3000—CAPITAL, EARNINGS, LIQUIDITY, AND SENSITIVITY TO MARKET RISK

The 3000 series of sections address the supervisory assessment of a state member bank's **C**apital, **E**arnings, **L**iquidity, and **S**ensitivity to market risk (CELS). In addition to the review of asset quality (see the 2000 series major heading), the CELS components represent the key areas that examiners review in assessing the overall financial condition of the bank.

PURPOSE OF CAPITAL

Although both bankers and bank regulators look carefully at the quality of bank assets and management and at the ability of the bank to control costs, evaluate risks, and maintain proper liquidity, capital adequacy is the area that triggers the most supervisory action, especially in view of the prompt-corrective-action (PCA) provision of section 38 of the Federal Deposit Insurance Act (FDIA), 12 U.S.C. 1831o. The primary function of capital is to fund the bank's operations, act as a cushion to absorb unanticipated losses and declines in asset values that may otherwise lead to material bank distress or failure, and provide protection to uninsured depositors and debt holders if the bank were to be placed in receivership. A bank's solvency promotes public confidence in the bank and the banking system as a whole by providing continued assurance that the bank will continue to honor its obligations and provide banking services. By exposing stockholders to a larger percentage of any potential loss, higher capital levels reduce the subsidy provided to banks by the federal safety net.

Capital regulation is particularly important because deposit insurance and other elements of the federal safety net provide banks with an incentive to increase their leverage beyond what the market—in the absence of depositor protection—would permit. Additionally, banks' higher capital levels can reduce the need for certain supervisory activities, thereby lowering the regulatory burden on supervised institutions.

OVERVIEW OF REGULATION Q (12 CFR Part 217)

In 2013, the Federal Reserve Board, the Federal Deposit Insurance Corporation (FDIC), and the Office of the Comptroller of the Currency (OCC) (collectively the agencies) adopted a rule replacing their general risk-based capital requirements, advanced approaches capital requirements, market risk capital requirements, and leverage capital requirements.[1] The Federal Reserve's capital rule, Regulation Q, addresses weaknesses highlighted during the 2008–09 financial crisis by helping to ensure that the banking system is better able to absorb losses and continue to lend in future periods of economic stress. In addition, Regulation Q implements certain federal laws related to capital requirements and international regulatory capital standards adopted by the Basel Committee on Banking Supervision (BCBS).

Applicability of Regulation Q

Regulation Q applies on a consolidated basis to every Board-regulated institution (referred to as a "banking organization" in this section) that is

- a state member bank;
- a bank holding company (BHC) domiciled in the United States that is not subject to 12 CFR part 225, appendix C,[2] or
- a covered savings and loan holding company (SLHC) domiciled in the United States.

Regulation Q does not apply to SLHCs substantially engaged in insurance underwriting or commercial activities, or to SLHCs that are insurance underwriting companies.

Components of Capital

Regulation Q provides a definition of capital and a framework for calculating risk-weighted assets

1. See 12 CFR part 217 (Regulation Q). For more information on the implementation of Regulation Q, see SR-15-6, "Frequently Asked Questions on the Regulatory Capital Rule" and the "New Capital Rule: Community Bank Guide" (July 2013).

2. 12 CFR part 225, appendix C is the "Small Bank Holding Company and Savings and Loan Holding Company Policy Statement," and it applies to BHCs with pro forma consolidated assets of less than $3 billion that (1) are not engaged in significant nonbanking activities either directly or through a nonbank subsidiary; (2) do not conduct significant off-balance-sheet activities (including securitization and asset management or administration) either directly or through a nonbank subsidiary; and (3) do not have a material amount of debt or equity securities outstanding (other than trust preferred securities) that are registered with the Securities and Exchange Commission. The Board may, in its discretion, exclude any BHC, regardless of asset size, from the policy statement if such action is warranted for supervisory purposes. With some exceptions, the policy statement applies to SLHCs as if they were BHCs. See the *Bank Holding Company Supervision Manual* for more information on the Small Bank Holding Company and Savings and Loan Holding Company Policy Statement. The Board may, by order, apply any or all of Regulation Q to any BHC, based on an institution's asset size, level of complexity, risk profile, scope of operations, or financial condition.

by assigning assets and off-balance-sheet items to broad categories of credit risk. A banking organization's risk-based capital ratio is calculated by dividing its qualifying capital (the numerator of the ratio) by its risk-weighted assets (the denominator). A summary of the components of qualifying capital is outlined below, as are the procedures for calculating risk-weighted assets. For more comprehensive information on the definition of capital and risk weighted assets, see the Federal Reserve's Regulation Q.

The risk-based capital requirements of Regulation Q are designed to be sensitive to differences in credit-risk profiles among banking organizations; factor off-balance-sheet exposures into the assessment of capital adequacy; minimize disincentives to holding liquid, low-risk assets; and achieve consistency in the evaluation of the capital adequacy of major banking organizations worldwide.

The three components of regulatory capital are (1) common equity tier 1 capital, (2) additional tier 1 capital, and (3) tier 2 capital.

Common Equity Tier 1 Capital

Common equity tier 1 capital is defined as the sum of a banking organization's outstanding common equity tier 1 capital instruments that satisfy the criteria set forth in Regulation Q (12 CFR 217.20(b)). Common equity tier 1 capital represents the highest-quality and most loss absorbing form of capital. The criteria for common equity tier 1 capital are designed to ensure that common equity tier 1 capital is available to absorb losses as they occur and that common equity tier 1 instruments do not possess features that would cause a banking organization's condition to weaken further during periods of economic and market stress. Common equity tier 1 capital is primarily composed of common stock and retained earnings, plus limited amounts of minority interest in the form of common stock, less certain regulatory adjustments and deductions (e.g., goodwill).

Under the standardized approach of Regulation Q, banking organizations are not required to include all components of accumulated other comprehensive income (AOCI) in common equity tier 1 capital. For advanced approaches banking organizations, most AOCI components are included in common equity tier 1 capital.

Additional Tier 1 Capital

Additional tier 1 capital includes instruments that satisfy the criteria set forth in Regulation Q (12 CFR 217.20(c)). Additional tier 1 capital also includes surplus related to the issuance of additional tier 1 capital instruments, and limited amounts of tier 1 minority interest that are not included in a banking organization's common equity tier 1 capital, less applicable regulatory adjustments and deductions. The eligibility criteria for additional tier 1 capital instruments are designed to ensure that additional tier 1 capital instruments would be available to absorb losses on a going-concern basis. Given the strict criteria, in the United States the only instrument includable in additional tier 1 capital is noncumulative perpetual preferred stock. Cumulative preferred stock and trust preferred securities are generally not included in additional tier 1 capital.

Tier 2 Capital

Tier 2 capital consists of instruments that satisfy the criteria set forth in Regulation Q (12 CFR 217.20(d)). Tier 2 capital also includes surplus related to the issuance of tier 2 capital instruments; limited amounts of total capital minority interest not included in a banking organization's tier 1 capital; and limited amounts of the allowance for loan and lease losses (ALLL),[3] or adjusted allowances for credit losses (AACL),[4] as applicable, less applicable regula-

3. ALLL means valuation allowances that have been established through a charge against earnings to cover estimated credit losses on loans, lease financing receivables, or other extensions of credit as determined in accordance with GAAP. ALLL excludes "allocated transfer risk reserves." For purposes of Regulation Q, ALLL includes allowances that have been established through a charge against earnings to cover estimated credit losses associated with off-balance-sheet credit exposures as determined in accordance with GAAP.

4. AACL means, with respect to a Board-regulated institution that has adopted current expected credit losses (CECL) methodology, valuation allowances that have been established through a charge against earnings or retained earnings for expected credit losses on financial assets measured at amortized cost and a lessor's net investment in leases that have been established to reduce the amortized cost basis of the assets to amounts expected to be collected as determined in accordance with GAAP. AACL includes allowances for expected credit losses on off-balance-sheet credit exposures not accounted for as insurance as determined in accordance with GAAP. AACL excludes "allocated transfer risk reserves" and allowances created that reflect credit losses on purchased credit deteriorated assets and available-for-sale debt securi-

tory adjustments and deductions. A banking organization calculating its total capital ratio using the standardized approach may include in tier 2 capital the amount of ALLL or AACL that does not exceed 1.25 percent of its standardized total risk-weighted assets.

A banking organization calculating its total capital ratio using the advanced approaches may include in tier 2 capital the excess of its eligible credit reserves over its total expected credit loss, provided the amount does not exceed 0.6 percent of its credit risk-weighted assets.

Deductions and Limits

Deductions from common equity tier 1 capital include goodwill and other intangibles (except mortgage servicing assets), deferred tax assets (DTAs) that arise from net operating loss and tax credit carryforwards (above certain levels), gains-on-sale in connection with a securitization, any defined benefit pension fund net asset (for banking organizations that are not insured depository institutions), investments in a banking organization's own capital instruments, mortgage servicing assets (above certain levels) and investments in the capital of unconsolidated financial institutions (above certain levels). Mortgage servicing assets, DTAs arising from temporary differences that the banking organization could not realize through net operating loss carrybacks, and certain investments in financial institutions are each limited to 10 percent of common equity tier 1 capital and in combination are limited to 15 percent of common equity tier 1 capital.

Risk-Weighted Assets

Regulation Q prescribes two approaches to risk weighting assets. The standardized approach is generally designed for smaller banking organizations, while the advanced approaches are used by larger, more complex institutions.

Standardized Approach

The standardized approach described in Regulation Q harmonizes the agencies' calculation of risk-weighted assets and addresses shortcomings in previous risk-based capital requirements by increasing the capital requirements for certain assets. In addition, the standardized approach serves as a floor pursuant to section 171 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (the Dodd-Frank Act) with respect to risk-based capital requirements that the Federal Reserve may establish for BHCs, any nonbank financial company designated by the Financial Stability Oversight Council, SLHCs, and state member banks.

Under the standardized approach, higher risk weights generally apply to high volatility commercial real estate loans, past due loans, and certain equity and securitization exposures. The standardized approach also provides recognition of collateral and guarantees and incentives for derivatives and repo-style transactions cleared through central counterparties.

Below is a list of some key assets and exposures and the risk weights to which they are assigned under the standardized approach.

- *Public sector entities and U.S. government sponsored entities.* Exposures to the U.S. government generally receive a zero percent risk weight, and exposures to U.S. public-sector entities (PSEs), U.S. government-sponsored entities (GSEs), and U.S. depository institutions generally receive a 20 percent risk weight. Exposures conditionally guaranteed by the U.S. government and its agencies generally receive a 20 percent risk weight.

- *Exposures to sovereign entities.* Regulation Q provides that Organization for Economic Co-operation and Development (OECD) member countries without a country risk classifications (CRC) rating receive a risk weight of zero percent while nonmember countries without a CRC rating will receive a risk weight of 100 percent. Exposures to sovereign entities with a CRC rating are to be assigned the risk weight that corresponds to the CRC ratings. Additionally, if an event of sovereign default has occurred in the foreign bank's home country within the last five years, a banking organization must assign a 150 percent risk weight to the exposure.

ties. For more information on CECL, see this manual's section "Allowance for Credit Losses."

- *High volatility commercial real estate loans (HVCRE).*[5] In general, HVCRE exposures include any credit facility that finances or has financed the acquisition, development, or construction of real property, unless the facility finances one- to four-family residential mortgage property, loans to finance agricultural properties, or certain community development projects, or commercial real estate projects that meet certain prudential criteria, including the loan-to-value (LTV) ratio for a loan and capital contributions or expense contributions of the borrower. Supervisory experience has demonstrated that certain acquisition, development, and construction loans, which are a subset of commercial real estate exposures, present particular risks for banking organizations. Accordingly, HVCRE is assigned a 150 percent risk weight under Regulation Q.

- *Residential mortgage exposures.* One-to four-family residential mortgage exposures are generally assigned a 50 percent risk weight under Regulation Q provided the exposures are prudently underwritten first lien mortgage loans that are not past due, reported as nonaccrual, secured by a property that is either owner-occupied or rented, and has not been restructured or modified. A 100 percent risk weight is assigned for all other residential mortgages.

- *Structured securities and securitizations.* The securitization framework in Regulation Q addresses the credit risk of exposures that involve the tranching of credit risk of one or more underlying financial exposures. Regulation Q defines a securitization exposure as an on- or off-balance-sheet credit exposure (including credit-enhancing representations and warranties) that arises from a traditional or synthetic securitization (including a resecuritization), or an exposure that directly or indirectly references a securitization exposure.

Regulation Q establishes risk weight approaches for securitization exposures and structured security exposures that are retained on- or off-balance sheet. Typical examples of securitization exposures include private label collateralized mortgage obligations (CMOs), trust preferred collateralized debt obligations, and asset-backed securities, provided there is tranching of credit risk. Generally, pass-through and government agency CMOs are excluded from the securitization exposure risk weight approaches. In general, Regulation Q requires banking organizations to calculate the risk weight of securitization exposures using either the gross-up approach or the Simplified Supervisory Formula Approach (SSFA) consistently across all securitization exposures, except in certain cases. For instance, the bank can, at any time, risk-weight a securitization exposure at 1,250 percent.

The gross-up approach is similar to earlier risk-based capital rules, where capital is required on the credit exposure of the bank's investment in a specific tranche as well as its pro rata share of the more senior tranches that its tranche supports. A bank calculates its capital requirement based on the weighted-average risk weights of the underlying exposures in the securitization pool.

The SSFA is designed to assign a lower risk weight to more-senior-class securities and higher risk weights to supporting tranches. The SSFA is both risk-sensitive and forward-looking. The formula adjusts the risk weight for a security based on key risk factors such as incurred losses on the underlying assets, nonperforming loans, and the ability of subordinate tranches to absorb losses. In any case, a securitization exposure is assigned a risk weight of no lower than 20 percent.

