount}, \textit{adjusted excess HQLA amount})
 \end{aligned}$$

Where

$$\text{Level 1 liquid asset amount} = \text{Level 1 liquid assets}$$

$$\text{Level 2A liquid asset amount} = 0.85 \times \text{Level 2A liquid assets}$$

$$\text{Level 2B liquid asset amount} = 0.50 \times \text{Level 2B liquid assets}$$

$$\begin{aligned} \text{Unadjusted excess HQLA amount} \\ = \text{Level 2 cap excess amount} + \text{Level 2B cap excess amount} \end{aligned}$$

$$\begin{aligned} \text{Adjusted excess HQLA amount} \\ = \text{Adjusted level 2 cap excess amount} \\ + \text{Adjusted level 2B cap excess amount} \end{aligned}$$

HQLA in the numerator must include transactions that are unwound, which are secured transactions that mature during the 30-day period.<sup>41</sup> “Unadjusted” refers to a bank’s HQLA profile on the calculation date (day zero), and “adjusted” refers to a bank’s HQLA profile on day 30, after certain secured transactions that mature from day zero to day 30 have been unwound. For example, a bank borrows \$100 through repo, which is secured by GSEs, on T-2 and the repo matures on T+5. At T, management includes the \$100 in cash in the level 1 asset amount (if the cash has been placed in a Reserve Bank balance). Level 2A assets are at 85 percent of fair value, and level 2B are at 50 percent of fair value with level 2A and 2B caps being calculated based on including the \$100 in level 1, which determines unadjusted excess HQLA at T. At T+30, the bank’s level 1 amount excludes the \$100 in cash as the repo was unwound at T+5 (-\$100 cash, +\$100 GSEs). Level 2A assets at 85 percent fair value now include \$85 of GSEs.

To calculate the composition caps, management must use the more conservative of unadjusted and adjusted HQLA, that is, subtract the greater of the unadjusted and adjusted “excess” amount. The purpose of using the greater of the unadjusted and adjusted is to prevent a bank from avoiding the level 2 cap limits. The purpose of the unwind for transactions that mature between day zero and day 30 is to prevent a bank from artificially inflating its level 1 assets, thereby expanding its caps, by using short-term transactions. A bank must unwind the following transactions that mature within 30 calendar days of the calculation date: secured funding transactions, secured lending transactions, asset exchanges, and collateralized derivative transactions. A bank does not have to unwind collateralized deposits, including municipal deposits and collateralized corporate trust deposits.

Generally, there are two types of collateralized deposits:

- Public sector, which is a deposit of a state or municipal entity that is secured under applicable law.

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<sup>41</sup> Refer to 12 CFR 50.21(f).

- Trust, which is a deposit of a fiduciary secured under 12 CFR 9.10 (national banks) or 12 CFR 150.300-50.320 (federal savings associations).

Collateralized deposits meeting the above definition are not subject to the unwind calculation (adjusted HQLA), and outflow rates vary: zero percent if collateralized by level 1, 15 percent if collateralized by level 2A, and 25 percent if operational. The rate cannot be greater than the equivalent outflow rate for an unsecured deposit.

## Total Net Cash Outflows

The LCR denominator contains the total net cash outflows during a stressed 30-day period. The outflow and inflow run-off rates reflect certain standardized stress assumptions. There are multiple categories for both outflow and inflow sources with the denominator. Outflow categories include derivatives, retail, unsecured wholesale, securities, secured lending asset exchange, and broker-dealer segregated. Inflow categories are retail, structured transactions, derivatives, mortgage commitments, commitments, collateral, brokered deposits—retail, unsecured wholesale, unsecured wholesale—operational, debt security buyback, secured funding asset exchange, and foreign central bank borrowing.

The total net cash outflows amount is calculated as total cash outflows minus total inflows (subject to inflow cap) plus an add-on for contractual maturity mismatch or a “peak day” calculation. The stressed outflows incorporate a run-off of contractual, behavioral, and contingent funding obligations including

- withdrawals from retail and wholesale deposit accounts.
- reduction in unsecured wholesale funding, short-term secured funding, and structured financing facilities.
- need to post additional collateral as a result of credit rating downgrade and changes in market value of bank’s derivatives.
- unscheduled draws on committed credit and liquidity facilities.

Generally, total net cash outflow is the difference between the bank’s total expected cash outflows and total expected cash inflows during the 30-day stress period. There are uniform assumptions for run-off and inflow rates across various classes of assets and liabilities. Total expected cash inflows cannot exceed 75 percent of total expected cash outflows. The 75 percent outflow cap on inflows ensures a minimum amount of HQLA in the numerator by limiting the ability to rely on inflows to offset outflows during the 30-day stress period.

A sample of outflow rates by funding category is as follows:

- Retail deposits:
  - Stable, insured (3 percent)
  - Other (10 percent)
- Wholesale deposits:
  - Certain operational deposits (25 percent)
  - Nonfinancial nonoperational (40 percent)

- Nonoperational financial (100 percent)
- Secured funding: Outflow rates are based on the liquidity of collateral securing the transaction.
- Commitments:
  - Retail (5 percent)
  - Nonfinancial (<30 percent)
  - Financial (<100 percent)

Cash inflows only include contractual inflows, including interest payments, from exposures that are fully performing and for which the bank has no reason to expect a default within the 30-day time horizon. Contingent inflows are not included in total net cash inflows. Inflows are calculated by multiplying the specified inflow rate by the respective payment amount. Inflows are capped at 75 percent of outflows, which ensures a minimum HQLA buffer to cover 25 percent of outflows. Total inflows are the lesser of the inflows over the 30 days or 75 percent of the total outflows. The inflow cap is not applied in the maturity mismatch add-on calculation. Some inflows are excluded from the calculation, such as inflows with no contractual maturity date, inflows from HQLA, and inflows due to forward sales of mortgage loans.

Outflows and inflows between a bank and consolidated subsidiary and outflows/inflows between two or more consolidated subsidiaries of the bank are not included in the calculation.

## **Maturity Mismatches**

The maturity mismatch add-on calculates the “peak day” outflow during the 30-day period. It focuses on contractual outflows and inflows as well as overnight funding from financial institutions. It calculates the bank’s “peak day” and adjusts for double counting of cash flows by subtracting day 30 net outflow. Day 30 net outflow is subtracted because it is already included in the total net outflows portion of the denominator. There are two parts to the add-on calculation:

- Net cumulative maturity outflow amount, which is the largest net cumulative outflow amount during the 30-day period (“peak day”).
- Net day 30 cumulative maturity outflow amount.

Outflows included in the maturity mismatch add-on calculation are brokered deposit retail, unsecured wholesale funding (nonoperational, not from financial entity), unsecured wholesale funding (nonoperational), all other unsecured wholesale funding, secured funding and asset exchange, foreign central bank borrowing, and other contractual outflows. Inflows included in this calculation are retail borrowers, unsecured wholesale, securities, secured lending, and asset exchange.

Each transaction is assigned a maturity date for the LCR calculation. The timing of cash flows in the maturity mismatch calculation is significant and affects the overall calculation. For the purpose of the calculation, an outflow’s maturity date is the contractual maturity date

or earliest possible date the transaction could occur. For example, “open” (repo/reverse repo) transactions are considered to mature on day one of the calculation. Certain other transactions that do not have maturity dates are assigned a maturity date on the first calendar day after the calculation date, such as unsecured wholesale funding. Other cash flows with no maturity may be placed on day 30 (no impact to add-on). For inflows, the maturity date is the contractual maturity date or latest possible date the transaction could occur.

Optionality is treated in a conservative manner, providing the earliest possible maturity for an outflow and latest possible maturity for an inflow. When considering outflow optionality (whether the option belongs to the counterparty or the bank) in the calculation, the following requirements are in place: if the counterparty holds the option that could reduce maturity, management must assume that the option will be exercised. If the counterparty holds the option that could extend maturity, management must assume that the option will not be exercised. If the bank holds the option that could extend maturity, management must assume that the option will not be exercised. If the bank holds the option that could reduce maturity, management must assume that the option will be exercised at the earliest possible date, except

- if original maturity of the obligation is less than one year at issuance and the option does not go into effect for a period of 180 days following issuance, or
- the counterparty is a sovereign entity, a U.S. GSE, or a public sector entity.

For options subject to a contractually defined notice period, management must determine the earliest possible contractual maturity date regardless of the notice period.

When considering inflow optionality (whether the option belongs to the counterparty or the bank) in the maturity mismatch calculation, the following requirements are in place:

- If the counterparty holds the option that could extend maturity, management must assume that the option will be exercised.
- If the counterparty holds the option that could reduce maturity, management must assume that the option will not be exercised.
- If the bank holds the option that could extend maturity, management must assume that the option will be exercised.
- If the bank holds the option that could reduce maturity, management must assume that the option will not be exercised.

For options subject to a contractually defined notice period, management must determine the latest possible contractual maturity date based on the counterparty using the entire notice period.

## **Derivatives**

Derivative in- and outflows are an important part of the calculation. Given the variability in derivative flows, this part of the calculation takes a historical approach. Management must collect and retain two years of daily derivative data and calculate the absolute value of each

consecutive 30 calendar day cumulative net mark-to-market collateral outflow or inflow resulting from derivative transactions realized during the preceding 24 months. They must then select the largest consecutive 30-day period absolute value of cumulative net mark-to-market collateral outflows or inflows.<sup>42</sup>

## Operational Deposits

Operational deposits are considered stickier deposits, so they receive a favorable outflow rate: 5 percent if entirely covered by deposit insurance and 25 percent if not entirely covered by deposit insurance. Nonoperational deposit outflow rates vary by insurance/counterparty: 20 percent if entirely covered by deposit insurance, 40 percent if not entirely covered by deposit insurance and is a nonfinancial counterparty, and 100 percent if not entirely covered by deposit insurance and is a financial counterparty.

There is a multistep process involved in the recognition of operational deposits. To receive the operational deposit outflow rates, management must demonstrate that the deposit is linked to one of 12 specified operational services, illustrate that the deposit meets operational requirements, and calculate the operational balance by subtracting out the excess nonoperational balance. The 12 types of services that qualify as operational services in the LCR are

- payment remittance.
- administration of payments and cash flows related to the safekeeping of investment assets, not including the purchase or sale of assets.
- payroll administration and control over the disbursement of funds.
- transmission, reconciliation, and confirmation of payment orders.
- daylight overdraft.
- determination of intraday and final settlement positions.
- settlement of securities transactions.
- transfer of capital distributions and recurring contractual payments.
- customer subscriptions and redemptions.
- scheduled distribution of customer funds.
- escrow, funds transfer, stock transfer, and agency services, including payment and settlement services, payment of fees, taxes, and other expenses.
- collection and aggregation of funds.

The bank must demonstrate an operational deposit methodology that calculates the core average balance required to maintain the operational service and subtracts out the excess amount, which is the balance above the amount necessary for the operational service. The excess balance is the amount that could be withdrawn by the customer that would still leave sufficient funds to fulfill the ongoing service requirement. The excess amount receives the wholesale unsecured outflow rate based on counterparty type and insurance coverage.

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<sup>42</sup> Refer to 12 CFR 50.32(c).



The operational deposit methodology should demonstrate that the deposit is empirically linked to an operational service and should take into account factors such as account volatility of the average balance. The methodology should include an analysis of historical data incorporating account, customer, and service factors to calculate the daily average balance and variance. The analysis should be performed at a level of aggregation appropriate based on customer type, service type, or both with sufficient granularity to assess risk of withdrawal during stress. The higher the level of aggregation, the more conservative the assumptions should be. The bank should provide supporting documentation that justifies the assumptions behind aggregated calculations.<sup>43</sup>

Table 2 summarizes the criteria that must be met for a deposit to be recognized as an operational deposit.

**Table 2: Summary of Operational Deposit Criteria**

Criteria summary	Citation
The related operational services are performed pursuant to a legally binding written agreement and <ul style="list-style-type: none"> <li>• termination of the agreement is subject to a minimum 30-day notice period, or</li> <li>• the customer providing the deposit would incur significant contractual termination costs or switching costs.</li> </ul>	12 CFR 50.4(b)(1)
The deposit is held in an account designated as an operational account.	12 CFR 50.4(b)(2)
The customer holds the deposit for the primary purpose of obtaining the operational services.	12 CFR 50.4(b)(3)
The deposit account is not designed to create an economic incentive for the customer to maintain excess funds in the account.	12 CFR 50.4(b)(4)
The bank demonstrates that <ul style="list-style-type: none"> <li>• the deposit is empirically linked to the operational services, and</li> <li>• the bank has a methodology that takes into account the volatility of the average balance for identifying any excess amount, which must be excluded from the operational deposit amount.</li> </ul>	12 CFR 50.4(b)(5)
The deposit is not provided in connection with prime brokerage services.	12 CFR 50.4(b)(6)
The deposit is not from a depository institution (i.e., correspondent)	12 CFR 50.4(b)(7)

## LCR Management

The LCR is just one component of liquidity risk management and should be integrated into the bank's existing liquidity risk management framework. It provides supervisory specified stress scenarios and is not intended to replace bank-specific liquidity stress scenarios. The CFP, audit process, and existing liquidity policies/procedures should be updated to address the LCR, including the bank's liquidity plan should the bank drop below the minimum LCR requirement. The LCR must be calculated at the same time each business day, which management may select.<sup>44</sup>

<sup>43</sup> Refer to 12 CFR 50.32.

<sup>44</sup> Refer to 12 CFR 50.10(a).