- *Securitization due diligence.* During the 2008-09 financial crisis, many banking organizations relied exclusively on ratings issued by Nationally Recognized Statistical Rating Organizations (NRSROs) and did not perform internal credit analysis of their securitization exposures. Consistent with the Basel capital framework and the agencies' general expectations for investment analysis, Regulation Q outlines specific securitization exposure due diligence requirements for banking organiza-

5. Section 214 of the Economic Growth, Regulatory Relief, and Consumer Protection Act (EGRRCPA), Pub. L. No. 115-174, 132 Stat. 1296, 1321–22 (2018), addressed the treatment of HVCRE by adding section 51 to the Federal Deposit Insurance Act (FDIA), 12 U.S.C. 1831bb. FDIA section 51 provides a statutory definition of high volatility commercial real estate acquisition, development, or construction (HVCRE ADC) loans. Under FDIA section 51, the agencies may only require a depository institution to assign a heightened risk weight to a HVCRE exposure, as defined under the capital rule, if such exposure is an HVCRE ADC loan. This statutory change was effective upon enactment of EGRRCPA in May 2018. The agencies also amended their capital rules to reflect this statutory change. See 84 Fed. Reg. 68,019 (December 13, 2019).

tions. As stated in Regulation Q, a banking organization is required to demonstrate, to the satisfaction of its primary federal supervisor, a comprehensive understanding of the features of a securitization exposure that would materially affect its performance. The banking organization's analysis must be commensurate with the complexity of the exposure and the materiality of the exposure in relation to capital of the banking organization. On an ongoing basis (no less frequently than quarterly), the banking organization must evaluate, review, and update as appropriate the analysis required by Regulation Q (12 CFR 217.41(c)(1)) for each securitization exposure. The analysis of the risk characteristics of the exposure prior to acquisition, and periodically thereafter, need to consider:

— Structural features of the securitization that materially impact the performance of the exposure. For example, the contractual cash-flow waterfall, waterfall-related triggers, credit enhancements, liquidity enhancements, market value triggers, the performance of organizations that service the position, and deal-specific definitions of default;
— Relevant information regarding the performance of the underlying credit exposure(s). For example, the percentage of loans 30, 60, and 90 days past due; default rates; prepayment rates; loans in foreclosure; property types; occupancy; average credit score or other measures of creditworthiness; average LTV ratio; and industry and geographic diversification data on the underlying exposure(s);
— Relevant market data of the securitization. For example, bid-ask spread; most recent sales price and historical price volatility; trading volume; implied market rating; and size, depth, and concentration level of the market for the securitization; and
— For resecuritization exposures, performance information on the underlying securitization exposures. For example, the issuer name and credit quality, and the characteristics and performance of the exposures underlying the securitization exposures.

If a banking organization is not able to meet these due diligence requirements and demonstrate a comprehensive understanding of a securitization exposure to the satisfaction of its primary federal supervisor, the banking organization is required to assign a risk weight of 1,250 percent to the exposure.

- *Equity exposures to investment funds.* A banking organization determines the risk-weighted asset amount for equity exposures to investment funds using one of three approaches: (1) the full look-through approach, (2) the simple modified look-through approach, or (3) the alternative modified look-through approach, unless the equity exposure to an investment fund is a community development equity exposure. The risk-weighted asset amount for such community development equity exposures is the exposure's adjusted carrying value. If a banking organization does not use the full look-through approach, and an equity exposure to an investment fund is part of a hedge pair, a banking organization must use the ineffective portion of the hedge pair as the adjusted carrying value for the equity exposure to the investment fund. The risk-weighted asset amount of the effective portion of the hedge pair is equal to its adjusted carrying value. A banking organization may choose which approach to apply for each equity exposure to an investment fund.

  1. *Full Look-Through Approach.* A banking organization may use the full look-through approach only if the banking organization is able to calculate a risk-weighted asset amount for each of the exposures held by the investment fund. A banking organization using the full look-through approach is required to calculate the risk-weighted asset amount for its proportionate ownership share of each of the exposures held by the investment fund (as calculated under the standardized approach) as if the proportionate ownership share of the adjusted carrying value of each exposures were held directly by the banking organization. The banking organization's risk-weighted asset amount for the exposure to the fund is equal to (1) the aggregate risk-weighted asset amount of the exposures held by the fund as if they were held directly by the banking organization multiplied by (2) the banking organization's proportional ownership share of the fund.

2. *Simple Modified Look-Through Approach.* Under the simple modified look-through approach, a banking organization sets the risk-weighted asset amount for its equity exposure to an investment fund equal to the adjusted carrying value of the equity exposure multiplied by the highest applicable risk weight under the standardized approach to any exposure the fund is permitted to hold under the prospectus, partnership agreement, or similar agreement that defines the fund's permissible investments. The banking organization may exclude derivative contracts held by the fund that are used for hedging, rather than for speculative purposes, and do not constitute a material portion of the fund's exposures.

3. *Alternative Modified Look-Through Approach.* Under the alternative modified look-through approach, a banking organization may assign the adjusted carrying value of an equity exposure to an investment fund on a pro rata basis to different risk weight categories under the standardized approach based on the investment limits in the fund's prospectus, partnership agreement, or similar contract that defines the fund's permissible investments. The risk-weighted asset amount for the banking organization's equity exposure to the investment fund is equal to the sum of each portion of the adjusted carrying value assigned to an exposure type multiplied by the applicable risk weight. If the sum of the investment limits for all permissible investments within the fund exceeds 100 percent, the banking organization must assume that the fund invests to the maximum extent permitted under its investment limits in the exposure type with the highest applicable risk weight under the standardized approach and continues to make investments in the order of the exposure category with the next highest risk weight until the maximum total investment level is reached. If more than one exposure category applies to an exposure, the banking organization must use the highest applicable risk weight. A banking organization may exclude derivative contracts held by the fund that are used for hedging, rather than for speculative purposes, and do not constitute a material portion of the fund's exposures.

- *Collateralized transactions.* Regulation Q recognizes a range of financial collateral as credit risk mitigants that may reduce the risk-based capital requirements associated with a collateralized transaction. Financial collateral includes
  (1) cash on deposit with the banking organization (including cash held for the banking organization by a third-party custodian or trustee);
  (2) gold bullion;
  (3) short- and long-term debt securities that are not resecuritization exposures and that are investment grade;
  (4) equity securities that are publicly traded;
  (5) convertible bonds that are publicly traded; or
  (6) money market fund shares and other mutual fund shares if a price for the shares is publicly quoted daily.

  With the exception of cash on deposit, the banking organization is also required to have a perfected, first-priority security interest or, outside of the United States, the legal equivalent thereof, notwithstanding the prior security interest of any custodial agent. Even if a banking organization has the legal right, it still must ensure it monitors or has a freeze on the account to prevent a customer from withdrawing cash on deposit prior to defaulting. A banking organization is permitted to recognize partial collateralization of an exposure.

  Under Regulation Q, a banking organization may recognize the risk-mitigating effects of financial collateral using the "simple approach" for any exposure provided that the collateral meets certain requirements. For repo-style transactions, eligible margin loans, collateralized derivative contracts, and single-product netting sets of such transactions, a banking organization could alternatively use the "collateral haircut approach." Most institutions are likely to use the simple approach; however, regardless of the approach chosen, the institution must consistently apply its approach for similar exposures or transactions.

- *Simple approach.* In the simple approach described in Regulation Q, the collateralized portion of the exposure receives the

risk weight applicable to the collateral. The collateral is required to meet the definition of financial collateral. For repurchase agreements, reverse repurchase agreements, and securities lending and borrowing transactions, the collateral would be the instruments, gold, and cash that a banking organization has borrowed, purchased subject to resale, or taken as collateral from the counterparty under the transaction. In all cases, (1) the collateral must be subject to a collateral agreement for at least the life of the exposure; (2) the banking organization must revalue the collateral at least every six months; and (3) the collateral (other than gold) and the exposure must be denominated in the same currency. Generally, the risk weight assigned to the collateralized portion of the exposure must be no less than 20 percent. However, the collateralized portion of an exposure may be assigned a risk weight of less than 20 percent in certain instances.

- *Collateral haircut approach.* A banking organization may use the collateral haircut approach to recognize the credit risk mitigation benefits of financial collateral that secures an eligible margin loan, repo-style transaction, collateralized derivative contract, or single-product netting set of such transactions. In addition, the banking organization may use the collateral haircut approach with respect to any collateral that secures a repo-style transaction that is included in the banking organization's value-at-risk (VaR)-based measure under the market risk rule, even if the collateral does not meet the definition of financial collateral. To apply the collateral haircut approach, a banking organization must determine the exposure amount and the relevant risk weight for the counterparty or guarantor. The exposure amount for an eligible margin loan, repo-style transaction, collateralized derivative contract, or a netting set of such transactions is equal to the greater of zero and the sum of the following three quantities as described in Regulation Q (12 CFR 217.37(c)): (1) the value of the exposure less the value of the collateral; (2) the absolute value of the net position in a given instrument or in gold; and (3) the absolute value of the net position of instruments and cash in a currency that is different from the settlement currency multiplied by the haircut appropriate to the currency mismatch.

  For purposes of the collateral haircut approach, a given instrument includes, for example, all securities with a single Committee on Uniform Securities Identification Procedures (CUSIP) number and would not include securities with different CUSIP numbers, even if issued by the same issuer with the same maturity date.

- *Treatment of Guarantees.* Under Regulation Q, banking organizations have the option to substitute the risk weight of an eligible guarantee or guarantor for the risk weight of the underlying exposure. For example, if the bank has a loan guaranteed by an eligible guarantor, the bank can use the risk weight of the guarantor. Eligible guarantors include entities such as depository institutions and holding companies, the International Monetary Fund, Federal Home Loan Banks, the Federal Agricultural Mortgage Corporation, entities with investment grade debt, sovereign entities, and foreign banks. An eligible guarantee must be written, be either unconditional or a contingent obligation of the U.S. government or its agencies, cover all or a pro rata share of all contractual payments, give the beneficiary a direct claim against the protection provider, and meet other requirements outlined in the definition of eligible guarantees in 12 CFR 217.2.

- *Off-Balance-Sheet Exposures.* Risk-weighted asset amounts for off-balance-sheet items are calculated using a two-step process: (1) Multiplying the amount of the off-balance-sheet exposure by a credit conversion factor to determine a credit equivalent amount, and (2) assigning the credit equivalent amount to a relevant risk-weight category. This treatment applies to all off-balance-sheet items, such as commitments, contingent items, guarantees, certain repo-style transactions, financial standby letters of credit, and forward agreements.

Table 1—SUMMARY OF STANDARDIZED APPROACH RISK WEIGHTS OF ASSETS IN 12 CFR 217

Category	*Risk weight*	*Section of the rule (12 CFR 217)*
Cash	0%	217.32(1)(1)
Direct and unconditional claims on the U.S. government, its agencies, and the Federal Reserve	0%	217.32(a)(1)(i)
Claims on certain supranational entities and multilateral development banks	0%	217.32(b)
Cash items in the process of collection	20%	217.32
Conditional claims on the U.S. government	20%	217.32(a)(1)(ii)
Claims on government-sponsored enterprises (GSEs)	20% on exposures other than equity exposures and preferred stock. 100% on GSE preferred stock.	217.32(c)
Claims on U.S. depository institutions and National Credit Union Administration-insured credit unions	20% 100% risk weight for an investment in an instrument included in another banking organization's regulatory capital unless the instrument is an equity exposure or required to be deducted.	217.32(d)(1) and (3)
Claims on U.S. public sector entities	20% for general obligations. 50% for revenue obligations.	217.32(e)(1)
Industrial development bonds	100%	217.32(l)(5)
Claims on qualifying securities firms	100% – See corporate exposures below.	217.32(f)
One- to four-family loans	50% if first lien, prudently underwritten, owner occupied or rented, not 90 days or more past due or carried in nonaccrual status, is not restructured or modified. 100% otherwise.	217.32(g)
One- to four-family loans modified under Home Affordable Modification Program	50% and 100% The banking organization must use the same risk weight assigned to the loan prior to the modification so long as the loan continues to meet other applicable prudential criteria.	217.32(g)(3)

Category	*Risk weight*	*Section of the rule (12 CFR 217)*
Loans to builders secured by one- to four-family properties pre-sold under firm contracts	50% if the loan meets all criteria in the regulation. 100% if the contract is cancelled. 100% for loans not meeting the criteria.	217.32(h)
Loans on multifamily properties	50% if the loan meets all the criteria in the regulation for a statutory multifamily property; 100% otherwise.	217.32(i)
Corporate exposures and consumer loans	100% unless the exposure is an investment in an instrument included in the regulatory capital of another financial institution.	217.32(f)
Commercial real estate (CRE)	100% 150% for high volatility commercial real estate, which is, subject to certain exceptions, a credit facility secured by land or improved real property that primarily finances has financed, or refinances the acquisition, development, or construction of real property; has the purpose of providing financing to acquire, develop, or improve such real property into income-producing real property; and is dependent upon future income or sales proceeds from, or refinancing of, such real property for the repayment of such credit facility.	217.32(j) and (*l*)(5)
Past-due exposures	150% for the portion that is not guaranteed or secured (does not apply to sovereign exposures). However, one- to four-family loans that are past due 90 days or more are assigned a 100% risk weight.	217.32(k)
Assets not assigned to a risk weight category, including fixed assets, premises, and other real estate owned	100%	217.32(*l*)(5)
Mortgage-backed securities, asset-backed securities, and structured securities	Two general approaches—gross-up approach and simple supervisory formula approach. May also choose to risk weight a securitization exposure at 1,250%.	217.42, .43, and .44

Category	*Risk weight*	*Section of the rule (12 CFR 217)*
Equity exposures	Range of risk weights between 0% and 600%, depending on the entity and whether the equity is publicly traded	217.51 and .52
Equity exposures to investment funds	There is a 20% risk weight floor on investment fund holdings. The following approaches are available: 1. Risk weight is the same as the highest risk weight investment the fund is permitted to hold (called the Simple Modified Look-Through Approach). 2. A banking organization may assign risk weight on a pro rata basis based on the investment limits in the fund's prospectus (called the Alternative Modified Look-Through Approach). 3. A third treatment (called the Full Look-Through Approach) risk weights each asset of the fund (as if owned directly) and multiplies by the banking organization's proportional ownership in the fund.	217.53
Claims on foreign governments and their central banks, foreign banking organizations, and foreign public sector entities	Risk weight depends on Country Risk Classification (CRC) applicable to the sovereign, the sovereign's OECD status, and whether the sovereign entity has defaulted within the previous five years.	217.32(a)(2) to (6), (d)(2) and (e)(2) to (6)

Advanced Approaches

The advanced approaches framework[6] provides a risk-based and leverage capital framework that permit certain banking organizations to use an internal risk measurement approach to calculate capital requirements and advanced measurement approaches in order to calculate regulatory operational-risk capital requirements. An advanced approaches banking organization must calculate its risk-based capital ratios using both the standardized and advanced approaches and meet each minimum requirement with the lower of the two ratios. The advanced approaches are supplemented by the market risk capital requirement.