The LCR calculation is a complex one and typically warrants significant system development and technology infrastructure. Treasury data, systems, liquidity risk management processes, data analytics, data quality, and reporting are critical elements in supporting the daily LCR calculation. Sourcing of off-balance-sheet exposures and contingent commitments from credit systems also need to be taken into consideration. Daily calculation and reporting requirements increase the scale and complexity of treasury systems.

## **Policies and Procedures**

Bank policies should show that eligible HQLA is under the control of the management function charged with managing liquidity risk. The bank must implement and maintain policies and procedures that determine the composition of its eligible HQLA by identifying the eligible HQLA by legal entity, geographical location, currency, account, or other relevant identifying factors. The bank must also ensure the appropriate diversification of eligible HQLA by asset type, counterparty, issuer, currency, borrowing capacity, or other factors associated with the liquidity risk of the assets. Eligible HQLA methodologies must be documented so that results are consistent for determining the bank's eligible HQLA.<sup>45</sup> Management should be able to show assets with similar operational characteristics that are categorized as either HQLA eligible or non-HQLA eligible consistently across assets and time. Examiners should be cautious of assets that switch back and forth from HQLA to non-HQLA.

## **LCR Shortfall**

Management must notify the OCC on any day the LCR falls below the minimum requirement.<sup>46</sup> If the LCR is below minimum for three consecutive days or the bank is otherwise materially noncompliant with the rule, management must submit a liquidity plan for achieving compliance. The liquidity plan must include<sup>47</sup>

- an assessment of the bank's liquidity position.
- actions the bank has taken and will take to comply with the LCR requirements.
- a plan for adjusting the bank's risk profile, risk management, and funding sources to achieve full compliance with LCR requirements.
- a plan for remediating any operational or management issues that contributed to shortfall.
- estimated time frame for achieving compliance with LCR requirements.
- a commitment to report to the OCC not less than weekly on progress being made under the plan.

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<sup>45</sup> Refer to 12 CFR 50.22(a)5.

<sup>46</sup> Refer to 12 CFR 50.40(a).

<sup>47</sup> Refer to 12 CFR 50.40(b).

The rule provides discretion to take additional supervisory or enforcement actions to address noncompliance.<sup>48</sup> Supervisory actions should not discourage or deter a banking organization from using its HQLA when necessary to meet unforeseen liquidity needs.

## Net Stable Funding Ratio

This section applies only to category I and II banking organizations and category III banking organizations with more than \$75 billion in weighted STWF. A reduced NSFR requirement, calibrated at 85 percent of the full NSFR requirement, applies to category III banking organizations with less than \$75 billion in STWF, and a requirement of 70 percent of the full NSFR requirement applies to category IV banking organizations with \$50 billion or more in STWF.<sup>49</sup> The NSFR rule does not apply to federal branches and agencies.

The NSFR rule requires banks to maintain stable funding structures based on the composition of their assets, derivative exposures, and commitments. It is designed to limit overreliance on unstable funding sources, such as STWF, and restricts a bank's ability to fund illiquid assets with unstable funding.

The NSFR rule requires a bank to maintain an amount of available stable funding (ASF) that is greater than or equal to the amount of required stable funding (RSF) on an ongoing basis. The NSFR is calculated as follows:

$$NSFR = \frac{\text{Available Stable Funding Amount}}{\text{Required Stable Funding Amount}}$$

A bank calculates its ASF amount by applying standardized weightings (ASF factors) to the bank's equity and liabilities based on expected stability. Similarly, the bank calculates its RSF amount by applying standardized weightings (RSF factors) to its assets, derivative exposures, and commitments based on their liquidity characteristics. Banks are required to comply with the NSFR rule as of the effective date of July 1, 2021, by maintaining a minimum NSFR equal to or greater than 1.0 on an ongoing basis.<sup>50</sup> (Disclosure requirements are imposed on the holding company and must be satisfied on a quarterly basis.)

NSFR liabilities and assets are assigned ASF and RSF factors based on characteristics that reflect their liquidity and stability over the NSFR one-year time horizon. The NSFR employs three maturity "buckets" to assign RSF and ASF factors based on whether an asset or liability matures in less than six months, in six months to one year, or in more than one year.

The NSFR is meant to complement the LCR. Along with the LCR, the NSFR framework originated with the Basel III international regulatory accord.

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<sup>48</sup> Refer to 12 CFR 50.40(c).

<sup>49</sup> Refer to 12 CFR 50.1(b).

<sup>50</sup> Refer to 12 CFR 50.100(a).

## Available Stable Funding

ASF is measured based on the broad characteristics of the relative stability of a bank's funding sources, including the contractual maturity of its liabilities and the differences in the propensity of different types of funding providers to withdraw their funding. ASF factors represent the stability of funding over the one-year time horizon and are assigned based on three characteristics: (1) funding tenor, (2) funding type, and (3) counterparty type. The bank's regulatory capital and liabilities are assigned an ASF factor of either 100 percent, 95 percent, 90 percent, 50 percent, or zero percent. Regulatory capital and long-term liabilities that satisfy certain requirements are assigned a 100 percent ASF factor that represents the highest level of stability. The sum of the carrying value of the bank's regulatory capital and liabilities, multiplied by the applicable ASF factors, determines the bank's ASF amount.<sup>51</sup>

## Required Stable Funding

RSF is measured based on the broad characteristics of the liquidity risk profile of a bank's assets and off-balance-sheet exposures. RSF factors are assigned based on the following characteristics relating to their expected liquidity over the one-year time horizon: (1) credit quality, (2) tenor, (3) type of counterparty, (4) market characteristics, and (5) encumbrance. Balance sheet assets, derivatives, and off-balance-sheet commitments are assigned an RSF factor of either 100 percent, 85 percent, 65 percent, 50 percent, 15 percent, 10 percent, 5 percent, or zero percent. The RSF amount is the sum of the carrying values of a bank's assets and the undrawn amounts of a bank's credit and liquidity facilities, in each case multiplied by the applicable RSF factor, and the bank's derivatives RSF amount, as described further below.<sup>52</sup>

### Encumbered Assets

Assets are considered encumbered if they are subject to legal, regulatory, contractual, or other restrictions on the bank's ability to monetize the asset. In addition, an asset is considered encumbered if the asset is pledged, explicitly or implicitly, to secure or to provide credit enhancement to any transactions, with an exception for transactions with a central bank or U.S. GSE when potential credit secured by the asset is not currently extended to the bank and the pledged asset is not required to support access to the central bank's payment services.

The RSF for encumbered assets varies by asset type and the term of encumbrance, but encumbered assets typically receive a higher RSF factor than unencumbered assets. Assets encumbered for six months to one year are assigned a minimum RSF of 50 percent. If an asset type has an RSF of less than 50 percent when unencumbered, it would be applied a 50 percent RSF when encumbered for six months to one year. Those assets with an RSF higher than 50 percent when unencumbered would receive the same RSF when encumbered

<sup>51</sup> Refer to 12 CFR 50.103 and 12 CFR 50.104.

<sup>52</sup> Refer to 12 CFR 50.105 and 12 CFR 50.106.

for six months to one year. Assets encumbered over one year receive an RSF of 100 percent and assets unencumbered for less than six months are treated as unencumbered.

## Derivatives

Derivative ASF and RSF are calculated separately from other assets, liabilities, and commitments. There are three components to the NSFR derivative framework:<sup>53</sup>

1. **Current net value component:** The bank must determine the asset or liability value of each derivative transaction and each qualifying netting set. The bank then sums its derivatives asset values to determine its total derivatives asset amount and separately sums its derivatives liability values to determine its total derivatives liability amount. The bank then calculates its overall NSFR derivatives asset amount or NSFR derivatives liability amount by calculating the difference between its total derivatives asset amount and its total derivatives liability amount. If a covered company's total derivatives asset amount exceeds its total derivatives liability amount, the covered company would have an NSFR derivatives asset amount. The final rule assigns either a 100 percent RSF factor to a covered company's NSFR derivatives asset amount or a zero percent ASF factor to a covered company's NSFR derivatives liability amount.
2. **Initial margin:** Initial margin posted by the bank to a central counterparty is assigned an RSF of 85 percent unless the posted asset is assigned to a higher RSF category in which case it would be assigned the higher RSF.
3. **Potential valuation change:** An additional 100 percent RSF is assigned to 5 percent of the gross derivative liabilities amount when calculated as if no variation margin had been exchanged and no settlement payments had been made to cover future funding risk from mark-to-market movements requiring posting of collateral.

## NSFR Remediation

A bank must notify the OCC within 10 business days by written notice following the date that any event has occurred that has caused or would cause the bank's NSFR to fall below the minimum requirement. Management must submit a liquidity plan for achieving compliance that includes (1) an assessment of the bank's liquidity position; (2) actions management has taken and will take to comply with the rule, and a plan for adjusting the bank's risk profile, risk management, and funding sources to achieve full compliance; (3) remediation of any operational or management issues that contributed to the shortfall; and (4) an estimated time frame for achieving compliance. The bank would be required to report to the OCC not less than monthly on its progress toward achieving full compliance until its NSFR is equal to or greater than 1.0. The rule provides the OCC with discretion to take additional supervisory or enforcement actions to address noncompliance.<sup>54</sup>

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<sup>53</sup> Refer to 12 CFR 50.107.

<sup>54</sup> Refer to 12 CFR 50.110.

# Examination Procedures

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This booklet contains expanded procedures for examining specialized activities or specific products or services that warrant extra attention beyond the core assessment contained in the “Community Bank Supervision,” “Large Bank Supervision,” and “Federal Branches and Agencies Supervision” booklets of the *Comptroller’s Handbook*. Examiners determine which expanded procedures to use, if any, during examination planning or after drawing preliminary conclusions during the core assessment. This booklet also contains supplemental procedures for assessing a bank’s compliance with LCR and NSFR requirements.

## Scope

(Section updated in version 1.2)

These procedures are designed to help examiners tailor the examination to each bank and determine the scope of the liquidity examination. Examiners should consider work performed by internal and external auditors, independent risk management, and other examiners reviewing related areas. Examiners should perform only those objectives and procedures relevant to the scope of the examination as determined by the following objectives. Seldom is every objective or step of the expanded procedures necessary.

**Objective:** To determine the scope of the examination of liquidity and identify examination objectives and activities necessary to meet the needs of the supervisory strategy for the bank.

1. Review the following sources of information and note any previously identified problems related to liquidity that require follow-up:
  - Supervisory strategy.
  - Scope memorandum.
  - OCC’s information system
  - Previous supervisory activity work papers.
  - Previous supervisory letters and reports of examination, and management’s responses.
  - Internal and external audit reports, work papers, and management’s responses.
  - Bank management’s responses to previous reports of examination and audit reports.
  - Customer complaints and litigation.
2. Review the Uniform Bank Performance Report and applicable OCC reports and analytical tools.
3. Review policies, procedures, and reports that management uses to supervise liquidity, including those related to the liquidity position, risk management, contingency funding plan, and asset securitization. Identify significant changes since the last examination.

4. In discussions with management, determine if there have been any significant changes (for example, in policies, processes, personnel, control systems, third-party relationships, products, services, delivery channels, volumes, financial technology relationships, markets, and geographies) since the prior examination of liquidity.
5. Based on an analysis of information obtained in the previous steps, as well as input from the examiner-in-charge (EIC), determine the scope and objectives of the liquidity examination.
6. Select from the following examination procedures the necessary steps to meet examination objectives and the supervisory strategy.

## Quantity of Risk

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**Conclusion:** The quantity of each associated risk is (low, moderate, or high).

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**Objective:** To determine the impact of a bank’s overall financial condition on the liquidity risk profile.

1. Review factors that influence credit-sensitive funds providers at the bank level. Consider
  - current asset quality and potential deterioration.
  - poor earnings performance.
  - negative media attention from all sources, including news media outlets and other online sources such as social media platforms, community networks, and news aggregators.
  - rating agency watch or downgrade announcements.
  - legal restrictions, such as those on brokered deposits, interbank liabilities, pass-through deposit insurance, Federal Reserve discount window borrowing, and PCA restrictions. (Updated in version 1.2)
  - any potential statutory or other restrictions on third-party funds providers (e.g., tangible GAAP capital-based restrictions). (Updated in version 1.2)
  - whether a waiver from the FDIC for accepting brokered deposits is required, and, if it is, whether it has been obtained and other legal requirements have been met, including any restrictions on aggregate brokered deposit use.
  - characteristics of the bank’s customers, such as whether the bank is oriented toward wholesale or retail, the duration of banking relationships, the proportion of customers using more than one product, the customer funds flow cycle, and demographics.
  - other economic circumstances in the bank’s market or trade area.

**Objective:** To determine the impact of the bank’s organizational structure on the quantity of liquidity risk.

1. If the bank belongs to a multibank holding company, the primary review of liquidity and funding should be on a consolidated basis.
  - Apply the appropriate core and supplemental procedures included in this booklet to review the consolidated multibank liquidity management system. (Updated in version 1.2)
2. Review the parent company’s financial condition. Determine
  - whether there are short-term liquidity gaps that the parent company may have difficulty funding. (Updated in version 1.2)
  - the strength of the parent company’s cash and liquid asset positions.



- legal restrictions, such as those related to
    - loans to affiliates (12 USC 371c).
    - dividend restrictions (national banks: 12 USC 56 and 60, subpart E of 12 CFR 5; federal savings associations: 12 CFR 5.55).
  - capital needs of affiliate banks that may draw on the resources of the parent or, conversely, affiliate banks with very high capital levels.
3. Determine the level of risk posed by affiliates. Consider
- any trends in the consolidated liquidity management of cash flows between banks or other affiliates.
  - short-term liquidity gaps or other funding or capital needs at an affiliate.
  - any surplus liquidity at affiliates.
4. Review the following indicators that the parent bank or any affiliates are viewed adversely in the market:
- Paying premiums over market (peer) rates on liabilities and capital.
  - Reduced volume of traditional liability sources.
  - Reductions in available liability maturities.
  - Significant liability restructuring; for example, a shift from domestic to foreign funding that is not consistent with strategic plans or objectives.
  - Political divisiveness (within the bank or holding company) that impedes prudent liquidity practices.
  - Rating watch or downgrade.
  - Widening debt spreads relative to bonds of similar credit risk and tenor.

**Objective:** To determine the impact of the use of public funds on the quantity of liquidity risk.

1. Review public funds and the bank’s method of acquiring such funds to determine the profitability, stability, and rate sensitivity of these accounts. Consider
- reasons for the acquisition and use of these funds.
  - provider’s credit and rate sensitivity.
  - potential for purchasing public debt.
  - interest rate the bank will pay relative to other funding sources and asset yields.
  - pledging requirements and management’s controls over collateral availability.
  - pricing policies.
  - any interest-sensitive deposit products (those with variable rates, floors, or ceilings on interest paid, for example).

**Objective:** To determine the impact of nontraditional deposit sources on the bank’s liquidity profile.

1. Review deposits gathered by nontraditional means (e.g., broker, internet listing service, or other deposit-gathering or -splitting network). Determine
  - the bank’s level of reliance on this funding source.
  - the stability and rate sensitivity of these deposits.
  - management’s ability to monitor and control both the inflow and outflow of funds generated via nontraditional methods.
  - the use of these funds and the bank’s ability to deploy them profitably and without undue risk.
  - the effectiveness of management reporting and controls over concentrations, collateral requirements, and rollover risk.
  - compliance with third-party requirements, including maintaining minimum external and regulatory ratings, and capital adequacy.
  - any competitive pressures, economic conditions, or other factors that may affect the gathering and retention of these deposits.

**Objective:** To determine the impact of securitization activities on the quantity of liquidity risk.

1. Review the bank’s asset securitization activities. Examine
  - the role of securitization, if any, in funding activities and plans.
  - securitization performance.
  - securitization trigger reports to determine risk of funding early amortization or termination.
  - the impact of general market or bank-specific circumstances on the acceptance of the bank’s securitizations in the marketplace.
  - contingencies, early amortization, or repurchase risk by reviewing securitization agreements.

**Objective:** As applicable, determine the impact of overdrafts and uncollected funds on the bank’s liquidity risk exposure.

1. Cross-reference overdraft and uncollected funds reports to credit line slips of the various loan departments. Examine credit files on significant overdrafts and depositors who frequently draw significant amounts against uncollected funds that were not included in the sample reviewed by the loan portfolio management examiner. Ask management to charge uncollectible overdrafts to the allowance for credit losses. Submit a list of overdrafts considered “loss” and the total amounts overdrawn 30 days or more to the examiner assigned to loan portfolio management. (Updated in version 1.2)
2. Determine whether formal overdraft agreements exist. Obtain the trial balance, or list of agreements, and reconcile it to credit line slips of various loan departments. When formal overdraft agreements are not included in the loan portfolio management examiner’s sample, review credit files on significant formal agreements.

**Objective:** To determine the impact of possible contingent risk related to loan sales and participations on the bank's liquidity risk profile.

1. Determine, from consultation with the examiners assigned to loan portfolio management, that the following schedules were reviewed in the lending departments and that there was no endorsement, guarantee, or repurchase agreement that would constitute a borrowing.  
Review
  - participations sold.
  - loans sold in full since the preceding examination.

**Objective:** To determine the reliance on financial market-based funding sources and the risks posed by these activities.

1. Determine the bank's reliance on products and programs whose funds are obtained from financial market investors or whose underlying collateral is traded through primary or secondary financial market channels (e.g., corporate debt, trust-preferred securities, asset-backed commercial paper conduits, covered bonds, structured investment vehicles, and other market-based asset sales and distribution programs). Review
  - recent issuance volume trends.
  - the performance and quality of underlying assets.
  - changes in the market's acceptance of specific bank issues or issues originated by other market participants and management's efforts to mitigate or address any concerns.
  - changes in the market's appetite for the collateral underlying these programs.
  - trends in interest rates and comparison of spreads to other similar market issuances.
  - management's assessment of the degree of contractual or noncontractual funding support for these facilities that may be required by the bank under a variety of market and economic conditions.
  - the adequacy of the bank's contingency funding and planning for liquidity needs during significant market disruptions or times of stress.

## Quality of Risk Management

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**Conclusion:** The quality of risk management is  
(strong, satisfactory, insufficient, or weak).

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The conclusion on risk management considers all risks associated with liquidity.

**Objective:** To determine whether the contingency funding plan is commensurate with the risk profile of the bank.

1. Review the liquidity CFP and the minutes of ALCO meetings and board meetings, and discuss with management the adequacy of the bank's contingent planning processes for liquidity. Determine whether the planning process incorporates
  - customization of the CFP to fit the bank's liquidity risk profile.
  - identification of potential sources and uses of liquidity under stress events, including all material on- and off-balance-sheet cash flows and their related effects.
  - regular use of stress testing for a range of bank-specific and market-wide events across multiple time horizons.
  - stress testing for a potential change to the bank's PCA capital category to less than well-capitalized and the operational impact of restrictions on deposit rates paid, renewals, and acceptance of brokered deposits. (Added in version 1.2)
  - breadth and velocity of potential stress triggers and events (e.g., the potential for immediate removal of funding based on negative information sharing on social media) and the analyses of various liquidity stress levels that can occur under defined scenarios.
  - quantitative assessment of short- and intermediate-term funding needs in stress events.
  - the potential statutory or other restrictions on third-party funds providers (e.g., tangible GAAP capital-based restrictions). (Added in version 1.2)
  - the reasonableness of the assumptions used in forecasting potential contingent liquidity needs and the frequency of management's review of these assumptions to ensure that they remain valid.
  - comprehensiveness in forecasting cash flows under stress conditions, including the incorporation of off-balance-sheet cash flows.
  - use of contingent liquidity risk triggers to monitor, on an ongoing basis, the potential for contingent liquidity events.
  - assessment of the level of severity, timing, and duration of the stress event.
  - consideration of the limitations of payment systems and their operational implications to the bank's ability to access contingent funding.
  - operating policies and procedures to be implemented in stress events, including assignment of responsibilities for communicating with various stakeholders.
  - prioritization of actions for responding to stress situations.

**Objective:** To determine whether management’s deposit development and retention program is adequate and whether this program is consistent with the overall strategic plan and budget.

1. Determine whether the bank’s deposit marketing strategy is reasonable. Consider
  - whether indications are that the bank’s product offerings are responsive to customer needs.
  - current market share and goals for maintaining or increasing market share.
  - the bank’s marketing goals and the staff members responsible for meeting those goals.
  - the bank’s anticipated deposit structure and interest costs of such a structure.
  - a periodic comparison of performance with projections, including periodic formal or informal reports to management on results and the accuracy of cost projections.
  - consistency of the bank’s overall strategic plan with its budget.

**Objective:** To assess the adequacy of liquidity risk MIS.

1. Review liquidity risk management policies, procedures, and reports. Then discuss with management the frequency and comprehensiveness of liquidity risk reporting for various levels of management responsible for monitoring and managing liquidity risk. Considerations should include the following:
  - Management’s need to receive reports that
    - determine compliance with limits and controls.
    - evaluate the results of past strategies.
    - assess the potential risks and returns of proposed strategies.
    - identify the major changes in a bank’s liquidity risk profile.
    - consolidate the liquidity position for the bank and all significant subsidiaries.
  - The need for the reporting system to be flexible enough to
    - quickly collect and edit data, summarize results, and adapt to changing circumstances or issues.
    - increase the frequency of preparation as conditions deteriorate or the need arises.
  - The need for reports to focus properly on monitoring liquidity and supporting decision making. Such reports often help bank management to monitor
    - sources and uses of funds, facilitating the evaluation of trends and structural balance-sheet changes.
    - contingency funding plans.
    - projected cash flow or maturity gaps, identifying potential future liquidity needs. Reports should show projections using both contractual maturities (original maturity dates) and behavioral maturities (maturities attributable to the expected behaviors of customers).
    - consolidated large funds providers, identifying customer concentrations. Reports should identify and aggregate major liability instruments used by large customers in the consolidated bank.

- the cost of funds from all significant funding sources, enabling management to do a quick cost comparison.

**Objective:** To assess the adequacy of internal controls surrounding the liquidity risk management process.

1. Determine whether the board and senior management have established clear lines of authority and responsibility for monitoring adherence to policies, procedures, and limits. Review policies, procedures, and reports to ascertain whether the bank's
  - measurement system adequately captures and quantifies risk.
  - limits are appropriately defined, communicated to management, and routinely compared to actual liquidity measures.
2. Determine whether internal controls and information systems are adequately tested and reviewed by ascertaining whether the bank's
  - risk measurement tools are accurate, independent, and reliable.
  - frequency of testing of controls is adequate given the level of risk and sophistication of risk management decisions.
  - reports provide relevant information, including comments on major changes in risk profiles.
3. Determine whether the liquidity management function is audited internally, or externally, or whether it is evaluated by the risk management function. Also ascertain whether the audit or evaluation is independent and of sufficient scope by determining
  - whether audit findings and management responses to those findings are fully documented and tracked for adequate follow-up.
  - whether line management is held accountable for unsatisfactory or ineffective follow-up.
  - whether risk managers give identified material weaknesses appropriate and timely attention.
  - whether actions taken by management to deal with material weaknesses have been verified and reviewed for objectivity and adequacy by senior management or the board.
  - that the board and senior management have established adequate procedures for ensuring compliance with applicable laws and regulations.

**Objective:** To determine the adequacy of procedures and controls over wholesale funding activities.

1. Determine whether the bank maintains subsidiary records for each type of borrowing, including proper identification of the funds provider. (Updated in version 1.2)

2. Determine whether corporate borrowing resolutions are properly prepared as required by creditors and whether copies are on file for reviewing personnel.
3. Determine whether any area has inadequate supervision or poses risk.
4. Determine whether subsidiary records are reconciled with the general ledger accounts at an interval consistent with borrowing activity, and that reconciling items are investigated by persons who do not also
  - handle cash.
  - prepare or post to the subsidiary records.
5. Determine whether individual interest computations are checked by persons who do not have access to cash.
6. Determine whether an overall test of the total interest paid is made by persons who do not have access to cash.
7. Determine whether payees on the checks are matched to related records of debt, note, or debenture owners.

**Objective:** To determine compliance with the terms of wholesale funding agreements.

1. If the bank engages in any form of wholesale funding with written agreement(s),
  - determine whether the bank is in compliance with those terms.
  - review terms of past and present borrowing agreements for indications of a deteriorating credit position by noting
    - recent substantive changes in borrowing agreements.
    - increases in collateral to support borrowing transactions.
    - a general shortening of maturities.
    - interest rates exceeding prevailing market rates.
    - frequent changes in lenders.
    - large fees paid to money brokers.

**Objective:** To assess the adequacy of controls over liquidity exposure associated with foreign currency.

1. Determine whether the bank has a measurement, monitoring, and control system for its liquidity positions in the major currencies in which it is active.
2. Determine whether the bank has undertaken a separate analysis of its strategy for each currency individually.

3. Determine whether the bank has appropriately defined and regularly reviewed limits on the size of its cash flow mismatches over specified time horizons for foreign currencies in aggregate and for each significant individual currency in which the bank operates.

**Objective:** To determine whether the bank’s public disclosure (e.g., quarterly or annual public financial statements) practices are adequate and do not adversely affect the bank’s liquidity position.

1. Determine whether the bank has a process in place that ensures that there is an adequate level of disclosure of information about the bank in order to manage public perception of the organization and its soundness.
2. Determine whether other factors have a material effect on liquidity risk exposure. Consider the potential impact of institutional trends such as asset growth, asset quality, earnings trends, and market risk exposures (both interest-rate risk in the banking book and trading book exposures). Review also business-line operational considerations and the potential for legal and reputation risk.

**Objective:** To determine whether processes for managing risk exposures to correspondents and processes for complying with Regulation F (12 CFR 206, “Limitations on Interbank Liabilities”)<sup>55</sup> are adequate. For more information, refer to OCC Bulletin 2010-16, “Interagency Guidance on Correspondent Concentration Risks.” (Updated in version 1.2)

1. Review OCC and internal bank reports to identify any undue concentration of risk created by interbank credit exposure. Consider
  - exposures greater than 25 percent of capital.
  - liability funding concentrations with significant counterparties.
  - exposures as a percentage of total assets.
  - interbank assets placed with correspondents whose financial condition is deteriorating.
2. Request bank files relating to exposures to correspondents, as defined in the “Prudential Standards” section of Regulation F (12 CFR 206.3), and evaluate
  - documentation demonstrating that the bank has periodically reviewed the financial condition of all correspondents to which it has significant exposure. The documentation should address the levels of the correspondent’s capital, nonaccrual and past-due loans and leases, earnings, and other matters pertinent to its financial condition.
  - information from the bank indicating the levels of exposures to correspondents as measured by its internal control systems. (For smaller banks this information may

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<sup>55</sup> The purpose of this regulation is to limit the risks that the failure of a depository institution (foreign or domestic) would pose to insured depository institutions. “Exposure” includes all types of banking transactions that create a risk of nonpayment or delayed payment between institutions. “Correspondent” excludes commonly controlled institutions.



include correspondent statements and a list of securities held in safekeeping for the bank by the correspondent.)