The advanced approaches in Regulation Q (12 CFR part 217) apply to a top-tier U.S. bank holding companies or savings and loan holding company that is identified as a global systemically important bank holding company and a Category II banking organization as described in the Federal Reserve's Regulation YY (12 CFR 252.5) or Regulation LL (12 CFR 238.10). The advanced approaches also apply to a state member bank that is a subsidiary of a global systemically important bank holding company, a Category II Board-regulated institution; or a

6. See 12 CFR part 217 subpart E.

subsidiary of a bank, bank holding company, or savings and loan holding company that uses the advanced approaches to calculate its risk-based capital requirements. Advanced approaches banking organizations also include those banking organizations that have elected to use the advanced approaches to calculate their total risk-weighted assets.

Market Risk Capital Requirement

The market risk capital requirement[7] applies to banking organizations with significant trading activities to calculate regulatory capital requirements for market risk. The purpose of the market risk capital requirement is to establish risk-based capital requirements for Board-regulated institutions with significant exposure to market risk, provide methods for these Board-regulated institutions to calculate their standardized measure for market risk and, if applicable, advanced measure for market risk, and establish public disclosure requirements. The market risk capital requirement applies to any Board- regulated institution with aggregate trading assets and trading liabilities equal to 10 percent or more of total assets or $1 billion or more.[8] On a case-by-case basis, the Federal Reserve may require an institution that does not meet these criteria to comply with the market risk capital requirement if deemed necessary for safety-and-soundness reasons. The Federal Reserve may also exclude an institution that meets the criteria if such exclusion is deemed to be consistent with safe and sound banking practices.

Minimum Regulatory Capital Ratios

All banking organizations covered under Regulation Q are subject to the following minimum regulatory capital requirements: a common equity tier 1 capital ratio of 4.5 percent, a tier 1 capital ratio of 6 percent, a total capital ratio of 8 percent of risk-weighted assets, and a leverage ratio of 4 percent.[9] See table 2 for more information on the calculation of these ratios.

Most banking organizations are expected to operate with capital levels above the minimum ratios. Banking organizations that are undertaking significant expansion or that are exposed to high or unusual levels of risk are expected to maintain capital well above the minimum ratios; in such cases, the Federal Reserve may specify a higher minimum requirement.

In implementing Regulation Q, the Federal Reserve has reserved the authority to require banking organizations to hold more capital if the minimum requirements are not commensurate with the bank's credit, market, operational, or other risks (see 12 CFR 217.1(d)). This is a formal process that requires Federal Reserve approval, and an examiner alone cannot provide this directive. Examiners may use the Matters Requiring Attention or Matters Requiring Immediate Attention section of the examination report to require a bank to maintain an appropriate capital policy or plan that includes capital limits that are consistent with the bank's risk profile.

Community Bank Leverage Ratio Framework

In 2019, the agencies adopted a final rule[10] that provides for a simple measure of capital adequacy for certain community banking organizations, consistent with section 201 of the EGRRCPA. This final rule established the community bank leverage ratio (CBLR) framework, which provides an optional measure of capital adequacy for depository institutions and depository institution holding companies with the following characteristics:

- leverage ratio greater than 9 percent[11]
- less than $10 billion in average total consolidated assets
- off-balance-sheet exposures of 25 percent or less of total consolidated assets
- trading assets plus trading liabilities of 5 percent or less of total consolidated assets
- not an advanced approaches banking organization.[12]

7. See 12 CFR part 217 subpart F.

8. As reported in the Board-regulated institution's most recent quarterly Call Report, for a state member bank, or Form FR Y-9C, for a BHC or SLHC, as applicable, any SLHC that does not file the Form FR Y-9C should follow the instructions to the Form FR Y-9C.

9. Tier 1 capital is equal to the sum of common equity tier 1 capital and additional tier 1 capital. Total capital is the sum of common equity tier 1, additional tier 1, and tier 2 capital.

10. See 84 Fed. Reg. 61,797 (November 13, 2019) and 12 CFR 217.12.

11. From April 23, 2020, through December 31, 2021, a lower leverage ratio criterion applies. See 12 CFR 217.304.

12. For more detailed information on the applicability of

TABLE 2—CAPITAL RATIO CALCULATIONS AND MINIMUM RATIOS

Ratio	Calculation	Minimum
Common equity tier 1 capital ratio	$\frac{\text{common equity tier 1 capital}}{\text{standardized total risk-weighted assets}}$	4.5%
Tier 1 capital ratio	$\frac{\text{tier 1 capital}}{\text{standardized total risk-weighted assets}}$	6%
Total capital ratio	$\frac{\text{total capital}}{\text{standardized total risk-weighted assets}}$	8%
Leverage ratio	$\frac{\text{tier 1 capital}}{\text{average total consolidated assets}}$	4%

A qualifying banking organization may opt into the CBLR framework by completing the associated reporting line items that are required for such firms on its Call Report and/or Form FR Y–9C, as applicable. A qualifying banking organization that elects to use the CBLR framework and that maintains a leverage ratio of greater than 9 percent will be considered to have satisfied the generally applicable risk-based and leverage capital requirements in the agencies' capital rules (generally applicable requirement). If applicable, the qualifying banking organization will be considered to have met the well-capitalized ratio requirements for prompt corrective action purposes.[13]

A banking organization may opt out of the CBLR framework and become subject to the generally applicable requirement by completing the associated reporting requirements on its Call Report and/or Form FR Y–9C, as applicable. A banking organization can opt out of the CBLR framework between reporting periods by providing its capital ratios under the generally applicable requirement to its appropriate regulators at that time.

Calculation of the CBLR is as follows:

$$\frac{\text{Tier 1 capital}}{\text{Average total consolidated assets}}$$

The calculation of a Board-regulated institution's leverage ratio is described in the generally applicable requirement.[14] However, the calculation of tier 1 capital for purposes of the CBLR differs from the generally applicable requirement. Because the CBLR framework does not have a total capital requirement, an electing banking organization is neither required to calculate tier 2 capital nor make any deductions that would have been taken from tier 2 capital under the generally applicable requirement.

Grace Period

If an electing banking organization fails to satisfy one or more of the qualifying criteria but maintains a leverage ratio of greater than 8 percent, that banking organization has a "grace period" of up to two quarters during which it could continue to use the CBLR framework and be deemed to meet the "well capitalized" capital ratio requirements.[15] As long as the banking organization is able to return to compliance with all the qualifying criteria within two quarters, it continues to be deemed to meet the "well

the CBLR framework, see 12 CFR 217.12(a)(2).

13. See FDIA section 38, 12 U.S.C. 1831o, and the Board's Regulation H, 12 CFR part 208.

14. 12 CFR 217.10.

15. From April 23, 2020, through December 31, 2021, lower grace period thresholds apply. See 12 CFR 217.304.

capitalized" ratio requirements and to be in compliance with the generally applicable requirement.

A banking organization is required to comply with and report under the generally applicable requirement and file the relevant regulatory reports if the banking organization (1) is unable to restore compliance with all qualifying criteria during the two-quarter grace period (including reporting a leverage ratio greater than 9 percent), (2) has a leverage ratio of 8 percent or less, or (3) ceases to satisfy the qualifying criteria due to consummation of a merger transaction.[16]

Supplementary Leverage Ratio

The supplementary leverage ratio measures tier 1 capital relative to total leverage exposure, which includes on-balance sheet assets (including deposits at central banks) and certain off-balance sheet exposures.[17]

Advanced approaches banking organizations and Category III Board-regulated institutions are also subject to a minimum supplementary leverage ratio of 3 percent. The denominator of the supplementary leverage ratio incorporates certain off-balance-sheet exposures such as commitments and derivative exposures. The Federal Reserve applies this to advanced approaches banking organizations and Category III Board-regulated institutions because these firms typically hold higher levels of off-balance-sheet exposure that are not captured by the leverage ratio. The supplementary leverage ratio also factors into a covered institution's PCA capital ratio framework.

In January 2020, the Federal Reserve issued a final rule to implement EGRRCPA section 402, which requires the agencies to amend the supplementary leverage ratio.[18] Under EGRRCPA section 402, the supplementary leverage ratio must not take into account funds of a custodial bank that are deposited with certain central banks, provided that any amount that exceeds the value of deposits of the custodial bank that are linked to fiduciary or custodial and safekeeping accounts must be taken into account when calculating the supplementary leverage ratio as applied to the custodial bank. Custody, safekeeping, and asset servicing activities generally involve holding securities or other assets on behalf of clients, as well as activities such as transaction settlement, income processing, and related record keeping and operational services. To qualify as a custodial banking organization, a depository institution holding company is required to have a ratio of assets under custody-to-total assets of at least 30:1, calculated as an average over the prior four calendar quarters.

Enhanced Supplementary Leverage Ratio

In 2015, the Federal Reserve implemented an enhanced supplemental leverage ratio requirement.[19] Banking organizations subject to Category I standards, which are the global systemically important bank holding companies (U.S. G-SIBs), as well as their depository institution subsidiaries, are subject to enhanced supplementary leverage ratio standards. The enhanced supplementary ratio standards require each U.S. G-SIB to maintain a supplementary leverage ratio above 5 percent to avoid limitations on the firm's distributions and certain discretionary bonus payments and also require each of its insured depository institutions to maintain a supplementary leverage ratio of at least 6 percent to be deemed "well capitalized" under the prompt corrective action framework of each agency. The leverage buffer functions like the capital conservation buffer for the risk-based capital ratios, which is described in greater detail below.

De Novo Bank Leverage Ratio

SR-20-16, "Supervision of De Novo State Member Banks," provides additional supervisory guidance on leverage ratio expectations for de novo state member banks (de novo bank). As noted in SR-20-16, an insured depository institution is considered to be in the de novo stage until it has been operating for at least three years. A de novo bank should maintain capital ratios commensurate with its risk profile and, generally, well in excess of regulatory minimums. Typically, as a condition of membership, the Federal Reserve requires each de novo bank to maintain a Tier 1 leverage ratio of at least

16. From April 23, 2020, through December 31, 2021, lower grace period thresholds apply. See 12 CFR 217.304.
17. 12 CFR 217.10(a)(5) and (c)(4).
18. 85 Fed. Reg. 4569 (January 27, 2020).
19. 80 Fed. Reg. 49,082 (August 14, 2015).

8 percent for the first three years of its existence.[20] The Reserve Bank should consult Board supervision staff when the Tier 1 leverage ratio of a de novo falls below 8 percent. Examiners should also scrutinize de novo banks that rely on additional capital infusions to meet this minimum requirement and understand the stability of the capital source.

Stress Capital Buffer

During the 2008–09 financial crisis, some banking organizations continued to pay dividends and substantial discretionary bonuses even as their financial condition weakened. Such capital distributions had a significant negative impact on the overall strength of the banking sector. To encourage better capital conservation and to enhance the resilience of the banking system, Regulation Q limits capital distributions and discretionary bonus payments for banking organizations that do not hold a specified amount of common equity tier 1 capital in addition to the amount of regulatory capital necessary to meet the minimum risk-based capital requirements (capital conservation buffer).

On March 4, 2020, the Federal Reserve approved a final rule establishing a stress capital buffer for bank holding companies and U.S. intermediate holding companies of foreign banking organizations that have $100 billion or more in total consolidated assets. The stress capital buffer rule integrates the Federal Reserve's stress test results with its non-stress capital requirements.[21] More specifically, the stress capital buffer rule integrates the Comprehensive Capital Analysis and Review (CCAR) with the capital rule. Under the stress capital buffer requirement, the Federal Reserve uses the results of its supervisory stress test to establish the size of a firm's stress capital buffer requirement, which replaces the static 2.5 percent of risk-weighted assets component of a firm's capital conservation buffer requirement. A firm's stress capital buffer requirement varies based on a firm's risk. A firm that does not maintain capital ratios above its minimums plus its buffer requirements faces restrictions on its capital distributions and discretionary bonus payments.

Countercyclical Capital Buffer

The countercyclical capital buffer (CCyB) is a supplemental policy tool that the Federal Reserve can increase during periods of rising vulnerabilities in the financial system and reduce when vulnerabilities recede. It is designed to increase the resilience of advanced approaches banking organizations or Category III Board-regulated institutions when there is an elevated risk of above-normal losses. Increasing the resilience of such organizations will, in turn, improve the resilience of the broader financial system. The circumstances in which the Federal Reserve would most likely begin to increase the CCyB above zero percent to augment minimum capital requirements and other capital buffers would be when systemic vulnerabilities are meaningfully above normal. By requiring large banking organizations to hold additional capital during a period of excess and removing the requirement to hold additional capital when the vulnerabilities have diminished, the CCyB is expected to moderate fluctuations in the supply of credit over time.