3. Review the information obtained in the preceding step for reasonableness based on discussions with examiners of other banking activities and review of their findings. Consider
  - asset management.
  - computer services.
  - payment systems and funds transfer activities.
  - private placements.
  - international department activities.
  - off-balance-sheet products (including derivatives).
4. Request a list of all correspondents to which the bank regularly has credit exposure, as defined in the “Credit Exposure” section of Regulation F (12 CFR 206.4), equal to more than 25 percent of capital for a specified length of time. Review the bank’s files to determine whether
  - the capital levels of correspondents are monitored quarterly.
  - those banks are adequately capitalized as defined by Regulation F.
  - credit exposure to correspondents at risk of dropping below the adequately capitalized level could be reduced to an amount equal to 25 percent of capital or less in a timely manner.
5. Determine whether the bank maintains accounts at foreign institutions or whether foreign institutions maintain accounts at the bank. If so, determine whether the compliance examination tested for compliance with 12 CFR 21.21 and 31 CFR Chapter X, and policies that address the collection of customer background information.
6. Determine whether the bank has significant exposure to a correspondent because of transaction risks, such as extensive reliance on a correspondent for data processing. If so, determine whether the bank has addressed those risks.
7. Confirm that the bank’s process for monitoring significant exposure (especially for correspondents that are less than adequately capitalized or financially deteriorating) is appropriate. Consider
  - type and volatility of exposure.
  - extent to which the exposure approaches the bank’s internal limits.
  - condition of the correspondent. Also consider
    - capital.
    - nonaccrual and past-due loans and leases.
    - earnings.
    - other relevant factors.

8. For credit exposure to correspondents that are adequately capitalized, review the bank's monitoring process to determine whether
  - management obtains quarterly information to determine its correspondent's capital levels.
  - management monitors overnight credit exposure.
  - the monitoring frequency is adequate.
9. Determine how often the bank reviews the financial condition of institutions to which it has very large or long-term exposure and how often it reviews institutions whose financial condition is deteriorating.
10. Determine whether the frequency of these reviews is adequate for the level of exposure and financial condition of the correspondent.
11. Determine whether the bank
  - relies on another party (such as its holding company, a bank rating agency, or another correspondent) to provide financial analysis of a correspondent. If so, verify that the bank's board of directors reviewed and approved the assessment criteria used by that party.
  - relies on another party to select or monitor its correspondents. If so, verify that the bank's board of directors reviewed and approved the selection criteria used.
  - relies on a correspondent to choose other correspondents to whom the bank lends federal funds. If so, verify that the bank's board of directors reviewed and approved the selection criteria used.
  - evaluates the creditworthiness of each correspondent and the appropriate level of exposure to a correspondent whose financial condition is deteriorating.

**Objective:** To determine compliance with applicable laws and regulations regarding deposit accounts. (If there is a concurrent consumer compliance examination, coordinate with the examiner assigned to compliance with deposit regulations when carrying out procedures. For examination procedures regarding consumer protection-related laws and regulations, refer to the *Consumer Compliance* series of *Comptroller's Handbook* booklets and interagency consumer compliance examination procedures.)

1. Assess the bank's compliance with 12 CFR 337.6, "Brokered Deposits." If the bank is below the "well-capitalized" capital category, assess compliance with brokered deposit restrictions and rate caps.

## Conclusions

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**Conclusion:** The aggregate level of each associated risk is  
(low, moderate, or high).  
The direction of each associated risk is  
(increasing, stable, or decreasing).

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**Objective:** To determine, document, and communicate overall findings and conclusions regarding the examination of liquidity.

1. Determine preliminary examination findings and conclusions and discuss with the EIC, including
  - quantity of associated risks. (Updated in version 1.2)
  - quality of risk management.
  - aggregate level and direction of associated risks.
  - overall risk in liquidity.
  - violations of laws and regulations or deficient practices. (Updated in version 1.2)

**Summary of Risks Associated With Liquidity**

Risk category	Quantity of risk  (Low, moderate, high)	Quality of risk management  (Weak, insufficient, satisfactory, strong)	Aggregate level of risk  (Low, moderate, high)	Direction of risk  (Increasing, stable, decreasing)
Credit				
Interest rate				
Liquidity				
Price				
Operational				
Compliance				
Strategic				
Reputation				

2. If substantive safety and soundness concerns remain unresolved that may have a material adverse effect on the bank, further expand the scope of the examination by completing verification procedures.

3. Discuss examination findings with bank management, including violations, recommendations, and conclusions about risks and risk management practices. If necessary, obtain commitments for corrective action.
4. Compose conclusion comments, highlighting any issues that should be included in the report of examination. If necessary, compose matters requiring attention and violation write-ups.
5. Update the OCC's information systems and any applicable report of examination schedules or tables.
6. Document recommendations for the supervisory strategy (e.g., what the OCC should do in the future to effectively supervise liquidity in the bank, including time periods, staffing, and workdays required).
7. Update, organize, and reference work papers in accordance with OCC policy.
8. Appropriately dispose of or secure any paper or electronic media that contain sensitive bank or customer information.

# Supplemental Examination Procedures

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## Liquidity Coverage Ratio Examination Procedures

These procedures only apply to banks that are required to compute the LCR.

Examiners should determine LCR compliance by assessing the classification of outflows/inflows, assessing the operational deposit methodology and excess calculation, and reviewing treasury control over HQLA operational requirements. Monitoring changes in bank investment mix and funding structure such as increased usage of FHLB advances, increased debt issuance, or shifting to lower run-off funding categories, is essential. Examiners should review short-term transactions for potential strategies that would inflate HQLA (increased repo/reverse repo or commercial paper) and transactions just outside the LCR 30-day calculation window (e.g., 31-day commercial paper). Examiners should monitor LCR volatility by assessing movement of peak maturity mismatch during the month and large changes on certain days of the month.

**Objective:** Determine whether oversight provided by board and senior management is effective to ensure ongoing compliance with LCR requirements.

1. Determine whether reporting and escalation processes are in place to inform the board when a bank's LCR falls below the legal requirement.
2. Determine whether the bank's liquidity policy or CFP formalize key roles and responsibilities for the following:
  - supervisory notification of LCR breaches.
  - development of regulatory liquidity compliance plans.
3. Assess the adequacy of internal audit coverage and the extent to which material control or reporting deficiencies are properly reported to the audit committee and remediation plans are executed.

**Objective:** Determine whether the bank can effectively manage and maintain HQLA at a level and composition sufficient to cover net cash outflows over a prospective 30-day horizon.

1. Evaluate the bank's framework used to determine whether assets meet the definition and eligibility requirements of "unencumbered."<sup>56</sup> Consideration should be given to all potential triggers of encumbrance on a daily frequency and at an instrument-level basis including
  - rehypothecation rights.
  - legal entity restrictions.

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<sup>56</sup> Refer to 12 CFR 50.22.

- U.S. Securities and Exchange Commission 15c3-3 accounts.
  - intraday impacts or constraints relative to the LCR calculation time.
2. Assess the bank’s aggregation and reporting capabilities to monitor HQLAs from various perspectives and levels of granularity on a daily frequency including
    - appropriate instrument level information.
    - correct aggregation of affiliate and subsidiary LCR with intracompany limitations.
    - identification of known lockups at local jurisdictional level.
    - composition by asset class and how management ensures appropriate bucketing of level 2A versus level 2B liquid assets.
    - appropriate level 2 caps.<sup>57</sup>
  3. Evaluate the bank’s framework used to demonstrate operational capability to monetize the HQLA by (1) maintaining appropriate procedures and systems to monetize any HQLA at any time in accordance with relevant standard settlement periods and procedures; and (2) periodically monetizing a sample of HQLA that reasonably reflects the composition of eligible HQLA, including with respect to asset type, maturity, and counterparty characteristics. Consider the following:
    - Conceptual and operational soundness of methods employed.
    - Frequency of sampling.
    - Scope of sampling including consideration for differing liquidity profiles across asset classes and within different sectors of the same class.
    - If the bank uses existing dealer sales activities or secured financing transactions to demonstrate monetization, determine whether the activities are part of business as usual and occur on a regular basis in liquid markets.
    - Reasonableness of sampling methodologies for level 2A and 2B assets.
    - How management determines that each asset class meets the definition of “liquid and readily marketable”<sup>58</sup> with specific focus on level 2A and 2B.
    - Potential market effects of transacting in size even for highly liquid securities with consideration for market conditions during times of stress.
  4. Determine whether HQLAs are maintained under effective control by the management function responsible for liquidity risk (e.g., the treasury function).<sup>59</sup>

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<sup>57</sup> Refer to 12 CFR 50.21.

<sup>58</sup> “Liquid and readily marketable” means, with respect to a security, that the security is traded in an active secondary market with (1) more than two committed market makers; (2) a large number of nonmarket maker participants on both the buying and selling sides of transactions; (3) timely and observable market prices; and (4) a high trading volume. Refer to 12 CFR 50.3.

<sup>59</sup> Refer to 12 CFR 50.22.

5. Assess the bank's short-term transactions for potential strategies that would inflate HQLA (e.g., increased /reverse repo) and transactions just outside the LCR 30-day calculation window.

**Objective:** Determine whether net deposit outflow projections are calculated in an accurate manner that complies with the U.S. LCR requirements.<sup>60</sup>

1. Assess the bank's methodology to identify and measure operational excess deposits (e.g., nonoperational deposits residing in operational accounts).<sup>61</sup> Consider the following:
  - The adequacy of processes to identify operational deposits.<sup>62</sup>
  - Whether the bank's methodology is premised on a sufficiently granular measurement of changes in client balances and behavior.
  - Whether changes in client behavior are translated into appropriately conservative reclassifications of operational versus nonoperational deposits on an ongoing basis.
  - Whether proven statistical methods for assessing outflow risk of excess deposit balances are available or whether all available data and analytics are applied with conservatism in rationalizing an appropriate methodology.
2. Assess the bank's processes used to identify wholesale versus retail deposits across lines of business to ensure the appropriate application of outflow factors and accurate calculation of deposit outflows. Asset management and middle market commercial banking represent key focal points because these lines of business tend to have a mix of wholesale and retail deposits.
3. Assess the bank's processes used to delineate wholesale deposit clients as either "financial sector entities"<sup>63</sup> or "nonfinancial sector entities." Consider the following:
  - Whether management correctly applies the definition of a financial sector entity per definitions provided in the LCR rule.
  - Use of industry designation codes and potential limitations.
4. Assess the bank's rationale for identification of brokered deposits.<sup>64</sup>

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<sup>60</sup> Refer to 12 CFR 50.32.

<sup>61</sup> "Operational deposit" means unsecured wholesale funding or a collateralized deposit that is necessary for the bank to provide operational services as an independent third-party intermediary, agent, or administrator to the wholesale customer or counterparty providing the unsecured wholesale funding or collateralized deposit. To recognize a deposit as an operational deposit for purposes of 12 CFR 50, a bank must comply with the requirements of 12 CFR 50.4(b) with respect to that deposit.

<sup>62</sup> Refer to 12 CFR 50.4.

<sup>63</sup> "Financial sector entity" means an investment adviser, investment company, pension fund, nonregulated fund, regulated financial company, or identified company. Refer to 12 CFR 50.3.

<sup>64</sup> For more information, refer to 12 CFR 303, "Filing Procedures," and 12 CFR 337.6, "Brokered Deposits."

5. Assess the bank's treatment of the following:
  - Aggregation of balances for FDIC insurance coverage including beneficial accounts with multiple owners and multicurrency balances.<sup>65</sup>
  - Methodology for determining the nature of trust accounts and ensuring that appropriate outflow rates are applied.<sup>66</sup>
  - Identification of trust ledger deposit account (TLDA) programs.<sup>67</sup>

**Objective:** To determine the accuracy of the LCR calculation based on the “tailoring rule.”<sup>68</sup>

1. Determine the bank's tailoring category.
2. Determine whether the bank applies appropriate outflow adjustment percentage to denominator for current tailoring category.
3. Review risk factors and thresholds relevant to tailoring category LCR assignment.
4. Assess the bank's processes to monitor its tailoring category.

**Objective:** Determine whether inflow/outflows are appropriately premised on the contractual nature and maturity profile of individual products consistent with LCR requirements.<sup>69</sup>

1. Evaluate the bank's processes for determining the maturity for outflows taking into account the earliest contractual maturity and any option that could accelerate the maturity date.

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<sup>65</sup> A covered bank must only consider the customer's U.S. dollar-denominated deposit amounts in U.S. branches when determining whether the customer's deposit balance is entirely covered by FDIC deposit insurance. A covered bank should not include foreign retail deposits, which are not covered by FDIC deposit insurance.

<sup>66</sup> Applicable outflow rate would be based on the characteristics of the trust. If the trust has a corporate trustee, such as the covered company in this instance, deposits of the trust would be subject to the unsecured wholesale funding outflow rates set forth in 12 CFR 50.32(h) of the LCR rule, and would depend on whether the entire amount of the deposit is covered by deposit insurance and whether the trust is a consolidated subsidiary of a financial sector entity.