A CCyB, if applicable, would expand the capital conservation buffer by up to 2.5 percent of a banking organization's total risk-weighted assets for advanced approaches banking organizations or Category III Board-regulated institutions. The amount of the CCyB amount is determined by a country's bank supervisor and will differ by jurisdiction . At any point in time, a country's bank supervisor determines the degree of excessive credit growth in its jurisdictions. An advanced approaches Board-regulated institution or a Category III Board-regulated institution must calculate a countercyclical capital buffer amount in accordance with Regulation Q (12 CFR 217.11(b)) for purposes of determining its maximum payout ratio. The payout ratio is set forth in Regulation Q as well as this manual's section entitled "Dividends."

PROMPT CORRECTIVE ACTION

In 1991, Congress enacted a regulatory framework to address the problems associated with troubled insured depository institutions with the intent of minimizing the long-term cost to the

20. Refer to 12 CFR 217.10(a). This expectation does not prevent a de novo that is a qualifying community banking organization from electing to be subject to the community bank leverage ratio framework. See also 12 CFR 217.12.

21. 85 Fed. Reg. 15,576 (March 18, 2020).

Deposit Insurance Fund. This legislation, the Federal Deposit Insurance Corporation Improvement Act of 1991, added section 38 to the Federal Deposit Insurance Act (FDIA), codified at 12 U.S.C. 1831o; FDIA section 38 is known as the PCA statute. The Federal Reserve has implemented PCA as applicable to state member banks in subpart D of Regulation H (12 CFR 208.40 to 208.45). PCA uses the total risk-based capital measure, tier 1 risk-based capital measure, common equity tier 1 risk-based capital measure, leverage ratio, supplementary leverage ratio, and tangible equity to total assets ratio for assigning state member banks to the five capital categories. These five PCA categories under FDIA section 38 and the PCA regulations are "well capitalized," "adequately capitalized," "undercapitalized," "significantly undercapitalized," and "critically undercapitalized." A qualifying community banking organization that has elected to use the community bank leverage ratio framework under 12 CFR 217.12 is considered to have met the capital ratio requirements for the well capitalized capital category. The capital ratios trigger specific actions that are designed to restore a bank to financial health. See the "Prompt Corrective Action" section for more information on PCA.

EVALUATING CAPITAL ADEQUACY

Overall Assessment of Capital Adequacy

The following factors should be taken into account in assessing the overall capital adequacy of a bank.

Regulatory Capital Ratios

Capital ratios should be compared with regulatory minimums and with peer-group averages. Banking organizations are expected to maintain minimum capital ratios described above. However, because risk-based capital does not take explicit account of the quality of a bank's asset portfolios or its risk exposures, such as interest-rate, liquidity, market, or operational risks, banking organizations are generally expected to operate with capital positions above the minimum ratios. Institutions with high or inordinate levels of risk are also expected to maintain capital well above the minimum levels.

Impact of Management

Strategic capital planning. One of management's most important functions is to lead the organization by designing and implementing an effective strategic plan that addresses the bank's capital requirements to support its business goals and objectives. The strategic plan should clearly outline the bank's capital base, anticipated capital expenditures, desirable capital level, and external capital sources.[22] Effective strategic planning allows the institution to be proactive in addressing market changes and emerging risks and, therefore, enables an institution to plan for its capital needs. Strategic capital planning should address both a bank's short-term and long-term capital needs in relation to its asset deployment, funding sources, capital formation, management, marketing, operations, and information systems.

Growth. Capital is necessary to support a bank's growth, and, therefore, a bank needs to monitor its capital ratios in relation to its strategic plan. Because a bank has to maintain a minimum ratio of capital to assets, there are limitations on a bank's ability to grow. For example, a rapid growth in a bank's loan portfolio may be a cause of concern, for it could indicate that a bank is altering its risk profile by reducing its underwriting standards.

Dividends. State member banks are subject to legal restrictions on reductions in capital resulting from cash dividends, including out of the capital surplus account, under 12 U.S.C. 324 and 12 CFR 208.5. The Federal Reserve has a long-standing policy statement on the payment of cash dividends by state member banks and BHCs that are experiencing financial difficulties. The policy statement addresses the following practices that raises supervisory concerns when an institution is experiencing earnings

22. For more information about capital planning at the holding company level, see SR-09-4, "Applying Supervisory Guidance and Regulations on the Payment of Dividends, Stock Redemptions, and Stock Repurchases at Bank Holding Companies," and the Board's Regulation Y on capital planning and stress capital buffer requirements (12 CFR 225.8).

weaknesses, or has other serious problems or inadequate capital:

- the payment of dividends not covered by earnings,
- the payment of dividends from borrowed funds, and
- the payment of dividends from unusual or nonrecurring gains, such as the sale of property or other assets.

When a bank is experiencing earnings weaknesses or other financial pressures, the Federal Reserve's view is that

- a bank's level of cash dividends should not exceed its net income;
- dividends should be consistent with the organization's capital position, and
- dividends should only be funded in ways that do not weaken the organization's financial health.

In some instances, it may be appropriate to eliminate cash dividends altogether.[23]

Examiners should review historical and planned cash-dividend payout ratios to determine whether dividend payments are impairing capital adequacy. Excessive dividend payouts may result from several sources:

- If the bank is owned by a holding company, the holding company may be requiring excessive dividend payments from the bank to fund the holding company's debt-repayment program, expansion goals, or other cash needs.
- The bank's board of directors may be under pressure from individual shareholders to provide funds to repay bank stock debt or to use for other purposes.
- Dividends may be paid or promised to support a proposed equity offering.[24]

Access to additional capital. Banks that do not generate sufficient capital internally may require external sources of capital. Large, independent institutions may seek additional funding from the capital markets. Smaller institutions may rely on its parent holding company, a principal shareholder, or a control group to provide additional funds, or may rely on the issuance of new capital instruments to existing or new investors. Current shareholders may resist efforts to issue new capital instruments because of the diluting effect of the new capital. In deciding whether to raise additional capital in this manner, shareholders should weigh the dilution against the possibility that, without the additional funds, the institution may fail.

Under the FDI Act, a depository institution holding company is required to serve as a source of strength to its subsidiary depository institutions.[25] A holding company can fulfill this obligation by having enough liquidity to inject funds into the depository institution or by having access to the same sources of additional capital, that is, current or existing shareholders, as outlined above.

Financial Considerations

Financial information can be found on Schedule RC-R of the Report of Condition and Income (Call Report) for banks; however, risks may not always be reflected in the current financial condition. Therefore, examiners should not rely solely on an institution's current financial condition when determining capital adequacy and should assess management's ability to identify, measure, monitor, and control all material risks that may affect capital. Examiners should evaluate a bank's capital levels and ratios in view of the bank's overall financial condition, including the following areas:

Asset quality. Examiners' supervisory assessment on a bank's capital adequacy may differ from conclusions based solely from the level of a bank's risk-based capital ratio. Generally, the main reason for this difference is the evaluation of asset quality. An examiner's assessment a bank's capital adequacy takes into account examination findings, particularly the severity of problem and classified assets and investment or loan portfolio concentrations as well as he adequacy of the bank's allowance for loan and lease losses or adjusted allowance for credit losses.

23. For the complete text of the policy statement on the payment of cash dividends by state member banks and BHCs that are experiencing financial difficulties see the *Bank Holding Company Supervision Manual* and Attachment B to SR-09-4.

24. For more information, see the "Dividends" section of this manual.

25. For more information, see the "Supervision of Subsidiaries" section in the *Bank Holding Company Supervision Manual*.

Balance-sheet composition. A bank whose earning assets are not diversified or whose credit culture is more risk-tolerant is generally expected to operate with higher capital levels than a similar-sized institution with well-diversified, less-risky investments.

Earnings. A bank's earnings performance should enable it to fund growth, compete in the marketplace, and support its risk profile. An adequately capitalized, growing bank should have a consistent pattern of capital augmentation by earnings retention. Poor earnings can have a negative effect on bank's capital adequacy in two ways. First, any losses absorbed by capital reduce the ability of the remaining capital to absorb future losses. Second, the impact of losses on capital is magnified by the fact that a bank generating losses is incapable of replenishing its capital accounts internally.

Funds management. A bank with undue levels of interest-rate risk may need to strengthen its capital positions, even though it may meet the minimum risk-based capital standards. The adequacy and effectiveness of an institution's interest-rate risk management process and the level of its interest-rate risk exposure are critical factors in the examiners' evaluation of an institution's sensitivity to changes in interest rates and capital adequacy. Examiners consider how a bank manages its interest-rate exposures. A bank's funds management systems should be commensurate with its earnings and capital levels, complexity, business model, risk profile, and scope of operations. If a bank determines that its core earnings and capital are insufficient to support its level of interest-rate risk, a bank should take steps to mitigate its risk exposure or increase its capital, or take both steps. See SR-10-1, "Interagency Advisory on Interest Rate Risk," for more information.

Off-balance-sheet items and activities. Once funded, off-balance-sheet items become subject to the same capital requirements as on-balance-sheet items. A bank's capital levels should be sufficient to support the quality and quantity of assets that would result from a significant portion of these items being funded within a short time.

Inadequate Allowance for Loan and Lease Losses or Adjusted Allowances for Credit Losses. An inadequate ALLL or AACL will require an additional charge to current income. Any charge to current income will reduce the amount of earnings available to supplement tier 1 capital. Because the amount of the ALLL or AACL that can be included in tier 2 capital is limited to 1.25 percent of gross risk-weighted assets, an additional provision may increase the ALLL or AACL level above this limit, thereby resulting in the excess portion being excluded from tier 2 capital.

Ineligible Collateral and Guarantees. Regulation Q recognizes only limited types of collateral and guarantees. Other types of collateral and guarantees may support a bank's asset mix, particularly within its loan portfolio. Such collateral or guarantees may serve to improve substantially the overall quality of a loan portfolio and other credit exposures and should be considered by examiners in their overall assessment of a bank's capital adequacy.

Market Value of Bank Stock. Examiners should review trends in the market price of a bank's stock and whether its stock is trading at a reasonable multiple of earnings or a reasonable percentage (or multiple) of book value. A bank's low stock price may merely be an indication that it is undervalued, or it may be indicative of regional or industry-wide problems. However, a low-valued stock may also indicate that investors lack confidence in the institution; such lack of support could impair the bank's ability to raise additional capital in the capital markets.

Other Real Estate Reserves. Other real estate reserves, whether considered general or specific reserves, are not recognized as a component of regulatory capital. However, examiners should consider these reserves when classifying an other real estate (ORE) asset as a Loss. Examiners should consider the existence of any general ORE reserves when determining the amount of the loss on an ORE asset. To the extent that ORE reserves adequately cover the risks inherent in the ORE portfolio as a whole, including any individual ORE assets classified Loss, there would not be a deduction from common equity tier 1 capital. The ORE Loss in excess of ORE reserves should be deducted from common equity tier 1 capital under assets other than held-for-investment loans and leases classified loss.

Unrealized Asset Values. Banks often have assets on their books that are carried at significant discounts below current market values. The excess of the market value over the book value (historical cost or acquisition value) of assets such as investment securities or banking premises may represent capital to the bank. These unrealized asset values are not included in the risk-based capital calculation; however, examiners should consider these assets when assessing a bank's capital adequacy. Further, as part of this assessment, examiners should consider the nature of the asset, the reasonableness of its valuation, its marketability, and the likelihood of its sale.

Stress Testing and Capital Adequacy

Stress testing is a tool that helps both bank supervisors and certain firms measure the sufficiency of capital available to support the firm's operations throughout periods of stress. The Federal Reserve and the other federal banking agencies have highlighted the use of stress testing as a means to better understand the range of a financial company's potential risk exposures. While stress tests are a valuable tool for assessing the capital adequacy of a firm, stress tests may not necessarily capture a company's full range of risks, exposures, activities, and vulnerabilities that have a potential effect on capital adequacy.

The Federal Reserve has established frameworks and programs for the supervision of its largest and most complex financial institutions to achieve its supervisory objectives, incorporating lessons learned from the 2008–09 financial crisis and in the period since. As part of these supervisory frameworks and programs, the Federal Reserve assesses whether bank holding companies with $100 billion or more in total consolidated assets and U.S. intermediate holding companies are sufficiently capitalized to absorb losses during stressful conditions while meeting obligations to creditors and counterparties and continuing to be able to lend to households and businesses. On October 10, 2019, the Federal Reserve amended its prudential standards to exempt firms with total consolidated assets of less than $100 billion from the supervisory stress test and to subject certain firms with total consolidated assets between $100 billion and $250 billion to the supervisory stress test requirements on a two-year cycle.[26] Bank holding companies and intermediate holding companies with $250 billion or more in total consolidated assets or material levels of other risk factors remain subject to the supervisory stress test requirements on an annual basis.

RATING THE CAPITAL FACTOR FOR STATE MEMBER BANKS

As stated in the Uniform Financial Institutions Rating System[27] for commercial banks and thrifts, a financial institution is expected to maintain capital commensurate with the nature and extent of risks to the institution and the ability of management to identify, measure, monitor, and control these risks. Examiners should consider the effect of credit, market, and other risks on the institution's financial condition when evaluating the adequacy of capital. The types and quantity of risk inherent in an institution's activities will determine the extent to which it may be necessary for an institution to maintain capital at levels above required regulatory minimums in order to reflect properly the potentially adverse consequences that these risks may have on the institution's capital.

Examiners rate an institution's capital adequacy based upon, but not limited to, an assessment of the following evaluation factors:

- The level and quality of capital and the institution's overall financial condition.
- The ability of management to address emerging needs for additional capital.
- The nature, trend, and volume of problem assets, and the adequacy of allowances for loan and lease losses, adjusted allowances for credit losses, and other valuation reserves.
- Balance sheet composition, including the nature and amount of intangible assets, market risk, concentration risk, and risks associated with nontraditional activities.
- Risk exposure represented by off-balance-sheet activities.
- The quality and strength of earnings, and the reasonableness of dividends.
- Prospects and plans for growth as well as the institution's past experience in managing growth.

26. 84 Fed. Reg. 59,032 (November 1, 2019).
27. 61 Fed. Reg. 67,021 (December 19, 1996).

- Access to capital markets and other sources of capital, including support provided by a parent holding company.

Ratings

1. A rating of "1" indicates a strong capital level relative to the institution's risk profile.
2. A rating of "2" indicates a satisfactory capital level relative to the financial institution's risk profile.
3. A rating of "3" indicates a less than satisfactory level of capital that does not fully support the institution's risk profile. The rating indicates a need for improvement, even if the institution's capital level exceeds minimum regulatory and statutory requirements.
4. A rating of "4" indicates a deficient level of capital. In light of the institution's risk profile, viability of the institution may be threatened. Assistance from shareholders or other external sources of financial support may be required.
5. A rating of "5" indicates a critically deficient level of capital such that the institution's viability is threatened. Immediate assistance from shareholders or other external sources of financial support is required.

Examination procedures are available on the Examination Documentation (ED) modules page on the Board's website. See the following ED module for examination procedures on this topic:

- Capital

Dividends are distributions of earnings to owners.[1] Dividends can influence an investor's willingness to purchase corporate stock since the investor generally expects reasonable investment returns. Although dividends usually are declared and paid in either cash or stock, occasionally they are used to distribute real or personal property. Dividend payments may reduce capital in some banks to the point of supervisory concern. As a result, certain statutory limitations apply to the payment of dividends.

If a bank is a subsidiary of a bank holding company, examiners should also be aware of a bank's parent company cash-flow needs. In addition to the payment of dividends, the parent company may need cash for debt service or to fund its operations. Parent company debt generally is primarily serviced through dividend payments by the subsidiary bank. When establishing dividend levels from a bank subsidiary, the parent company should not set a dividend rate that will place undue pressure on the bank's ability to maintain an adequate level of capital.

Declaration of a dividend requires formal action by the board of directors to designate the medium of payment, dividend rate, shareholder record date, and date of payment. Dividends may be declared at the discretion of the board.[2] The bank should conduct appropriate capital planning and due diligence to ensure the dividend payments will not place undue pressure on the bank's current and future capital levels.

Dividends are recorded by debiting "retained earnings" and crediting "dividends declared not yet payable," which is to be reported in other liabilities. Upon payment of the dividend, "dividends declared not yet payable" is debited for the amount of the cash dividend with an offsetting credit, normally in an equal amount, to "dividend checks outstanding" which is reportable in the "demand deposits" category of the bank's deposit liabilities. For more information, see the Call Report Instructions.

SUPERVISORY GUIDANCE ON DIVIDENDS

In addition to statutory limitations of the payment of dividends, on November 14, 1985, the Federal Reserve Board issued a policy statement on the payment of dividends by state member banks and bank holding companies. The complete statement is available in the Federal Reserve Regulatory Service at 4–877, section 2020.5, "Intercompany Transactions (Dividends)," in the *Bank Holding Company Supervision Manual*. A summary of the 1985 policy statement on the payment of dividends is provided below.

In 2009, the Federal Reserve issued SR letter 09-4, "Applying Supervisory Guidance and Regulations on the Payment of Dividends, Stock Redemptions, and Stock Repurchases at Bank Holding Companies," which provides guidance on the declaration and payment of dividends, capital redemptions, and capital repurchases by bank holding companies in the context of their capital planning processes. While SR-09-4 applies to bank holding companies, its principles are also broadly relevant to state member banks. In 2015, the Federal Reserve issued SR letter 15-18, "Federal Reserve Supervisory Assessment of Capital Planning and Positions for LISCC Firms and Large and Complex Firms," and SR letter 15-19, "Federal Reserve Supervisory Assessment of Capital Planning and Positions for Large and Noncomplex Firms." While SR-15-18 and SR-15-19 generally apply to the largest bank holding companies, the principles of the 1985 Policy Statement on the Payment of Dividends are incorporated into these SR letters. Specifically, firms should have comprehensive policies on dividend payments that clearly articulate their objectives and approaches for maintaining a strong capital position and achieving the principles of the policy statement.

1. Other payments not called dividends may also be distributions of earnings to owners. These distributions or "constructive dividends" may be termed fees, bonuses, or other payments. Constructive dividends are distinct from legitimate fees, bonuses, and other payments, which are reasonable, adequately documented, and for valuable goods and services provided to the bank. Constructive dividends may create a potential tax liability and indicate control issues or insider self-dealing, and they may portend shareholder lawsuits against insiders, board members, and the bank.

2. At a minimum, board of directors minutes approving declaration and payment of a dividend should include three components: (1) the "as of" date to identify shareholders of record to receive the dividend (date of record), (2) an amount or description of the dividend, and (3) identification of the date on which the dividend payment is to take place (date of payment). There may also be additional legal requirements that should be documented, depending on state laws and the nature of the dividend.

SUMMARY OF POLICY STATEMENT ON PAYMENT OF DIVIDENDS

Adequate capital is critical to the health of individual banking organizations and to the safety and stability of the banking system. A major determinant of a financial institution's capital adequacy is earnings strength and whether earnings are retained or paid to shareholders as dividends. Dividends are a primary way that banking organizations provide return to shareholders on their investment.

During profitable periods, dividends represent a return of a portion of a banking organization's net earnings to its shareholders. During less profitable periods, dividend rates are often reduced or sometimes eliminated. The payment of cash dividends that are not fully covered by earnings, in effect, represents the return of a portion of an organization's capital at a time when circumstances may indicate instead the need to strengthen capital and concentrate financial resources on resolving the organization's problems.

Therefore, as a matter of prudent banking it is generally only appropriate for a bank or bank holding company to continue its existing rate of cash dividends on common stock only if

- the organization's net income available to common shareholders over the past year has been sufficient to fully fund the dividends; and
- the prospective rate of earnings retention appears consistent with the organization's capital needs, asset quality, and overall financial condition.

Any banking organization whose cash dividends are inconsistent with either of these criteria should seriously consider reducing or eliminating its dividends. Such an action will help conserve the organization's capital base and help it weather a period of adversity.

It is generally inconsistent with prudent banking practices for a banking organization that is experiencing financial problems or that has inadequate capital to borrow to pay dividends; this would result in increased leverage at the very time the organization needs to reduce its debt or conserve its capital. Similarly, the payment of dividends based solely or largely on gains resulting from unusual or nonrecurring events may be imprudent. Unusual or nonrecurring events may include the sale of assets, the effects of accounting changes, the postponement of large expenses to future periods, or negative provisions to the allowance for loan and lease losses.

CAPITAL CONSERVATION BUFFER

The Board's Regulation Q (12 CFR 217) limits capital distributions and discretionary bonus payments for banking organizations that do not hold a specified amount of common equity tier 1 capital in addition to the amount of regulatory capital necessary to meet the minimum risk-based capital requirements (capital conservation buffer). A banking organization's capital conservation buffer must be greater than 2.5 percent of its total risk-weighted assets in order to avoid limitations on capital distributions and discretionary bonus payments.[3]

If a banking organization's capital conservation buffer falls below 2.5 percent, its maximum payout amount for capital distributions and discretionary payments declines to a set percentage of eligible retained income based on the size of the bank's buffer. Table 1 reflects the maximum payout ratio for the capital conservation buffer.

The types of payments subject to the restrictions include dividends, share buybacks, discretionary payments on capital instruments, and discretionary bonus payments. It is important to note that the Board may require a Board-regulated institution to hold an amount of regulatory capital greater than otherwise required if the Board determines that the banking organization's capital requirements are not commensurate with its credit, market, operational, or other risks. For more information, see this manual's section entitled, "Assessment of Capital Adequacy," and 12 CFR 217.11.

3. A banking organization may have a capital conservation buffer greater than 2.5 percent under certain circumstances. For example, a global systemically important bank holding company (G-SIB) is subject to a G-SIB surcharge that expands the capital conservation buffer applicable to the company. G-SIBs are also subject to a buffer over the supplementary leverage ratio that imposes limits very similar to the capital conservation buffer.

Table 1—Calculation of Maximum Payout Amount

Capital Conservation Buffer (as a percentage of risk weighted assets)	Maximum Payout Ratio (as a percentage of the previous four quarters of net income)
Greater than 2.5%	No payout ratio limitation applies.
Less than or equal to 2.5% and greater than 1.875%	60%
Less than or equal to 1.875% and greater than 1.25%	40%
Less than or equal to 1.25% and greater than 0.625%	20%
Less than or equal to 0.625%	0%

STATUTORY LIMITATIONS

Three major federal statutory limitations govern the payment of dividends by banks. These limitations, included in sections 1831o, 56, and 60 of title 12 of the United States Code (12 USC 1831o, 56, and 60), apply to cash dividends and non-stock property dividends. Common stock dividends (dividends payable in common stock to all the common shareholders of the bank) may be paid regardless of these statutory limitations since such dividends do not reduce the bank's capital. In addition, the examiner needs to be aware of any state laws governing dividend payments.

Prompt Corrective Action

Section 1831o, also referred to as the prompt-corrective-action (PCA) provision, was adopted in 1991 as part of the Federal Deposit Insurance Corporation Improvement Act. Section 1831o applies to all insured depository institutions, including state member banks, and is implemented through section 208.40 of Regulation H. This regulatory section prohibits the payment of dividends when a bank is deemed to be undercapitalized or when the payment of the dividend would make the bank undercapitalized in accordance with the PCA framework. An organization that is undercapitalized for purposes of PCA must cease paying dividends for as long as it is deemed to be undercapitalized. Once earnings have begun to improve and an adequate capital position has been restored, dividend payments may resume in accordance with federal and state statutory limitations and guidelines.

Sections 56 and 60

Sections 56 and 60 (sections 5204 and 5199 of the Revised Statutes) were first adopted as part of the National Bank Act more than a century ago. Although these sections were made applicable to national banks, they also apply to state member banks under the provisions of section 9 of the Federal Reserve Act.[4] These sections are implemented through section 208.5 of Regulation H.

Under section 56, prior regulatory and shareholder approval must be obtained if the dividend would exceed the bank's undivided profits (retained earnings), as reportable in its Reports of Condition and Income (Call Reports).[5] In addition, the bank may include amounts contained in its surplus account, if the amounts reflect transfers made in prior periods of undivided profits and if regulatory approval for the transfer back to undivided profits is obtained.

4. State-chartered banks that are not members of the Federal Reserve System (state nonmember banks) are not subject to sections 56 and 60. However, they may be subject to similar dividend restrictions under state law.

5. Although the language of section 56 could imply that a dividend cannot be declared in excess of the limit even if regulatory approval were obtained, a "return of capital" to shareholders is allowed under section 59 if the bank obtains prior regulatory approval and the approval of at least two-thirds of each class of shareholders.

Under section 60, prior regulatory approval to declare a dividend must be obtained if the total of all dividends declared during the calendar year, including the proposed dividend, exceeds the (1) sum of the net income earned during the year-to-date and (2) the retained net income of the prior two calendar years as reported in the bank's Call Reports. In determining this limitation, any dividends declared on common or preferred stock during the period and any required transfers to surplus or a fund for the retirement of any preferred stock must be deducted from net earnings to determine the net income and retained net income.[6]

The statutory limitations are tied to the declaration date of the dividend because, at that time, shareholders expect the dividends will be paid, a liability is recorded, and the bank's capital is reduced. If the bank's board of directors wishes to declare a dividend between Call Report dates, the earnings or losses incurred since the last Call Report date should be considered in the calculation. Thus, if a bank's dividend-paying capacity might be limited under sections 56 or 60, the bank should ensure it has sufficient capacity to declare the dividend by maintaining sufficient documentation to substantiate its earnings or losses on an accrual basis for the period since the last Call Report date.

6. In rare circumstances when the surplus of a state member bank is less than what applicable state law requires the bank to maintain relative to its capital stock account, the bank may be required to transfer amounts from its undivided profits account to surplus. This may arise, for example, because some states require surplus to equal or exceed 100 percent of the capital stock account. Such required transfers would reduce the section 60 calculation.

REQUEST FOR REGULATORY APPROVAL

When regulatory approval is required for dividend payments under section 56 or 60, the request should be submitted to the appropriate Federal Reserve Bank. In section 265.11(e)(4) of the Rules Regarding Delegation of Authority, the Reserve Banks have been delegated authority to permit a state member bank to declare dividends in excess of section 60 limits. Before approving the request, the Reserve Bank should consider if the proposed dividend is consistent with the bank's capital needs, asset quality, strength of management, and overall financial condition.

If applicable, examiners should verify that prior approval was obtained from the Federal Reserve Bank, and, if required, at least two-thirds of each class of stockholders before the dividend was paid. Violations of law or safety and soundness concerns arising from nonconformance with the Federal Reserve Board's policy statement should be discussed with bank management and noted in the examination report.