<sup>67</sup> In a TLDA, a broker-dealer deposits cash in a bank's trust department consisting of customer funds maintained by the broker-dealer in accordance with U.S. Securities and Exchange Commission Rule 15c3-3. LCR treatment will depend on the relationship of the covered company to the broker-dealer placing the TLDA deposit. If the broker-dealer is not a consolidated subsidiary of the covered company, deposits placed in a TLDA at the covered company would be considered unsecured wholesale funding from a financial sector entity under 12 CFR 50.32(h)(2), or, potentially, as operational deposits under 12 CFR 50.32(h)(3) or (4) for deposits that meet all the requirements of an operational deposit.

<sup>68</sup> For more information, refer to OCC Bulletin 2019-52, “Applicability Thresholds for Regulatory Capital and Liquidity Requirements: Final Rule,” and 84 Fed. Reg. 59032.

<sup>69</sup> Refer to 12 CFR 50.31.



2. Evaluate the bank’s processes for determining the maturity for inflows taking into account the latest possible contractual maturity and any option that could extend the maturity date.

**Objective:** Determine whether net derivatives cash flow projections are calculated in an accurate manner consistent with the LCR requirements.<sup>70</sup>

1. Evaluate the bank’s processes for properly identifying and aggregating derivative netting sets under qualifying master netting agreements.<sup>71</sup>
2. Evaluate the bank’s methodologies for projecting and determining the following:
  - Mark-to-market value of derivatives position and associated cash flows over a 30-day horizon.
  - Collateral composition (e.g., level 1 versus level 2).
  - Largest mark-to-market collateral 30-day lookback period in past 24 months as required by the regulation.
  - Identification of excess collateral and appropriate 100 percent outflow if not excluded from eligible HQLA or from other assets that can be rehypothecated.
  - Amount of contractually required collateral not yet posted to counterparties.
  - Impact of collateral substitution from existing collateral posted from counterparties.

**Objective:** Determine whether management employs sound rationale in the identification and categorization of “credit”<sup>72</sup> and “liquidity”<sup>73</sup> facilities.

1. Assess the bank’s approach for determining whether a letter of credit is a credit or liquidity facility.

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<sup>70</sup> 12 CFR 50.32(c).

<sup>71</sup> 12 CFR 50.4(a).

<sup>72</sup> “Credit facility” means a legally binding agreement to extend funds if requested at a future date, including a general working capital facility such as a revolving credit facility for general corporate or working capital purposes. A credit facility does not include a legally binding written agreement to extend funds at a future date to a counterparty that is made for the purpose of refinancing the debt of the counterparty when it is unable to obtain a primary or anticipated source of funding. Refer to 12 CFR 50.3.

<sup>73</sup> A liquidity facility is a legally binding written agreement to extend funds at a future date made for the purpose of refinancing the debt of the counterparty when it is unable to obtain a primary or anticipated source of funding. If a facility has characteristics of both credit and liquidity facilities (i.e., a liquidity tranche and a credit tranche), the entire facility must be classified as a liquidity facility. A commitment to a counterparty to provide funds in the event that long-term debt cannot be issued to replace maturities could potentially meet the definition of a liquidity facility. However, under 12 CFR 32(e), the undrawn amount of a committed liquidity facility is based on, among other things, the amount that could be drawn upon within 30 days under governing agreements. Thus, if a draw on the facility is not possible within 30 days, an outflow rate would not apply. Refer to 12 CFR 50.3.

2. Assess the bank’s processes for designating credit and liquidity facility clients as either “financial sector entities” or “non-financial sector entities.”
3. Assess the bank’s ability to “look through” a client relationship and determine whether a facility has been extended to a consolidated subsidiary of a financial institution or special purpose entity.<sup>74</sup>

**Objective:** Determine whether management accurately applies net cash flow factors to credit and liquidity facilities respectively consistent with the final rule.

1. Evaluate management’s rationale employed for determining whether specific products are “committed credit facilities.”<sup>75</sup>
2. Determine whether sound rationale and support is provided for treatment of credit facilities whereby management has determined that cash inflows should be recognized.<sup>76</sup>
3. Assess the bank’s identification of public sector entity<sup>77</sup> variable rate demand notes and application of 30 percent outflow.

**Objective:** Determine whether structured transaction net cash outflows are calculated in a manner consistent with the LCR requirements.<sup>78</sup>

1. Evaluate the bank’s treatment of structured transactions for which the bank is a sponsor, but the issuing entity is not consolidated on the bank’s balance sheet per GAAP.
2. Assess the methodology used to determine the maximum contractual amount of funding the bank “may be” required to provide to the issuing entity in 30 days or less.

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<sup>74</sup> “Special purpose entity” means a company organized for a specific purpose, the activities of which are significantly limited to those appropriate to accomplish a specific purpose, and the structure of which is intended to isolate the credit risk of the special purpose entity. Refer to 12 CFR 50.3.

<sup>75</sup> “Committed: means, with respect to a credit facility or liquidity facility, that under the terms of the legally binding written agreement governing the facility: (1) the bank may not refuse to extend credit or funding; or (2) the bank may refuse to extend credit under the facility (to the extent permitted under applicable law) only upon the satisfaction or occurrence of one or more specified conditions not including change in financial condition of the borrower, customary notice, or administrative conditions. Refer to 12 CFR 50.3.

<sup>76</sup> A bank’s inflow amount may include certain payments contractually payable to the bank 30 days or less from the calculation date, as set forth in 12 CFR 50.33; however, the bank’s inflow amount may not include a contractual obligation to repay a facility drawdown that has not occurred as of the calculation date because those repayments are not contractually payable to the bank as of the calculation date.

<sup>77</sup> “Public sector entity” means a state, local authority, or other governmental subdivision below the U.S. sovereign entity level. Refer to 12 CFR 50.3.

<sup>78</sup> Refer to 12 CFR 50.32(b).

**Objective:** Determine whether management has implemented a sufficiently robust/scalable risk reporting infrastructure necessary for LCR calculations.

1. Identify any accounts, products, or portfolios not using daily data, including tracking and remediation.
2. Determine whether any aspect of the bank’s LCR calculation deviates from existing internal stress testing processes, controls, and overall infrastructure.
3. Evaluate data quality controls including
  - level of automation in feeds.
  - level of automation in reconciliations.
  - areas of significant manual adjustment or reconciliation.

**Objective:** Perform data quality testing on a sample of transactions to ensure the accuracy of data from source system of origin through to the final LCR calculation.

1. Consider risk-based methods with focus on areas of manual feeds and/or internal audit findings. Refer to the “Sampling Methodologies” booklet of the *Comptroller’s Handbook* for more information about sampling.

## Net Stable Funding Ratio Examination Procedures

These procedures only apply to banks that are required to compute the NSFR.

Examiners should evaluate the bank’s NSFR compliance by assessing the classification and mapping of assets, liabilities, commitments, and derivative transactions. Review the calculation of ASF amount, calculation of RSF amount, disclosures, and overall controls and governance. In addition, monitor changes in the bank’s balance sheet and funding structure and monitor NSFR volatility by assessing monthly changes in the bank’s funding stability over time.

**Objective:** To determine the accuracy of the bank’s calculation of ASF amount (numerator).

1. Review the numerator to assess appropriateness. Consider the adequacy of
  - policies and procedures to classify and map capital and liabilities. Determine whether policies cover
    - classification and mapping of regulatory capital.
    - classification and mapping of retail deposits and brokered deposits.
    - classification and mapping of unsecured wholesale funding.
    - classification and mapping of secured funding.
    - identification, calculation, and assignment of operational deposits.
  - processes to calculate residual maturity on liabilities with optionality and assignment to appropriate maturity bucket.

- aggregation and calculation of the total available stable funding amount.

**Objective:** To determine the accuracy of the bank's calculation of RSF amount (denominator).

1. Review the denominator to assess appropriateness. Consider the following:

- Policies and procedures to classify and map assets and commitments. Review to see whether policies cover
  - classification and mapping of cash, currency, and reserve balances.
  - classification and mapping of HQLA levels 1, 2A, and 2B.
  - classification and mapping of committed credit and liquidity facilities.
  - classification and mapping of secured lending transactions.
  - classification and mapping of retail mortgages based on risk-weight.
  - classification and mapping of retail lending.
  - classification and mapping of lending to financial sector entity.
  - classification and mapping of lending to nonfinancial wholesale.
- Encumbrance of assets. Determine whether management has
  - identified and monitored encumbered assets.
  - assigned appropriate RSF factors.
- Processes to calculate residual maturity on assets with optionality and assignment to appropriate maturity bucket.
- Aggregation and calculation of the total required stable funding amount.

**Objective:** To determine the accuracy of the bank's calculation of NSFR derivatives amount (denominator).

1. Review derivative exposures to determine the accuracy of the bank's calculation. Consider the following:

- Initial margin posted.
- Type of variation margin posted and received.
- Netting sets.
- Calculation of derivative assets and liabilities pre- and post-variation margin netting.
- Calculation of NSFR derivative asset/liability amount.
- Classification and mapping of derivative amounts to appropriate RSF category.
- Calculation of net derivative asset required stable funding, initial margin required stable funding, and gross derivative liability required stable funding amounts.

**Objective:** To determine the accuracy of the bank's overall NSFR consolidation and calculation.

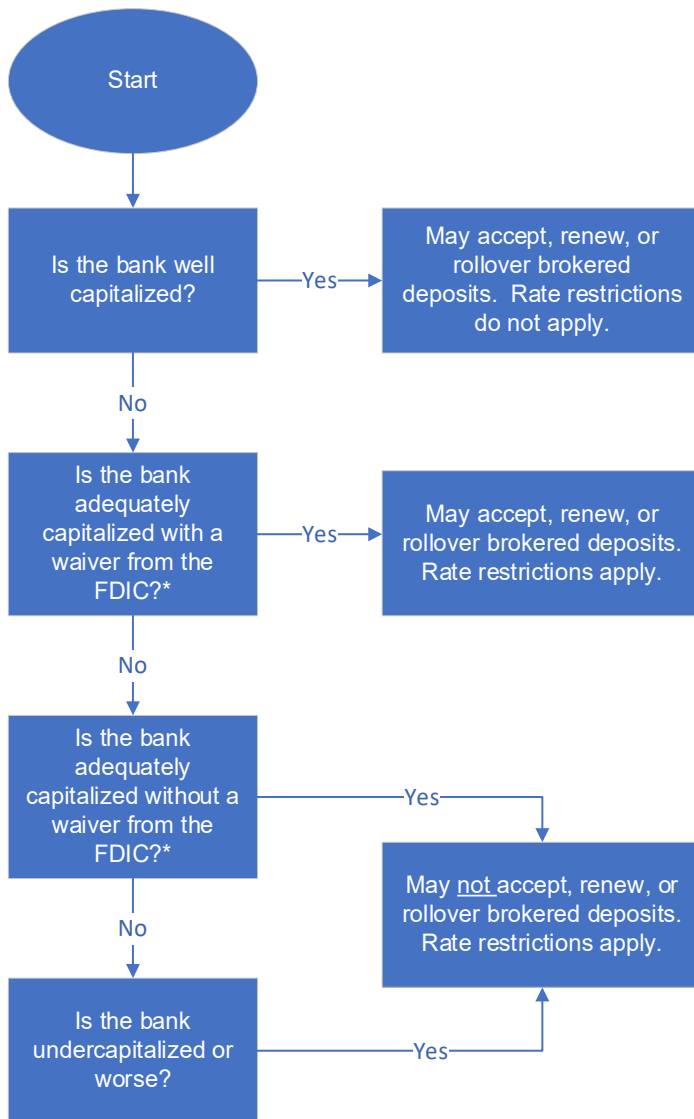
1. Review the bank's NSFR consolidation, including, as applicable, the
- calculation of subsidiary available stable amount.
  - calculation of subsidiary required stable amount.
  - calculation of excess available stable funding and written procedures to identify and monitor restrictions on asset transfers.

2. Assess the adequacy of the bank's systems, data, and processes to calculate the NSFR.
3. Assess the adequacy of the bank's controls, reports, and governance over the NSFR calculation.

# Appendixes

## Appendix A: Brokered Deposit Use and Restrictions (Law: 12 USC 1831f, Regulation: 12 CFR 337.6)

Figure 3: Brokered Deposit Use and Restrictions Flowchart (Figure updated in version 1.2)



\* Includes banks that are reclassified "adequately capitalized" for being subject to a capital maintenance provision with a formal agreement, cease-and-desist order, capital directive, PCA directive, or other formal agreement issued by a federal regulator. A board resolution, memorandum of understanding, individual minimum capital ratio, or other informal agreement does not reclassify a well-capitalized bank.

## Rate Restrictions

When rate restrictions apply, the bank is subject to a national rate cap and a local market rate cap. The national rate cap rate is the higher of (1) the national rate based on weighting deposits rather than branches (including credit unions) plus 75 basis points, or (2) 120 percent of the current yield on similar U.S. Treasury obligations plus 75 basis points. The U.S. Treasury prong provides that, for nonmaturity deposits, the rate used would be the federal funds rate plus 75 basis points. These rates are calculated and posted by the FDIC on a monthly basis.

The local market cap rate is 90 percent of the highest offered rate in the institution's local market geographic area. A less-than-well-capitalized bank may provide evidence that a bank or credit union with a physical presence in its local market offers a rate on a particular deposit product that is in excess of the national cap rate so the bank can offer 90 percent of that rate. Local market area may include state, county, or metropolitan statistical area where the institution accepts or solicits deposits.