1. Evaluate the bank's dividend policies (which may be in the overall capital planning policy) and determine whether they provide appropriate guidance for managing the bank's dividends. Consider whether policies
   - are consistent with the board's risk appetite;
   - are reviewed and approved by the board at appropriate intervals;
   - require maintenance of adequate records and documentation of the stock accounts and shareholders, as applicable;
   - provide for compliance with applicable laws and regulations;
   - clearly and completely articulate the bank's objectives for maintaining a satisfactory capital position, including restricting dividends and other capital distributions when the bank does not, or may not, meet required capital levels or internal targets;
   - include appropriate targets, limits, or floors for dividends;
   - incorporate measures to ensure that sufficient capital remains after the payment of dividends to support the bank's business plans, growth, and business goals as stated in the bank's strategic or capital plans;
   - address the authorization of capital account and dividend transactions;
   - require adequate documentation of capital transactions with affiliates or related organizations;
   - address the employment of an independent stock registrar or stock transfer agent (e.g., review policies for third-party vendors), if applicable; and
   - address the selection and use of a third-party dividend paying agent, if applicable.
2. Determine whether policies establish limits on dividends and issuances of capital instruments, redemptions, or repurchases, and delineate prudent actions to be taken if the limits are exceeded. Consider whether policies
   - include sufficient standards for detecting and preventing activities that could materially affect the capital accounts, dividends, and capital adequacy;
   - provide guidelines for setting dividends at appropriate levels relative to the bank's financial position; and
   - include processes for reporting and remediating breaches of dividend.
3. Review any relevant work performed by internal or external auditors. If any deficiencies were noted in the latest internal or external auditor reports, determine if appropriate corrective action has been taken.
4. Review board or risk committee minutes for discussions regarding internal risk assessment activities that management uses to supervise dividends.
5. Determine whether board and senior management receives information about emerging issues in a timely manner.
6. Determine whether there is undue pressure to pay dividends. Items to consider include
   - the holding company's financial condition and contractual obligations,
   - the financial condition of affiliates,
   - stockholder or market pressure, and
   - capital distribution and bonus limitations under the capital conservation buffer.
7. Review historical and planned dividend payout ratios and other planned capital reductions. For planned capital stock retirements, ensure management requested prior regulatory approval. Also, determine whether management evaluated the impact of the capital conservation buffer.
8. Determine whether dividends are excessive compared to current earnings.
9. Determine whether the bank complies with applicable laws and regulations related to dividends.

10.a. If dividends were declared since the last examination, complete the dividend- limitations worksheets to determine whether the bank was in compliance with the following sections of the U.S. Revised Statutes, as they are interpreted by section 208.5 of Regulation H:

- section 5199 (12 USC 60), which establishes a restriction based on the current and prior two years' retained net income, as adjusted for required transfers to surplus or transfers to a fund for the retirement of any preferred stock. Table 1 on the next page may be used for the calculation.
- section 5204 (12 USC 56), which establishes a restriction on dividends based on the bank's retained earnings (undivided profits), as adjusted for any surplus transferred, with prior regulatory approval, as needed, back to undivided profits and the excess, if any, of credit losses or other losses derived from extensions of credit over the allowance for loan and lease losses (ALLL).[1]

b. For the calculations in table 1, determine whether the dividend exceeded the section 56 or 60 limits and, if so, whether the dividend received prior approval. Dividends declared in excess of the section 56 limitation must receive prior Federal Reserve approval and approval by at least two-thirds of the shares of each class of stock outstanding, pursuant to 12 USC 59. Dividends declared in excess of the section 60 limitation must receive prior Federal Reserve approval.

1. Although section 56 seems to indicate that a bank should deduct its credit losses from its undivided profits, this adjustment is not generally necessary. Under generally accepted accounting principles, banks reserve for bad debts in the ALLL, which reduces the bank's undivided profits. Banks should deduct only the credit losses in excess of the bank's ALLL, and such excess should rarely occur. The second part of table 1 illustrates the section 56 dividend-limitation calculation.

Table 1—Dividend-Limitation Computations

References to schedules in this table are to the schedules in the Consolidated Reports of Condition and Income (bank Call Reports).

Section 60 Computation

	Year			
	20__	*20__*	*20__*	*Total*
Net income (loss) (schedule RI, item 12)	___	___	___	___
Less: Required transfers to surplus under state law (generally zero) or transfers to a fund for the retirement of any preferred stock	___	___	___	___
Less: Common and preferred stock dividends declared (schedule RI-A, item 8 + item 9)	___	___	___	___
Retained net profits available for dividends before adjustments	___	___	___	___
Adjustments for dividends in excess of income (if any)[1]	___	___	___	___
Retained net profits available for dividends after adjustments	___	___	___	___[2]

1. Any excess may be attributed to the prior two years by first applying the excess to the earlier year, and then the immediately preceding year, net of any previous-year adjustments. See section 208.5 of Regulation H for further guidance.
2. This is the section 60 limitation.

Section 56 Computation

	Year
	20__
Retained earnings (undivided profits) (schedule RC, item 26a)	_____
Add: Surplus in excess of state regulatory requirements that was earned and is transferred, with prior regulatory approval, back to undivided profits	_____
Less: Loan losses or other losses derived from extensions of credit that are in excess of the allowance for loan and lease losses	_____
Section 56 limitation	_____

Overview of Asset-Backed Commercial Paper Programs

INTRODUCTION

Asset-backed commercial paper (ABCP) programs provide a means for corporations to obtain funding by selling or securitizing pools of homogenous assets (for example, trade receivables) to special-purpose entities (SPEs/ABCP programs). The ABCP program raises funds for purchase of these assets by issuing commercial paper into the marketplace. The commercial-paper investors are protected by structural enhancements provided by the seller (for example, overcollateralization, spread accounts, or early-amortization triggers) and by credit enhancements (for example, subordinated loans or guarantees) provided by banking organization sponsors of the ABCP program and by other third parties. In addition, liquidity facilities are also present to ensure the rapid and orderly repayment of commercial paper should cash-flow difficulties emerge. ABCP programs are nominally capitalized SPEs that issue commercial paper. A sponsoring banking organization establishes the ABCP program but usually does not own the conduit's equity, which is often held by unaffiliated third-party management companies that specialize in owning such entities, and are structured to be bankruptcy remote.

TYPICAL STRUCTURE

ABCP programs are funding vehicles that banking organizations and other intermediaries establish to provide an alternative source of funding to themselves or their customers. In contrast to term securitizations, which tend to be amortizing, ABCP programs are ongoing entities that usually issue new commercial paper to repay maturing commercial paper. The majority of ABCP programs in the capital markets are established and managed by major international commercial banking organizations. As with traditional commercial paper, which has a maximum maturity of 270 days, ABCP is short-term debt that may either pay interest or be issued at a discount.

TYPES OF ABCP PROGRAMS

Multi-seller programs generally provide working capital financing by purchasing or advancing against receivables generated by multiple corporate clients of the sponsoring banking organizations. These programs are generally well diversified across both sellers and asset types.

Single-seller programs are generally established to fund one or more types of assets originated by a single seller. The lack of diversification is generally compensated for by increased program-wide credit enhancement.

Loan-backed programs fund direct loans to corporate customers of the ABCP program's sponsoring banking organization. These loans are generally closely managed by the banking organization and have a variety of covenants designed to reduce credit risk.

Securities-arbitrage programs invest in securities that generally are rated AA- or higher. They generally have no additional credit enhancement at the seller/transaction level because the securities are highly rated. These programs are typically well diversified across security types. The arbitrage is mainly due to the difference between the yield on the securities and the funding cost of the commercial paper.

Structured investment vehicles (SIVs) are a form of a securities-arbitrage program. These ABCP programs invest in securities typically rated AA-or higher. SIVs operate on a market-value basis similar to market-value collateralized debt obligations in that they must maintain a dynamic overcollateralization ratio determined by analysis of the potential price volatility on securities held in the portfolio. SIVs are monitored daily and must meet strict liquidity, capitalization, leverage, and concentration guidelines established by the rating agencies.

KEY PARTIES AND ROLES

Key parties for an ABCP program include the following:

- program management/administrators
- credit-enhancement providers
- liquidity-facility providers
- seller/servicers
- commercial paper investors

Program Management

The sponsor of an ABCP program initiates the creation of the program but typically does not own the equity of the ABCP program, which is provided by unaffiliated third-party investors. Despite not owning the equity of the ABCP program, sponsors usually retain a financial stake in the program by providing credit enhancement, liquidity support, or both, and they play an active role in managing the program. Sponsors typically earn fees—such as credit-enhancement, liquidity-facility, and program-management fees—for services provided to their ABCP programs.

Typically, an ABCP program makes arrangements with various agents/servicers to conduct the administration and daily operation of the ABCP program. This includes such activities as purchasing and selling assets, maintaining operating accounts, and monitoring the ongoing performance of each transaction. The sponsor is also actively engaged in the management of the ABCP program, including underwriting the assets purchased by the ABCP program and the type/level of credit enhancements provided to the ABCP program.

Credit-Enhancement Providers

The sponsoring banking organization typically provides pool-specific and program-wide backup liquidity facilities, and program-wide credit enhancements, all of which are usually unrated (pool-specific credit enhancement, such as overcollateralization, is provided by the seller of the assets). These enhancements are fundamental for obtaining high investment-grade ratings on the commercial paper issued to the market by the ABCP program. Seller-provided credit enhancement may exist in various forms and is generally sized based on the type and credit quality of the underlying assets as well as the quality and financial strength of seller/servicers. Higher-quality assets may only need partial support to achieve a satisfactory rating for the commercial paper. Lower-quality assets may need full support.

Liquidity-Facility Providers

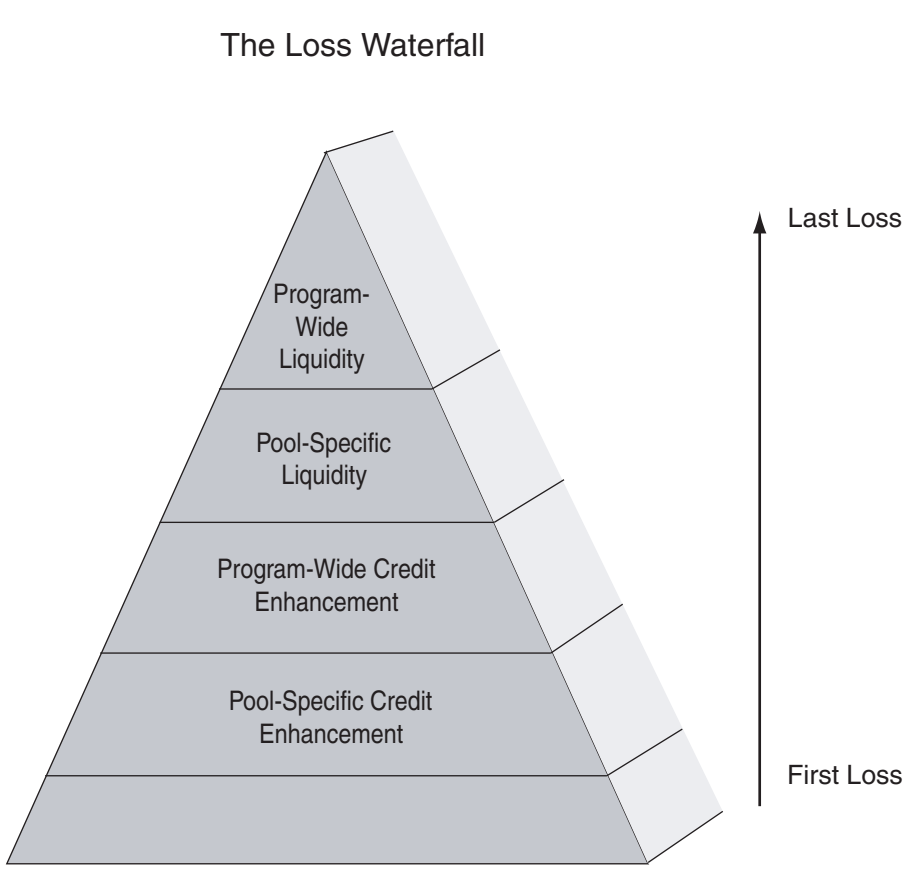
The sponsoring banking organization and, in some cases, unaffiliated third parties, provide pool-specific or program-wide liquidity facilities. These backup liquidity facilities ensure the timely repayment of commercial paper under certain conditions, such as when financial market disruptions or cash-flow timing mismatches were to occur, but generally not under conditions associated with the credit deterioration of the underlying assets or the seller/servicer to the extent that such deterioration is beyond what is permitted under the related asset-quality test.

Commercial Paper Investors

Commercial paper investors are typically institutional investors, such as pension funds, money market mutual funds, bank trust departments, foreign banks, and investment companies. Commercial paper maturities range from 1 day to 270 days, but most frequently are issued for 30 days or less. There is a limited secondary market for commercial paper since issuers can closely match the maturity of the paper to the investors' needs. Commercial paper investors are generally repaid from the reissuance of new commercial paper or from cash flows stemming from the underlying asset pools purchased by the program. In addition, to ensure timely repayment in the event that new commercial paper cannot be issued or if anticipated cash flows from the underlying assets do not occur, ABCP programs utilize backup liquidity facilities. Furthermore, the banking organization can purchase the ABCP from the conduit if the commercial paper cannot be issued. Pool-specific and program-wide credit enhancements also protect commercial paper investors from deterioration of the underlying asset pools.

THE LOSS WATERFALL

The loss waterfall diagram (on the next page) for the exposures of a typical ABCP program generally has four legally distinct layers. However, most legal documents do not specify which form of credit or liquidity enhancement is in a priority position after pool-specific credit enhancement is exhausted due to defaults. For example, after becoming aware of weakness in the seller/servicer or in asset performance, an ABCP program sponsor may purchase assets out of the conduit using pool-specific liquidity. Liquidity agreements must be subject to a valid



asset-quality test that prevents the purchase of defaulted or highly delinquent assets. Liquidity facilities that are not limited by such an asset-quality test are to be viewed as credit enhancement and are subject to the risk-based capital requirements applicable to direct-credit substitutes.