## Reciprocal Deposits

Under 12 CFR 337.6(e), reciprocal deposits that do not exceed the lesser of \$5 billion or 20 percent of a bank's liabilities are not considered brokered deposits for a bank that (Updated in version 1.2)

- is well-capitalized and has an “outstanding” or “good” composite rating, or
- is adequately capitalized and has a waiver from the FDIC allowing it to take brokered deposits.

If a bank falls below well-capitalized or a “good” composite rating and does not have an FDIC waiver, reciprocal deposits are not treated as brokered deposits if the amount of reciprocal deposits does not exceed the average amount of reciprocal deposits for the prior four quarters. Other key points in the regulation include the following: (Updated in version 1.2)

- An outstanding or good composite rating.
- A bank can continue to treat as nonbrokered any *time deposits* it received before a downgrade to a composite 3 or adequately capitalized.
- A well-capitalized bank rated 3 or worse *cannot* get a waiver from the FDIC to keep treating reciprocal deposits as nonbrokered, but an adequately capitalized bank can, regardless of its rating.
- De novo banks cannot benefit from this relief until they get their first composite rating.
- At a bank that is not well-capitalized, the interest rate cap (12 USC 1831f(e)) applies to all deposits, even reciprocal deposits.
- FDIC will measure reciprocal deposit amounts as of the call report date.

## Appendix B: Example—Bank Projected Sources and Uses Statement

As of September 30, 20XX, Scenario 1

Primary liquidity position	Prior month (actual)	1st month (projected)	2nd month (projected)	3rd month (projected)	4th month (projected)	5th month (projected)	6th month (projected)
<b>Federal funds position (purchased or sold) (FFP or FFS), excess reserves</b>	<b>10</b>	<b>8</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>(1)</b>	<b>(4)</b>
<b>Sources of funds</b>							
Loans reductions	1	3	5	13	7	8	3
Nonmaturity deposit growth	2	1	1	2	1	0	2
Time deposit growth	1	1	2	0	0	3	2
Borrowing growth	0	0	0	0	0	0	0
Investment maturities	2	2	3	2	0	0	4
Change in equity	0	0	0	1	0	0	1
Other (including off-balance-sheet)	0	0	0	0	0	0	0
<b>A. Total sources of funds</b>	<b>16</b>	<b>15</b>	<b>16</b>	<b>22</b>	<b>10</b>	<b>10</b>	<b>8</b>
<b>Uses of funds</b>							
Loan growth/funded commitments	2	3	6	14	9	10	5
Nonmaturity deposit reductions	1	2	0	1	1	0	0
Time deposit reduction	2	1	1	0	0	1	1
Brokered CDs maturing	1	0	1	2	0	0	0
Investment purchases	2	2	2	3	0	1	3
Borrowing reduction	0	2	2	0	1	2	0
Other (including off-balance-sheet)	0	0	0	0	0	0	0
<b>B. Total uses of funds</b>	<b>8</b>	<b>10</b>	<b>12</b>	<b>20</b>	<b>11</b>	<b>14</b>	<b>9</b>
<b>C. Projected cash flow* (A – B)</b>	<b>8</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>(1)</b>	<b>(4)</b>	<b>(1)</b>
<b>LCR (B / C)</b>	<b>2.00</b>	<b>1.50</b>	<b>1.33</b>	<b>1.10</b>	<b>0.91</b>	<b>0.71</b>	<b>0.89</b>

Note: Table updated in version 1.2 to revise column headings and to revise the label for federal funds position in row 1.



<b>Secondary liquidity position</b>	<b>Prior month (actual)</b>	<b>1st month (projected)</b>	<b>2nd month (projected)</b>	<b>3rd month (projected)</b>	<b>4th month (projected)</b>	<b>5th month (projected)</b>	<b>6th month (projected)</b>
Unpledged investments	30	30	30	30	30	30	30
(Available for repo/FHLB advance collateral)							
Unsecured federal funds lines	5	5	5	5	5	5	5
Brokered CD subject to policy limits	10	10	11	12	12	12	12
FHLB and other borrowing lines	20	20	20	20	20	20	20
Loans available to securitize/sell	10	10	10	10	10	10	10
<b>D. Total secondary sources</b>	<b>75</b>	<b>75</b>	<b>76</b>	<b>77</b>	<b>77</b>	<b>77</b>	<b>77</b>
<b>Capacity coverage ratio (C / D) (secondary sources to projected negative cash flow)</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>77</b>	<b>19</b>	<b>77</b>
<b>Total liquidity before Fed discount window borrowing (C + D)</b>	<b>83</b>	<b>80</b>	<b>80</b>	<b>79</b>	<b>76</b>	<b>73</b>	<b>76</b>
<b>Policy limit**</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>
<b>Within policy limits</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>

Note 1: Table updated in version 1.2 to revise column headings and to add numbers to the table notes.

Note 2: This is a simple example. Banks should tailor the format, level of detail, scenarios, and time periods to best meet their needs. Multiple scenarios may be generated for projected business strategies, rate environments, local and national economic conditions, or cash flow uncertainties.

\* This report assumes that monthly projected cash flows roll into FFS or are funded by FFP.

\*\* Policy limits should be tailored to the nature and extent of the bank’s liquidity risk exposure (e.g., volatile funding dependence, acceptable coverage of potential volatile funding, available capacity to projected cash flow). Examples of volatile funding may include brokered deposits, borrowing lines, and uninsured deposits.

## Appendix C: Example—Bank Liquidity Gap Report—Assets

**12 Months Projected as of September 30, 20XX**

Balance sheet	Beg B/S	Overnight	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	0–12 months	> 12 months
<b>FFS, excess reserves</b>	<b>10</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>0</b>
Investment portfolio																
MBS	20	0	0	1	1	0	0	1	0	1	1	0	0	0	5	15
Agency callable	10	0	0	1	0	0	0	0	1	0	2	0	0	0	4	6
CMOs	5	0	1	0	0	0	0	0	1	0	0	0	0	0	2	3
Corporate fixed	5	0	0	0	0	0	0	1	0	0	0	0	0	0	1	4
Municipal bonds fixed	10	0	0	0	1	0	0	1	0	0	0	0	0	1	3	7
<b>Investment portfolio total</b>	<b>60</b>	<b>10</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>25</b>	<b>35</b>
Loan portfolio																
C&I	30	0	1	2	2	2	2	2	2	0	0	0	2	1	16	14
Commercial mortgage	40	0	1	1	1	2	2	1	0	0	0	3	1	1	13	27
Credit card loans	10	0	0	0	10	0	0	0	0	0	0	0	0	0	10	0
Residential	40	0	1	1	1	2	3	0	1	1	1	2	1	0	14	26
Home equity loans	20	0	0	0	3	0	0	1	0	0	1	0	0	0	5	15
<b>Loan portfolio total</b>	<b>140</b>	<b>0</b>	<b>3</b>	<b>4</b>	<b>17</b>	<b>6</b>	<b>7</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>58</b>	<b>82</b>
<b>Total assets</b>	<b>200</b>	<b>10</b>	<b>4</b>	<b>6</b>	<b>19</b>	<b>6</b>	<b>7</b>	<b>7</b>	<b>5</b>	<b>2</b>	<b>5</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>83</b>	<b>117</b>

Note 1: Table updated in version 1.2 to reposition the word “Assets” into the main heading for this page, to revise the label for FFS in row 1, and to add numbers to the table notes.

Note 2: B/S stands for balance sheet. CMO stands for collateralized mortgage obligation. C&I stands for commercial and industrial.

### 12 Months Projected as of September 30, 20XX—Liabilities

Balance sheet	Beg B/S	Overnight	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	0–12 months	> 12 months
Retail funding																
DDA	30	0	1	1	1	0	0	1	0	0	1	0	0	1	6	24
MMDA	40	5	0	0	17	0	0	0	0	0	0	0	0	0	22	18
NOW	20	0	2	1	2	0	0	2	0	0	2	0	0	2	11	9
CDs	40	0	2	2	1	3	3	0	1	2	3	1	3	1	22	18
Savings	20	0	1	1	1	0	0	0	0	0	1	1	1	0	6	14
<b>Retail funding total</b>	<b>150</b>	<b>5</b>	<b>6</b>	<b>5</b>	<b>22</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>7</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>67</b>	<b>83</b>
Wholesale funding																
Federal funds purchased/overnight advances	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Term advance	20	0	0	5	0	0	0	0	0	0	5	0	0	0	10	10
<b>Wholesale funding total</b>	<b>30</b>	<b>10</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>10</b>
Total liabilities	180	25	6	10	22	3	3	3	1	2	17	2	4	4	30	150
Equity	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
<b>Total liabilities &amp; equity</b>	<b>200</b>	<b>25</b>	<b>6</b>	<b>10</b>	<b>22</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>17</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>97</b>	<b>103</b>
<b>Net period gap (deficit)</b>	<b>(15)</b>	<b>(2)</b>	<b>(4)</b>	<b>(3)</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>(12)</b>	<b>3</b>	<b>0</b>	<b>(1)</b>			
<b>Liquidity gap % assets</b>	<b>(0.08)</b>	<b>(0.20)</b>	<b>(1.00)</b>	<b>(0.50)</b>	<b>0.16</b>	<b>0.67</b>	<b>0.57</b>	<b>0.57</b>	<b>0.00</b>	<b>(6.00)</b>	<b>0.60</b>	<b>0.00</b>	<b>(0.25)</b>			
<b>Cumulative gap</b>	<b>(15)</b>	<b>(17)</b>	<b>(21)</b>	<b>(24)</b>	<b>(21)</b>	<b>(17)</b>	<b>(13)</b>	<b>(9)</b>	<b>(9)</b>	<b>(21)</b>	<b>(18)</b>	<b>(18)</b>	<b>(19)</b>			
<b>Cumulative liquidity gap % assets</b>	<b>-7.5%</b>	<b>-8.5%</b>	<b>-10.5%</b>	<b>-12.0%</b>	<b>-10.5%</b>	<b>-8.5%</b>	<b>-6.5%</b>	<b>-4.5%</b>	<b>-4.5%</b>	<b>-10.5%</b>	<b>-9.0%</b>	<b>-9.0%</b>	<b>-9.5%</b>			
<b>Policy limit</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>		
<b>Policy limit compliance</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>		

Note 1: Table updated in version 1.2 to reposition the word “Liabilities” into the main heading for this page and to add numbers to the table notes.

Note 2: This is a simple example. Banks should tailor the format, level of account detail, scenarios, and extent of time periods included to best meet their needs.

- This report reflects maturities and expected nonmaturity deposit run-off.
- To improve accuracy, banks should adjust cash flows for repayment and prepayments and nonmaturity behavioral assumptions.
- This report should NOT reflect asset and liability repricing.

Note 3: DDA stands for demand deposit account. MMDA stands for money market demand account. NOW stands for negotiable order of withdrawal.

## Appendix D: Examples of Liquidity Stress Events, Triggers, and Monitoring Items or Reports

<b>Stress event</b>	<b>Warning trigger(s)</b>	<b>Possible monitoring items or reports</b>
Actual or threatened watch or downgrade to an external credit rating	Rating agency credit watch for potential downgrades; widening credit spreads; rapid decline in stock price	Market watch or rating agency reports; credit spreads stock performance
Actual or anticipated changes in senior or short-term debt ratings	Rating agency downgrades; widening credit spreads; rapid decline in stock price	Debt spreads; stock performance
Significant asset quality deterioration	Deteriorating trend in loan performance; classified loans, nonperforming; and past-due loans	Problem loan trends report; volume and trends in loan sales
Decline in the bank's composite CAMELS rating	Decline in one or more component rating; adverse financial or operational performance; noncompliance with law or regulation	Reports of Examination; violations of law or regulation; trends in matters requiring attention; risk assessments
A change in PCA capital category (Updated in version 1.2)	Decline in regulatory capital levels (Updated in version 1.2)	Capital adequacy report; bank growth; earnings performance
High and consistent operating losses	Significant decline in earnings performance	Overhead trends report; margin and profitability trends
Negative news coverage or public cybersecurity event	Internal issues that could lead to negative news coverage; external cybersecurity event that could lead to negative news coverage; market rumors or concerns that customers have discussed with staff	Local and regional press releases or news articles; consumer advocacy attention or complaints
Rising reputation risks	Increasing compliance or operational risk; violations of law that could result in penalties, fines, or reimbursement	Compliance audit reports; customer complaints file; consumer advocacy attention or complaints; subpoenas
Adverse changes in the costs of significant funding vehicles	Over-reliance on or concentration in traditionally high-cost funding; significant increases in funding costs	Funding source concentration report; funding capacity reports by funding type; trends in cost of funds by type
Inability to access long-term debt	Difficulty in obtaining long-term debt; widening spreads; increased collateral requirements	Reports on alternative funding sources of incremental liquidity, including standby emergency sources; credit spreads; liquid assets to pledged assets report
Loss of name acceptance in the credit markets	Reluctance of broker-dealers to show the bank's name in the market	Market watch or rating agency reports; credit spreads; stock performance
Deposit run; rapid redemption of CDs	Increased early redemption of jumbo CDs; significant declines in overall deposits	CD breakage or early redemption report; cash flow projections and run-off reports; vault cash management reports

<b>Stress event</b>	<b>Warning trigger(s)</b>	<b>Possible monitoring items or reports</b>
Inability to access funding lines	Elimination of committed credit lines by counterparties	Collateral management reports; credit spreads; daylight overdrafts and wire transfer activity reports
Inability to securitize assets	Additional or more stringent requirements for securitization documentation or debt issuance; counterparty resistance of off-balance-sheet products or increased margin requirements	Put back or exception reports; securitization performance reports; underwriting standards
Inability to sell assets	Increasing spreads on assets; deterioration in asset market values	Asset spreads; pricing trend analysis; asset impairment reports
Public funds withdrawn; Fed funds or FHLB lines frozen	Reluctance of trust managers, money managers, public entities, and credit-sensitive funds providers to place funds	Contingent funding availability reports; deposit trends; pledging and safekeeping reports
Significant uncontrolled growth outstripping capital and funding	Rapid growth or acquisition; increasing line draws or usage by large local or regional company	Budget variance, operating plan, strategic plan; loan growth analysis by sector, office, officer, or industry; unfunded commitments or draw schedule

Note: This is not a comprehensive list. Liquidity stress events, triggers, and monitoring items and reports should be developed that best reflect a bank's funding activities and structure. In addition to a bank's specific stress events, the bank should identify potential external events that could create a liquidity crisis, including natural disasters and the effect of severe payment systems and capital markets disruption. (Footnote updated in version 1.2)

## Appendix E: Example—Bank Liquidity Contingency Funding Scenarios

**Time Period: Three Months as of September 30, 20XX**

Primary liquidity position	Actual	Moderate	Severe	Crisis	Comments on assumptions
<b>Federal funds (purchased or sold), excess reserves</b>	<b>10</b>	<b>1</b>	<b>14</b>	<b>10</b>	
<b>Sources of funds</b>					
Loans reductions	1	0	0	0	Deterioration in local or national economic conditions
Nonmaturity deposit growth	2	5	2	0	Accelerated gathering until bank's condition affects efforts
Time deposit growth	1	10	0	0	Accelerated gathering until bank's condition affects efforts
Borrowing growth	0	5	20	5	Increased securitized borrowings as conditions deteriorate
Investment maturities	2	2	2	2	
Change in equity	0	-1	-2	-10	Impact of increasing funding costs and deteriorating earnings performance
Other sources (including off-balance-sheet)	0	0	0	0	
<b>A. Total sources of funds</b>	<b>16</b>	<b>22</b>	<b>36</b>	<b>7</b>	
<b>Uses of funds</b>					
Loan growth	2	2	1	0	Loan fundings decline as financial condition or ability to fund deteriorates
Nonmaturity deposit reductions	1	1	2	2	Normal and customary; reaction to stress scenarios captured in "Additional Funding Requirements"
Time deposit reduction	2	2	3	3	Normal maturity of insured CDs
Brokered CDs maturing	1	1	1	1	Normal maturity of brokered CDs
Investment increases	2	0	0	0	Inability to acquire new assets
Borrowing reduction	0	0	0	0	Possible bank negotiations with counterparties to alter terms or lengthen advances
Other	0	0	0	0	
<b>B. Total uses of funds</b>	<b>8</b>	<b>6</b>	<b>7</b>	<b>6</b>	
<b>C. Federal funds (period end) (A – B)</b>	<b>8</b>	<b>16</b>	<b>29</b>	<b>1</b>	Initial build-up of liquidity, then resulting decline as scenario worsens

Note: Table updated in version 1.2 to revise the label for federal funds in row 1.

Secondary liquidity position	Actual	Moderate	Severe	Crisis	Comments on assumptions
<b>Additional funding requirements</b>					
Reduction in DDA, NOW, MMDA, savings	0	3	10	20	Retail customer desire to withdraw funds because of deteriorating financial condition or negative press
Reduction in gov't. NOW	0	2	4	5	Municipalities unwillingness to place funds or lack of collateral
Reduction in time	0	3	10	20	Customer concern with bank condition
Reduction in repos, TT&L	0	2	10	15	Customer or counterparty concern with bank condition
<b>D. Total contingent uses</b>	<b>0</b>	<b>10</b>	<b>34</b>	<b>60</b>	
<b>Additional funding sources</b>					
Unpledged investments	30	30	20	5	Sale or repo activity
Unsecured federal funds lines	5	5	0	0	Initial build-up, then inability to attract unsecured funds
Brokered CDs potential within policy and regulatory parameters	10	10	10	0	PCA restriction on brokered deposits
FHLB and other borrowing lines	20	20	10	0	Reflect loss of collateral, increased haircuts, and elimination or freezing of lines
Loans available to securitize or sell	20	20	15	0	Initial funding source, then lack of secondary market acceptance
<b>E. Total secondary sources</b>	<b>85</b>	<b>85</b>	<b>55</b>	<b>5</b>	Refer to note 3 of this table.
					Refer to note 3 of this table.
<b>Total liquidity before Fed discount window borrowing (C – D + E)</b>	<b>93</b>	<b>91</b>	<b>50</b>	<b>-54</b>	Refer to note 3 of this table.
					Refer to note 3 of this table.
<b>Policy target *</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	Refer to note 3 of this table.
<b>Within policy parameters</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	Refer to note 3 of this table.

Note 1: Table updated in version 1.2 to add numbers to the table notes and to add note 3 to the table.

Note 2: This is a simple example. Banks should tailor the format, level of account detail, scenarios, and extent of time periods included to best meet their needs.

Note 3: Determine access to federal window depending on establishment of line, primary or secondary program status, daylight overdraft status, and extent of pledgeable assets.

- Establish and tailor policy limit(s) based upon liquidity risk exposure.
- Board of directors and senior management should develop strategy to address out-of-policy situation.

Note 4: TT&L stands for Treasury Tax and Loan.

\* Contingency scenarios and policy parameters should be developed and customized to reflect the bank's liquidity risk exposure. Scenarios should reflect continuing deteriorating liquidity position and employ meaningful assumptions regarding potential fund outflows.

## Appendix F: Deteriorating or Declining GAAP Tangible Capital Implications on Bank Liquidity Risk

(Section added in version 1.2)

Certain funds providers or counterparties may use GAAP tangible capital measures to assess bank condition and determine acceptable risk exposures. Funds providers may be subject to statutory minimum GAAP tangible capital measures requirements, covenants, or restrictions that dictate their ability to continue business relationships, particularly if GAAP tangible capital measures become negative. Sound practices typically include maintaining awareness of the implications of deteriorating GAAP tangible capital measures and incorporating the impact into normal and stressed liquidity scenario analyses to effectively identify, measure, monitor, and control any related liquidity risks.

The capital rule provided non-advanced approaches banks (below category II) a one-time irrevocable option to exclude certain components of accumulated other comprehensive income when determining their regulatory capital calculations. Most non-advanced approaches banks have elected the accumulated other comprehensive income opt-out. Due to this election, the banks that are experiencing market value declines in their available-for-sale investment portfolios have maintained regulatory capital ratios materially above regulatory minimums even as tangible capital deteriorates or becomes negative.

Provider/entity	Impact	Citations
FHLBs	<ul style="list-style-type: none"> <li>• New advances are prohibited unless the bank's primary regulator or the FDIC formally requests an FHLB to provide new or existing advances beyond 30 days.</li> <li>• Existing advances may be continually renewed for 30-day tenors.</li> <li>• FHLBs will not issue new standby letters of credits for banks with negative GAAP tangible capital as restricted by regulation.</li> <li>• Banks may collateralize public deposits with standby letters of credit with FHLBs. Affected banks may find an alternative method to collateralize public deposits.</li> </ul>	Refer to Federal Housing Finance Agency regulation 12 CFR 1266, subpart A.
State and municipal depositors	<ul style="list-style-type: none"> <li>• Depositors may use GAAP tangible capital to determine if banks can accept deposits either individually or through pooled vehicles.</li> </ul>	Refer to individual state requirements.
Other credit-sensitive deposit providers (such as large and uninsured depositors, deposit brokers, listing services, and securities brokerage sweeps)	<ul style="list-style-type: none"> <li>• Deposit providers may rely on GAAP tangible capital to provide funds or perform eligibility calculations.</li> <li>• Certain broker-dealers are subject to U.S. Securities and Exchange Commission (SEC) rule 15c3-3, which determines the minimum amount of customer assets that broker-dealers</li> </ul>	Refer to SEC's 17 CFR 240.15c3(e)(5): "In determining whether a broker or dealer maintains the minimum deposits required under this section, the broker or dealer must exclude the total amount of any cash deposited with an affiliated bank. The broker or dealer also must



	<p>must safeguard in segregated accounts. Any cash deposited in a bank with negative GAAP tangible capital does not count toward that requirement and is subject to flight.</p> <ul style="list-style-type: none"> <li>• Broker-dealers may use the Texas ratio to determine bank program eligibility. The ratio uses GAAP tangible equity in the denominator.</li> </ul>	<p>exclude cash deposited with a non-affiliated bank to the extent that the amount of the deposit exceeds 15 percent of the bank's equity capital as reported by the bank in its most recent Call Report or any successor form the bank is required to file by its appropriate Federal banking agency (as defined by section 3 of the Federal Deposit Insurance Act (12 USC 1813)."</p>
Bank fiduciary	<ul style="list-style-type: none"> <li>• Banks are authorized to deposit funds of a fiduciary account that are awaiting investment or distribution in the bank or affiliated bank, unless prohibited by applicable law.</li> <li>• Banks set aside collateral as security, under the control of fiduciary officers and employees to the extent that the funds are not insured by the FDIC.</li> </ul>	<p>Refer to 12 CFR 9.10 and OCC Bulletin 2010-37, "Fiduciary Activities of National Banks: Self-Deposit of Fiduciary Funds."</p>
Correspondent banks	<ul style="list-style-type: none"> <li>• Banks may use GAAP tangible capital in making decisions to advance funds or provide a line of credit to an institution.</li> </ul>	
Derivatives counterparties	<ul style="list-style-type: none"> <li>• Counterparties may use GAAP tangible capital in determining counterparty acceptability and internal margin requirements. Regulatory margin requirements do not depend on GAAP tangible capital.</li> </ul>	
GSEs, such as Federal National Mortgage Association, Federal Home Loan Mortgage Corporation, Government National Mortgage Association	<ul style="list-style-type: none"> <li>• A bank's ability to sell or service mortgages is restricted by policy eligibility requirements is restricted by policy eligibility requirements. The GSEs have seller/servicer eligibility requirements that include minimum tangible net worth measures that rely on GAAP tangible capital.</li> <li>• A bank's ability to hold custodial deposits related to loan servicing may be affected by negative GAAP tangible capital.</li> <li>• The eligibility requirements do allow the GSEs to make exceptions. Alternatively, banks could consider selling mortgages to their correspondent banks, but servicing would need to be moved.</li> </ul>	<p>Refer to Fannie Mae's "Selling Guide: Fannie Mae Single Family" (October 5, 2022); Fannie Mae's Servicing Guide, section A4 1 02, "Establishing Custodial Bank Accounts" (April 12, 2017); Freddie Mac's Bulletin 2022-19, "Seller/Servicer Financial Eligibility Requirements" (September 21, 2022); Freddie Mac's "Single-Family Seller Service Guide," section 8302; and Ginnie Mae's "Mortgage-Backed Securities (MSB) Guide."</p> <p>Refer to the Federal Housing Finance Agency's 12 CFR 1266, subpart A.</p>
Bank- or bank holding company-issued debt providers	<ul style="list-style-type: none"> <li>• Debt providers may have provisions that link GAAP tangible capital measures. Such provisions may trigger debt payment acceleration or other actions if the GAAP tangible capital measure falls below certain thresholds. Such provisions are likely, however, to</li> </ul>	<p>Refer to tier 2 eligibility requirements at 12 CFR 3.20(d)(1)(vi): "The holder of the instrument must have no contractual right to accelerate payment of principal or interest on the instrument, except in the event of a receivership, insolvency, liquidation, or similar proceeding</p>

	make the debt instrument ineligible to qualify as tier 2 capital.	of the national bank or Federal savings association.”
Credit rating agencies	<ul style="list-style-type: none"> <li>Debt rating considerations may be a factor in GAAP tangible capital measures.</li> </ul>	
Bank merger and acquisition opportunities	<ul style="list-style-type: none"> <li>Merger and acquisition opportunities may be directly or indirectly affected by deteriorating or negative GAAP tangible capital.</li> </ul>	

## Appendix G: Example—Problem Bank—Balance Sheet Trend Report

September 30, 20XX

Time horizon	Period -5	Period -4	Period -3	Period -2	Period -1	Current period	Period +1	Period +2	Period +3	Period +4	Period +5
Cash and due from, excess reserves	0	0	0	0	0	0	0	0	0	0	0
FFS	0	0	0	0	0	0	0	0	0	0	0
Securities	0	0	0	0	0	0	0	0	0	0	0
Loans	0	0	0	0	0	0	0	0	0	0	0
ACL	0	0	0	0	0	0	0	0	0	0	0
Other assets (detail)	0	0	0	0	0	0	0	0	0	0	0
<b>Total assets</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
DDAs	0	0	0	0	0	0	0	0	0	0	0
MMDAs/NOW	0	0	0	0	0	0	0	0	0	0	0
Savings	0	0	0	0	0	0	0	0	0	0	0
CDs	0	0	0	0	0	0	0	0	0	0	0
Other (detail)	0	0	0	0	0	0	0	0	0	0	0
<b>Total deposits</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FFPs & repos	0	0	0	0	0	0	0	0	0	0	0
FHLB	0	0	0	0	0	0	0	0	0	0	0
Other (detail)	0	0	0	0	0	0	0	0	0	0	0
<b>Total other liabilities</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total liabilities</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### Comments and assumptions:

Note 1: Table updated in version 1.2 to reposition the words "Balance Sheet" into the main heading for this page and to add numbers to the table notes.