Pool-Specific Credit Enhancement

The form and size of credit enhancement for each particular asset pool is dependent upon the nature and quality of the asset pool and the seller/servicer's risk profile. In determining the level of credit enhancement, consideration is given to the seller/servicer's financial strength, quality as a servicer, obligor concentrations, and obligor credit quality, as well as the historic performance of the asset pool. Credit enhancement is generally sized to cover a multiple level of historical losses and dilution for the particular asset pool. Pool-specific credit enhancement can take several forms, including overcollateralization, cash reserves, seller/servicer guarantees (for only highly rated seller/servicers), and subordination. Credit enhancement can be either dynamic (that is, increases as the asset pool's performance deteriorates) or static (that is, fixed percentage). Pool-specific credit enhancement is generally provided by the seller/servicer (or carved out of the asset pool in the case of overcollateralization) but may be provided by other third parties.

The ABCP program sponsor or administrator will generally set strict eligibility requirements for the receivables to be included in the purchased asset pool. For example, receivable eligibility requirements will establish minimum credit ratings or credit scores for the obligors and the maximum number of days the receivable can be past due.

Usually the purchased asset pools are struc-

tured (credit-enhanced) to achieve a credit-quality equivalent of investment grade (that is, BBB or higher). The sponsoring banking organization will typically utilize established rating agency criteria and structuring methodologies to achieve the desired internal rating level. In certain instances, such as when ABCP programs purchase asset-backed securities (ABS), the pool-specific credit enhancement is already built into the purchased ABS and is reflected in the security's credit rating. The internal rating on the pool-specific liquidity facility provided to support the purchased asset pool will reflect the inclusion of the pool-specific credit enhancement and other structuring protections.

Program-Wide Credit Enhancement

The second level of contractual credit protection is the program-wide credit enhancement, which may take the form of an irrevocable loan facility, a standby letter of credit, a surety bond from a monoline insurer, or an issuance of subordinated debt. Program-wide credit enhancement protects commercial paper investors if one or more of the underlying transactions exhaust the pool-specific credit enhancement and other structural protections. The sponsoring banking organization or third-party guarantors are providers of this type of credit protection. The program-wide credit enhancement is generally sized by the rating agencies to cover the potential of multiple defaults in the underlying portfolio of transactions within ABCP conduits and takes into account concentration risk among seller/servicers and industry sectors.

Pool-Specific Liquidity

Pool-specific liquidity facilities are an important structural feature in ABCP programs because they ensure timely payment on the issued commercial paper by smoothing timing differences in the payment of interest and principal on the pooled assets and ensuring payments in the event of market disruptions. The types of liquidity facilities may differ among various ABCP programs and may even differ among asset pools purchased by a single ABCP program. For instance, liquidity facilities may be structured in the form of either (1) an asset-purchase agreement, which provides liquidity to the ABCP program by purchasing nondefaulted assets from a specific asset pool, or (2) a loan to the ABCP program, which is repaid solely by the cash flows from the underlying assets.[1] Some older ABCP programs may have both pool-specific liquidity and program-wide liquidity coverage, while more-recent ABCP programs tend to utilize only pool-specific facilities. Typically, the seller-provided credit enhancement continues to provide credit protection on an asset pool that is purchased by a liquidity banking organization so that the institution is protected against credit losses that may arise due to subsequent deterioration of the pool.

Pool-specific liquidity, when drawn prior to the ABCP program's credit enhancements, is subject to the credit risk of the underlying asset pool. However, the liquidity facility does not provide direct credit enhancement to the commercial paper holders. Thus, the pool-specific liquidity facility generally is in an economic second-loss position after the seller-provided credit enhancements and prior to the program-wide credit enhancement even when the legal documents state that the program-wide credit enhancement would absorb losses prior to the pool-specific liquidity facilities. This is because the sponsor of the ABCP program would most likely manage the asset pools in such a way that deteriorating portfolios or assets would be put to the liquidity banking organizations prior to any defaults that would require a draw against the program-wide credit enhancement.[2] While the liquidity banking organization is exposed to the credit risk of the underlying asset pool, the risk is mitigated by the seller-provided credit enhancement and the asset-quality test.[3] At the time that the asset pool is put to the liquidity banking organization, the facility is usually fully drawn because the entire amount of the pool that qualifies under the asset-quality test is pur-

1. Direct-liquidity loans to an ABCP program may be termed a *commissioning agreement* (most likely in a foreign bank program) and may share in the security interest in the underlying assets when commercial paper ceases to be issued due to deterioration of the asset pool.

2. In fact, according to the contractual provisions of some conduits, a certain level of draws on the program-wide credit enhancement is a condition for unwinding the conduit program, which means that this enhancement is never meant to be used.

3. An asset-quality test or liquidity-funding formula determines how much funding the liquidity banking organization will extend to the conduit based on the quality of the underlying asset pool at the time of the draw. Typically, liquidity banking organizations will fund against the conduit's purchase price of the asset pool less the amount of defaulted assets in the pool.

chased by the banking organization. However, with respect to revolving transactions (such as credit card securitizations) it is possible to average less than 100 percent of the commitment.

Program-Wide Liquidity

The senior-most position in the waterfall, program-wide liquidity, is provided in an amount sufficient to support that portion of the face amount of all the commercial paper that is issued by the ABCP program that is necessary to achieve the desired external rating on the issued paper. Program-wide liquidity also provides liquidity in the event of a short-term disruption in the commercial paper market. In some cases, a liquidity banking organization that extends a direct liquidity loan to an ABCP program may be able to access the program-wide credit enhancement to cover losses while funding the underlying asset pool.

INTRODUCTION

In 1991, Congress enacted a regulatory framework to address the problems associated with troubled insured depository institutions with the intent of minimizing the long-term cost to the Deposit Insurance Fund. This legislation led to the enactment of the prompt-corrective-action (PCA) statute, which is contained in the Federal Deposit Insurance Corporation Improvement Act of 1991, and added section 38 to the Federal Deposit Insurance Act (FDIA), as amended (12 U.S.C. 1831*o*).

FDIA section 38 requires regulators to administer timely corrective action to insured depository institutions when their capital position declines or is deemed to have declined below certain threshold levels as a result of an unsafe or unsound condition or practice. The PCA framework specifies mandatory actions that regulators must take as well as discretionary actions they must consider taking.

In order to implement PCA as it applies to state member banks (bank), the Federal Reserve Board added subpart D to its Regulation H (12 CFR 208.40 to 208.45). While in practice this discussion refers to the Federal Reserve Board, actions taken within the PCA framework involve consultation between the Reserve Bank staff and the Federal Reserve Board staff. Therefore, inquiries relating to PCA should be directed to appropriate Federal Reserve Board staff. The Federal Reserve Board also added subpart E to its Rules of Practice for Hearings (12 CFR 263.80 to 263.85) to establish procedures for the issuance of notices, directives, and other actions authorized under FDIA section 38 and Regulation H.

PCA uses capital ratios to trigger specific actions that are designed to restore a bank to financial health. One of the primary sources of the financial information for these ratios is the Consolidated Reports of Condition and Income (Call Report). This gives added importance to the review of a bank's records for accuracy during an examination. Under the PCA statute a bank is assigned to one of five capital categories: (1) well capitalized, (2) adequately capitalized, (3) undercapitalized, (4) significantly undercapitalized, and (5) critically undercapitalized. See the table at the end of this section for a summary of framework definitions. As a bank is placed in progressively lower capital categories, FDIA provides for increasingly stringent corrective provisions. The Federal Reserve has maintained the general structure of the existing PCA framework while incorporating increased minimum capital requirements, including

- In 2013, when the Federal Reserve Board implemented higher minimum capital requirements and adjusted ratios in four of the five capital categories of the PCA framework.[1] The rule includes a common equity tier 1 capital requirement, and specifies criteria that instruments must meet in order to be considered common equity tier 1 capital, additional tier 1 capital, or tier 2 capital.
- In 2019, the Federal Reserve Board, Office of the Comptroller of the Currency, and Federal Deposit Insurance Corporation (FDIC) adopted a rule that provides for a simple measure of capital adequacy for certain community banking organizations, consistent with section 201 of the Economic Growth, Regulatory Relief, and Consumer Protection Act. This 2019 rule established the community bank leverage ratio (CBLR) framework. A depository institution or depository institution holding company that qualifies and opts into the CBLR framework (12 CFR 217.12) will be considered to have met the "well capitalized" ratio requirements for PCA purposes. For more information on the CBLR framework, see 84 *Federal Register* 61,797 (November 13, 2019) and this manual's section on "Assessment of Capital Adequacy."

PCA CATEGORIES

PCA uses the total risk-based capital measure, tier 1 risk-based capital measure, common equity tier 1 risk-based capital measure, leverage ratio, and tangible equity to total assets ratio for assigning banks to the five capital categories.[2]

1. See the Board's Regulation Q (12 CFR 217) and 78 Fed. Reg. 62,018 (October 11, 2013).

2. The total risk-based capital ratio is defined as the ratio of qualifying total capital to standardized total risk-weighted assets; the tier 1 capital ratio is the ratio of tier 1 capital to standardized total risk-weighted assets; the common equity tier 1 risk-based capital ratio is defined as the ratio of common equity tier 1 capital to standardized total risk-weighted assets; and the tier 1 leverage ratio is the ratio of tier 1 capital to total average consolidated assets (the Federal Reserve may use

These ratios are defined in the Federal Reserve Board's Regulation Q, "Capital Adequacy of Bank Holding Companies, Savings and Loan Holding Companies, and State Member Banks."[3]

A bank's PCA category is based upon capital ratios derived from items such as the Call Report, examination report, bank applications, and reports filed by the bank under banking or securities laws as well as other sources. In general, a bank is deemed to be notified of its PCA category based upon

- the Call Report: as of the date that a bank is required to file its Call Report,
- the Federal Reserve Board or state examination report: as of the third day following the date on the Federal Reserve or state transmittal letter to a bank that accompanies the examination report, and
- other information: the bank's receipt of written notice by the Federal Reserve Board that the bank's capital category has changed.

The Federal Reserve's notification to a bank of its PCA category is important since any bank assigned to the undercapitalized, significantly undercapitalized, or critically undercapitalized categories is subject to certain mandatory provisions, and may be subject to certain discretionary provisions, immediately upon notification. These mandatory and discretionary provisions are described in detail later.

The following are descriptions of the five PCA capital categories:

1. *Well capitalized.* The bank has a total risk-based capital ratio of 10.0 percent or greater, a tier 1 risk-based capital ratio of 8.0 percent or greater, a common equity tier 1 risk-based capital ratio of 6.5 percent or greater; *and* a leverage ratio of 5.0 percent or greater,[4] and the bank is not subject to an order, written agreement, capital directive, or PCA directive to meet and maintain a specific capital level for any capital measure. A qualifying community banking organization, as defined in 12 CFR 217.12, which has elected to use the CBLR framework is considered to have met the capital ratio requirements for the well capitalized capital category. In order to qualify for the CBLR framework, a depository institutions or depository institution holding company must have (among other things) a leverage ratio greater than 9.0 percent and less than $10 billion in average total consolidated assets.[5] For the complete list of qualifying criteria for the CBLR framework, see 12 CFR 217.12.
2. *Adequately capitalized.* The bank has a total risk-based capital ratio of 8.0 percent or greater, a tier 1 risk-based capital ratio of 6.0 percent or greater, a common equity tier 1 risk-based capital ratio of 4.5 percent or greater; *and* a leverage ratio of 4.0 percent or greater (or a leverage ratio of 3.0 percent or greater if the bank is rated composite 1 under the CAMELS rating system in its most recent report of examination), and the bank is not experiencing or anticipating significant growth and does not meet the definition of a "well-capitalized" bank.[6]
3. *Undercapitalized.* The bank has a total risk-based capital ratio that is less than 8.0 percent, tier 1 risk-based capital ratio that is less than 6.0 percent, a common equity tier 1 risk-based capital ratio that is less than 4.5 percent *or* a leverage ratio that is less than 4.0 percent (or a leverage ratio that is less than 3.0 percent if the bank is rated composite 1 under the CAMELS rating system in its most recent report of examination), and the bank is not experiencing or anticipating significant growth.[7]
4. *Significantly undercapitalized.* The bank has a total risk-based capital ratio that is less than

period-end total consolidated total assets whenever necessary, on a case-by-case basis). The tangible equity ratio is defined as core capital elements plus cumulative perpetual preferred stock, net of all intangible assets except those amounts of mortgage servicing assets allowable in tier 1 capital. See the Assessment of Capital Adequacy section of this manual for more detailed information.

3. See 12 CFR 217.

4. Beginning on January 1, 2018, any bank that is a subsidiary of a global systemically important bank holding company (referred to as a "G-SIB") under the definition of "subsidiary" in 12 CFR 217.2 has a supplementary leverage ratio of 6.0 percent or greater.

5. In March 2020, section 4012 of the Coronavirus Aid, Relief, and Economic Security Act provided the agencies with the authority to grant banks with temporary regulatory relief for certain provisions of the CBLR framework. The agencies issued an interim final rule to adopt these temporary regulatory changes. See 85 Fed. Reg. 22,924 (April 23, 2020) for the details and timeframe for this regulatory relief.

6. For an advanced approaches bank or bank that is a Category III Board-regulated institution (as defined in 12 CFR 217.2), a supplementary leverage ratio of 3.0 percent or greater.

7. For an advanced approaches bank or bank that is a Category III Board-regulated institution, a supplementary leverage ratio of less than 3.0 percent.