Note 2: ACL stands for allowance for credit losses.

## Appendix H: Example—Problem Bank—Summary of Available Liquidity Report

September 30, 20XX

Time horizon	Period -5	Period -4	Period -3	Period -2	Period -1	Current period	Period +1	Period +2	Period +3	Period +4	Period +5
Cash and due from (net of operating requirements), excess reserves	0	0	0	0	0	0	0	0	0	0	0
FFS	0	0	0	0	0	0	0	0	0	0	0
Repos (sold)	0	0	0	0	0	0	0	0	0	0	0
FHLB line (fully secured)	0	0	0	0	0	0	0	0	0	0	0
Less: outstanding	0	0	0	0	0	0	0	0	0	0	0
Other borrowing lines (fully secured)	0	0	0	0	0	0	0	0	0	0	0
Less: outstanding	0	0	0	0	0	0	0	0	0	0	0
Available securities (market value)	0	0	0	0	0	0	0	0	0	0	0
Other (detail)	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Less:	0	0	0	0	0	0	0	0	0	0	0
Reserve requirement	0	0	0	0	0	0	0	0	0	0	0
TT&L	0	0	0	0	0	0	0	0	0	0	0
Minimum balance requirements	0	0	0	0	0	0	0	0	0	0	0
Other (detail)	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total available liquidity</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Comments and assumptions:**

Note: Table updated in version 1.2 to reposition the words “Summary of Available Liquidity” into the main heading for this page.

## Example—Problem Bank—Summary of Sensitive Funding

September 30, 20XX

Time horizon	Period -5	Period -4	Period -3	Period -2	Period -1	Current period	Period +1	Period +2	Period +3	Period +4	Period +5
CDs > \$250,000	0	0	0	0	0	0	0	0	0	0	0
DDAs > \$250,000	0	0	0	0	0	0	0	0	0	0	0
Savings > \$250,000	0	0	0	0	0	0	0	0	0	0	0
MMDAs > \$250,000	0	0	0	0	0	0	0	0	0	0	0
Other sensitive depositors (detail)	0	0	0	0	0	0	0	0	0	0	0
Brokered deposits	0	0	0	0	0	0	0	0	0	0	0
Deposits gathered via listing service	0	0	0	0	0	0	0	0	0	0	0
Public funds (secured)	0	0	0	0	0	0	0	0	0	0	0
Public funds (unsecured)	0	0	0	0	0	0	0	0	0	0	0
Other large depositors (> x% of total deposits)	0	0	0	0	0	0	0	0	0	0	0
Other uninsured deposits (> x% of total deposits)	0	0	0	0	0	0	0	0	0	0	0
Other sensitive funds providers (detail)	0	0	0	0	0	0	0	0	0	0	0
<b>Total sensitive funding</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Available liquidity as a % of deposits	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Available liquidity as a % of sensitive funding	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Available liquidity as a % of total liabilities	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

**Comments and assumptions:**

Note 1: Table updated in version 1.2 to reposition the words “Sensitive Funding” into the main heading for this page and to add numbers to the table notes.

Note 2: Table updated in version 1.2 to remove IntraFi in the brokered deposits row.

## Appendix I: Example—Problem Bank—Cash Flow Trend Report

September 30, 20XX, Reported in (000s)

### Sources of Funds From Operations

Time horizon	Period -5	Period -4	Period -3	Period -2	Period -1	Current period	Period +1	Period +2	Period +3	Period +4	Period +5
Loan collections (P&I)	0	0	0	0	0	0	0	0	0	0	0
Loan sale activities	0	0	0	0	0	0	0	0	0	0	0
Investment collections (P&I)	0	0	0	0	0	0	0	0	0	0	0
Investment/asset sales	0	0	0	0	0	0	0	0	0	0	0
Other operating source of funds	0	0	0	0	0	0	0	0	0	0	0

### Use of Funds From Operations

Loan originations	0	0	0	0	0	0	0	0	0	0	0
Investment/asset purchases	0	0	0	0	0	0	0	0	0	0	0
Operating and interest expense	0	0	0	0	0	0	0	0	0	0	0
Other operating use of funds	0	0	0	0	0	0	0	0	0	0	0
Wire transfer activity (not reported elsewhere)	0	0	0	0	0	0	0	0	0	0	0
<b>Total net cash flow from operations</b>	0	0	0	0	0	0	0	0	0	0	0

### Net Deposit Activity

Net change in demand deposits											
Net change in brokered deposits											
Brokered deposit maturities											
<b>Net deposit activity</b>											
<b>Net operations and deposit funds</b>											

### Comments and assumptions:

Note 1: Table updated in version 1.2 to reposition the words "Sources of Funds From Operations," "Use of Funds From Operations," and "Net Deposit Activity" above the three tables on this page and to add numbers to the table notes.

Note 2: P&I stands for principal and interest.

## September 30, 20XX, Reported in (000s)

### Borrowing Maturities

Time horizon	Period -5	Period -4	Period -3	Period -2	Period -1	Current period	Period +1	Period +2	Period +3	Period +4	Period +5
Federal funds purchased maturities	0	0	0	0	0	0	0	0	0	0	0
Repurchase agreement maturities	0	0	0	0	0	0	0	0	0	0	0
FHLB borrowing maturities	0	0	0	0	0	0	0	0	0	0	0
FRB discount window maturities	0	0	0	0	0	0	0	0	0	0	0
Other borrowing maturities	0	0	0	0	0	0	0	0	0	0	0
<b>Total borrowing maturities</b>	0	0	0	0	0	0	0	0	0	0	0
<b>Cash needed from financing activities</b>	0	0	0	0	0	0	0	0	0	0	0

### Estimated Borrowing Capacity

Available balances from federal funds	0	0	0	0	0	0	0	0	0	0	0
Lines of credit	0	0	0	0	0	0	0	0	0	0	0
Brokered CDs	0	0	0	0	0	0	0	0	0	0	0
Available repurchase agreement capacity	0	0	0	0	0	0	0	0	0	0	0
Available FHLB capacity	0	0	0	0	0	0	0	0	0	0	0
Available FRB discount window capacity	0	0	0	0	0	0	0	0	0	0	0
<b>Total estimated borrowing capacity</b>	0	0	0	0	0	0	0	0	0	0	0
<b>Total change in cash</b>	0	0	0	0	0	0	0	0	0	0	0
<b>Beginning cash</b>	0	0	0	0	0	0	0	0	0	0	0
<b>Ending cash</b>	0	0	0	0	0	0	0	0	0	0	0
<b>Other unencumbered, readily marketable assets</b>	0	0	0	0	0	0	0	0	0	0	0

### Comments and assumptions:

Note: Table updated in version 1.2 to reposition the words "Borrowing Maturities" and "Estimated Borrowing Capacity" above the two tables on this page.

## Appendix J: Abbreviations

(Section updated in version 1.2)

ACL	allowance for credit losses
ALCO	asset/liability committee
ASF	available stable funding
B/S	balance sheet
BCBS	Basel Committee on Banking Supervision
BSA	Bank Secrecy Act
CAMELS	capital adequacy, asset quality, management, earnings, liquidity, and sensitivity to market risk
C&I	commercial and industrial
CD	certificate of deposit
CFP	contingency funding plan
CFR	Code of Federal Regulations
CMO	collateralized mortgage obligation
CSA	covered savings association
DDA	demand deposit account
EIC	examiner-in-charge
FDIC	Federal Deposit Insurance Corporation
FFIEC	Federal Financial Institutions Examination Council
FFP	federal funds purchased
FFS	federal funds sold
FHLB	Federal Home Loan Bank
FRB	Federal Reserve Bank
GAAP	generally accepted accounting principles
GSE	government-sponsored enterprise
HQLA	high-quality liquid asset
IORB	Interest On Reserve Balances
IRR	interest rate risk
LCR	liquidity coverage ratio
MBS	mortgage-backed security
MIS	management information system
MMDA	money market demand account
MSR	mortgage servicing rights
NOW	negotiable order of withdrawal
NSFR	net stable funding ratio
OCC	Office of the Comptroller of the Currency
P&I	principal and interest
PCA	prompt corrective action
RSF	required stable funding
STWF	short-term wholesale funding
TLDA	trust ledger deposit account
TT&L	Treasury Tax and Loan
USC	U.S. Code



## References

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Listed references apply to national banks and federal savings associations unless otherwise noted.

### Laws

- 12 USC 56, “Prohibition on Withdrawal of Capital; Unearned Dividends” (national banks)
- 12 USC 60, “National Bank Dividends” (national banks)
- 12 USC 371c, “Banking Affiliates”
- 12 USC 1831f, “Brokered Deposits”

### Regulations

- 12 CFR 5.55, “Capital Distributions by Federal Savings Associations” (federal savings associations)
- 12 CFR 5, subpart E, “Payment of Dividends by National Banks” (national banks)
- 12 CFR 6, “Prompt Corrective Action”
- 12 CFR 9.10, “Fiduciary Funds Awaiting Investment or Distribution” (national banks)  
(Updated in version 1.2)
- 12 CFR 21.21, “Procedures for Monitoring Bank Secrecy Act (BSA) Compliance”
- 12 CFR 50 et seq., “Liquidity Risk Measurement Standards”
- 12 CFR 101, “Covered Savings Associations” (federal savings associations)
- 12 CFR 150.290–320, “Funds Awaiting Investment or Distribution” (federal savings associations)
- 12 CFR 206, “Limitations on Interbank Liabilities (Regulation F)”
- 12 CFR 303, “Filing Procedures”
- 12 CFR 337.6, “Brokered Deposits”
- 12 CFR 337.7, “Interest Rate Restrictions” (Added in version 1.2)
- 31 CFR Chapter X, “Financial Crimes Enforcement Network, Department of the Treasury”

### FFIEC

- Instructions for Preparation of Consolidated Reports of Condition and Income  
(FFIEC 031 and 041) (Added in version 1.2)

### Comptroller’s Handbook

- “Asset Securitization” (national banks)
- “Bank Supervision Process”
- “Community Bank Supervision”
- Consumer Compliance* series
- “Corporate and Risk Governance”
- “Federal Branches and Agencies Supervision”
- “Large Bank Supervision”

“Sampling Methodologies”

## **Office of Thrift Supervision Examination Handbook**

Section 221, “Asset-Backed Securitization” (federal savings associations)

### **Issuances**

(Section updated in version 1.2)

OCC Bulletin 2003-36, “Liquidity Risk Management: Interagency Advisory on the Use of the Federal Reserve’s Primary Credit Program in Effective Liquidity Management”

OCC Bulletin 2007-21, “Supervision of National Trust Banks: Revised Guidance: Capital and Liquidity”

OCC Bulletin 2010-13, “Liquidity: Final Interagency Policy Statement on Funding and Liquidity Risk Management”

OCC Bulletin 2010-16, “Concentrations: Final Guidance: Interagency Guidance on Correspondent Concentration Risks”

OCC Bulletin 2010-37, “Fiduciary Activities of National Banks: Self-Deposit of Fiduciary Funds”

OCC Bulletin 2016-7, “Funds Transfer Pricing: Interagency Guidance”

OCC Bulletin 2017-44, “Liquidity Coverage Ratio: Interagency Frequently Asked Questions”

OCC Bulletin 2019-27, “Liquidity Coverage Ratio Rule: Treatment of Certain Municipal Obligations as High-Quality Liquid Assets”

OCC Bulletin 2019-31, “Covered Savings Associations Implementation: Covered Savings Associations”

OCC Bulletin 2019-52, “Applicability Thresholds for Regulatory Capital and Liquidity Requirements: Final Rule”

### **Basel Committee on Banking Supervision**

“Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools,” January 2013 (Added in version 1.2)

“Basel III: International Framework for Liquidity Risk Measurement, Standards, and Monitoring,” December 2010

“Principles for Sound Liquidity Risk Management and Supervision,” September 2008

## Table of Updates Since Publication

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Refer to the “Foreword” booklet of the *Comptroller’s Handbook* for more information regarding the OCC’s process for updating and revising *Comptroller’s Handbook* booklets.

(Section updated in version 1.2)

Version 1.0 of the “Liquidity” booklet was published on June 8, 2012. Version 1.1 was published August 16, 2021. Version 1.2 was published on May 25, 2023.

The following table is populated with the reasons for updates and the affected page numbers.

**Table 3: Updates in Version 1.2 of the “Liquidity” Booklet**

Reasons	Affected pages
Updated for consistency with booklets in the <i>Examination Process</i> series of the <i>Comptroller’s Handbook</i>	1, 23, 37, 52, 65
Edited for clarity	2, 3-9, 13-16, 20, 22-25, 27-31, 33, 34, 54, 56, 58, 60, 62, 65, 76-85, 88-93, 96
Edited to remove company name	16, 90
Added to provide additional information on GAAP tangible capital implications	11, 14, 17, 27, 33, 54, 58, 86-87
Added “Reserve Balances” section	11
Added “Wholesale Funding” section heading	13
Added “Federal Home Loan Bank Borrowings” section	14
Added “Federal Reserve Discount Window” section	14
Added “Reciprocal Deposits” section	16
Added “Sweep Deposits” section	17
Added information about surge deposits	22
Added references	25
Updated to comply with Section 508	65, 78-81, 84, 85, 88-92, 96
Updated “References” section for consistency with the content of the booklet	94, 95