6.0 percent, a tier 1 risk-based capital ratio that is less than 4.0 percent, a common equity tier 1 risk-based capital ratio that is less than 3 percent *or* a leverage ratio that is less than 3.0 percent.

5. *Critically undercapitalized.* The bank has a ratio of tangible equity to total assets that is equal to or less than 2.0 percent.[8]

EXAMINATION CONSIDERATIONS

If a bank is deemed undercapitalized, significantly undercapitalized, or critically undercapitalized, examiners should discuss the PCA provisions with the institution's management during the examination. Additionally, examiners should caution a bank when its capital ratios approach those found in the undercapitalized category to ensure that proposed dividend or management fee payments do not cause the bank to violate the statute. Any PCA-related comments should be noted in the examination report. The comments should be limited to the mandatory provisions of the statute, reflect the immediacy of these provisions, and clearly indicate that the bank's receipt of the report of examination serves as notification that the bank is subject to PCA provisions.

Capital Adequacy Page

In the report of examination for most community banks, the PCA capital ratios appear on the "Capital Adequacy" section of the "Analysis of Financial Factors" page and are generally calculated using the bank's most recent Call Report. In situations where the impact of examination findings (for example, loan-loss-reserve adjustments or other losses) cause the bank to fall into a lower PCA category, the narrative portion of this examination report page should explicitly state the adjusted PCA ratios and reconcile the adjustments that examiners made.

RECLASSIFICATION

In the majority of cases, a bank's PCA category is defined by its capital ratios indicated in the preceding definitions. The finding of an unsafe or unsound *condition or practice,* however, may lead the Federal Reserve to reclassify a bank's PCA category to the next lower PCA category than the bank would otherwise qualify for based solely on its capital ratios.[9] In these circumstances, the Federal Reserve Board may

- reclassify a well-capitalized bank to the adequately capitalized category.
- require an adequately capitalized bank to comply with one or more supervisory actions specified by PCA as though the bank is an undercapitalized bank.
- impose one or more supervisory actions on an undercapitalized bank that would be authorized for a significantly undercapitalized bank.

While the latter two actions do not strictly represent reclassifications from one category to another, they are nonetheless collectively referred to as "reclassifications" for PCA purposes.

FDIA section 38 does not automatically subject a bank that has been reclassified to the next lower capital category to the mandatory restrictions of the lower category. These mandatory restrictions can only be imposed through the use of a PCA directive, and only those mandatory and discretionary provisions deemed appropriate by the Federal Reserve Board will be imposed. *A bank can only be reclassified to the next lower capital category and cannot be classified as critically undercapitalized on any basis other than its tangible equity ratio.*

The reclassification of a bank for PCA purposes may affect the bank's ability to accept brokered deposits. If a well- or adequately capitalized bank is reclassified, the bank must obtain an FDIC waiver to accept brokered deposits, regardless of its actual capital level. (This manual's Deposit Accounts section contains a detailed discussion on the capital requirements relating to brokered deposit activities.)

An "unsafe or unsound condition" is not defined in the PCA statute and assessment and, therefore is left to the discretion of the Federal Reserve Board. Banks determined by the Federal Reserve to be in an unsafe or unsound condition based on the results of the most recent

8. The Federal Reserve may, at its discretion, "calculate total assets using a bank's period-end assets rather than quarterly average assets." 12 CFR 208.41(m).

9. See 12 CFR 208.43(c).

report of examination or Call Report will be reclassified. Examiners should consider a bank for reclassification if the imposition of the available PCA provisions would assist the bank to return to a safe or sound condition or the bank to institute safe or sound practices. In addition, an "unsafe or unsound practice" is defined as a less-than-satisfactory rating for any of the AMELS ratings for the Asset quality, Management, Earnings, Liquidity or Sensitivity to market risk components of the CAMELS rating in the bank's most recent examination report and that has not been corrected since the examination.

The Federal Reserve Board recognizes that certain banks that are candidates for reclassification may have taken favorable actions that are consistent with the purposes of PCA.[10] In these cases, reclassification may not be warranted if

- the bank has raised or can demonstrate current efforts to raise enough capital to become and remain well capitalized for the foreseeable future, and
- the bank has attempted to be in substantial compliance with all provisions of any outstanding informal or formal enforcement action, management is addressing existing problems and is considered satisfactory, and the bank's condition is stable and shows signs of improvement.

Where reclassification is determined to be appropriate, the Federal Reserve Board will provide the bank with a written notice specifying its intention to reclassify the bank, along with an explanation of the reasons for the downgrade. The date of the reclassification and the required PCA provisions can be made effective either at a specified future date or, under certain circumstances, immediately, at the discretion of the Federal Reserve Board. A bank is entitled to appeal a reclassification, which includes the opportunity for an informal hearing, following the receipt of a written notice. The appeal and hearing procedures are set out in subpart H of the Federal Reserve Board's Rules of Practice for Hearings in section 263.203 (12 CFR 263.203).

10. FDIA section 38 explains that the purpose of PCA "is to resolve the problems of insured depository institutions at the least possible long-term loss to the Deposit Insurance Fund." 12 U.S.C. 1831o(a)(1).

PCA PROVISIONS

Provisions Applicable to All Banks

Two provisions are applicable to *all banks* (including well capitalized and adequately capitalized banks):

1. A bank may not pay dividends or make any other capital distributions that would leave it undercapitalized.[11]
2. A bank may not pay a management fee to a controlling person if, after paying the fee, the bank would be undercapitalized. Management fees subject to this restriction include those relating to supervisory, executive, managerial, or policymaking functions, other than compensation to an individual in the individual's capacity as an officer or employee of the bank. This does not include fees relating to nonmanagerial services provided by the controlling person, such as data processing, trust activities, mortgage services, audit and accounting, property management, or similar services.

Restrictions on Advertising

The Federal Reserve Board prohibits banks from advertising its PCA capital category.[12] However, banks are not restricted from advertising their capital levels or financial condition.

Provisions Applicable to Undercapitalized Banks

A bank categorized as undercapitalized is subject to several *mandatory* provisions that become effective upon the Federal Reserve Board noti-

11. FDIA section 38 (12 U.S.C. 1831o(d)(1)(B)) requires that the Federal Reserve Board consult with the FDIC before approving a capital distribution under this section. Section 38 also contains a limited exception to the restrictions on capital distributions for certain types of stock redemptions that (1) the Federal Reserve Board has approved, (2) are made in connection with an equivalent issue of additional shares or obligations, and (3) will improve the bank's financial condition. See 12 U.S.C. 1831o(d)(1)(B). The Federal Reserve Board may also impose restrictions on capital distributions on any company that controls a significantly undercapitalized bank.

12. See 12 CFR 208.40(d).

fying the bank. Under the mandatory provisions, an undercapitalized bank

- must cease paying dividends.
- is prohibited from paying management fees to a controlling person (see the previous subsection for exceptions).
- is subject to increased monitoring by the Federal Reserve Board and periodic review of the bank's efforts to restore its capital.
- must file and implement a capital restoration plan generally within 45 days. Undercapitalized banks that fail to submit or implement a capital restoration plan are also subject to the provisions applicable to significantly undercapitalized banks.
- may acquire interest in a company, open any new branch offices, or engage in a new line of business only if the following three requirements are met:
  - — the Federal Reserve Board has accepted its capital restoration plan,
  - — any increase in total assets is consistent with the capital restoration plan, and
  - — the bank's ratio of tangible equity to assets increases during the calendar quarter at a rate sufficient to enable the bank to become adequately capitalized within a reasonable time.

In addition to the mandatory provisions, a number of *discretionary* provisions may be imposed by the Federal Reserve Board on an undercapitalized bank. These include

- requiring recapitalization by doing one or more of the following:
  - — That the bank sell enough additional capital or debt to ensure that it would be adequately capitalized after the sale.
  - — That the aforementioned additional capital be voting shares.
  - — That the bank accept an offer to be acquired by another institution or company, or that any company that controls the bank be required to divest itself of the bank.
- restricting transactions between the bank and its affiliates.
- restricting the interest rates paid on deposits collected by the bank to the prevailing rates paid on comparable amounts in the region where the bank is located.
- restricting the bank's asset growth or requiring the bank to reduce its total assets.
- requiring the bank or any of its subsidiaries to terminate, reduce, or alter any activity determined by the Federal Reserve Board to pose excessive risk to the bank.
- ordering a new election of the board of directors, dismissing certain senior executive officers, or hiring new officers.
- prohibiting the acceptance, renewal, and rollover of deposits from correspondent depository institutions.
- prohibiting any bank holding company that controls the bank from making any capital distribution, including but not limited to dividend payment, without the prior approval of the Federal Reserve Board.
- requiring the bank to divest or liquidate any subsidiary that is in danger of becoming insolvent and that poses a significant risk to the bank, or is likely to cause significant dissipation of its assets or earnings.
- requiring any company that controls the bank to divest or liquidate any affiliate of the bank (other than another insured depository institution) if the Federal Reserve Board determines that the affiliate is in danger of becoming insolvent and poses a significant risk to the bank, or is likely to cause significant dissipation of the bank's assets or earnings.
- requiring the bank to take any other action that would more effectively carry out the purpose of PCA than the above actions.

Provisions Applicable to Significantly Undercapitalized Banks

The mandatory restrictions applicable to undercapitalized banks also apply to banks that are significantly undercapitalized. In addition, a significantly undercapitalized bank is restricted in paying bonuses or raises to senior executive officers of the bank unless it receives prior written approval from the Federal Reserve Board. If a bank fails to submit an acceptable capital restoration plan, however, no such bonuses or raises may be paid until an acceptable plan has been submitted.

The Federal Reserve Board must take the following actions unless it is determined that these actions would not further the purpose of PCA (resolution at the least possible long-term loss to the Deposit Insurance Fund):

- Require one or more of the following:

  - That the bank sell enough additional capital or debt to ensure that it would be adequately capitalized after the sale.
  - That the aforementioned additional capital be voting shares.
  - That the bank accept an offer to be acquired by another institution or company, or that any company that controls the bank be required to divest itself of the bank.
- Restrict the bank's transactions with affiliates.
- Restrict the interest rates paid on deposits collected by the bank to the prevailing rates paid on comparable amounts in the region where the bank is located.

In addition to these mandatory provisions, the Federal Reserve Board will impose one or more of the discretionary provisions for undercapitalized banks on a significantly undercapitalized bank. Moreover, other measures (including the provisions for critically undercapitalized banks) may be required if the Federal Reserve Board determines that such actions will advance the purpose of PCA.[13]

Provisions Applicable to Critically Undercapitalized Banks

A critically undercapitalized bank must be placed in conservatorship (with the concurrence of the FDIC) or receivership within 90 days, unless the Federal Reserve Board and the FDIC concur that other action would better achieve the purposes of PCA. The statute also addresses requirements in deferring the placing of a critically undercapitalized bank in conservatorship or receivership.[14]

A bank must be placed in receivership if it continues to be critically undercapitalized on average[15] during the fourth calendar quarter following the period that it initially became critically undercapitalized, unless the Federal Reserve Board, with the FDIC's concurrence, determines that

- the bank has a positive net worth.
- the bank has been in substantial compliance with its capital restoration plan since the date of the plan's approval.
- the bank is profitable or has a sustainable upward trend in earnings.
- the bank is reducing its ratio of nonperforming loans to total loans.
- the chair of the Federal Reserve Board and the chair of the FDIC both certify that the bank is viable and not expected to fail.

Beginning 60 days after becoming critically undercapitalized, critically undercapitalized banks are also prohibited from making any payment of principal or interest on subordinated debt issued by the bank without the prior approval of the FDIC. Unpaid interest, however, may continue to accrue on subordinated debt under the terms of the debt instrument. The FDIC is also required, at a minimum, to prohibit a critically undercapitalized bank from doing any of the following without the prior written approval of the FDIC:

- entering into any material transaction not in the usual course of business. Such activities include any investment, expansion, acquisition, sale of assets, or other similar action where the bank would have to notify the Federal Reserve.
- extending credit for any highly leveraged transaction.
- amending the bank's charter or bylaws, except to the extent necessary to carry out any other requirement of any law, regulation, or order.
- making any material change in accounting methods.
- engaging in any covered transaction under section 23A(b) of the Federal Reserve Act.
- paying excessive compensation or bonuses.
- paying interest on new or renewed liabilities that would increase the bank's weighted average cost of funds to a level significantly exceeding the prevailing rates of interest paid on insured deposits in the bank's normal market area.

Capital Restoration Plans

A bank that is undercapitalized, significantly undercapitalized, or critically undercapitalized must submit an acceptable capital restoration

13. 12 U.S.C. 1831o(f)(3).
14. 12 U.S.C. 1831o(h)(3).
15. The average is determined by adding the sum of the total tangible equity ratio at the close of business on each day during the quarter and dividing that sum by the number of business days in that quarter.

plan to the Federal Reserve Board. This plan must be submitted in writing and specify—

- the steps the bank will take to become adequately capitalized;
- the levels of capital the bank expects to attain each year that the plan is in effect;
- how the bank will comply with the restrictions and requirements imposed on it under FDIA section 38;
- the types and levels of activities in which the bank will engage; and
- any other information required by the Federal Reserve Board.

The Federal Reserve Board *cannot accept* a capital restoration plan *unless* the plan

- contains the information required in the preceding five points;
- is based on realistic assumptions and is likely to succeed in restoring the bank's capital;
- would not appreciably increase the risk (including credit risk, interest-rate risk, and other types of risk) to which the bank is exposed; and
- contains a guarantee from each company that controls the bank, specifying that the bank will comply with the plan until it has been adequately capitalized on average during each of four consecutive calendar quarters, and each company has provided appropriate assurances of performance. (See the subsequent subsection, "Capital Restoration Plan Guarantee," for additional information.)

Submission and Review of Capital Plans

The Federal Reserve Board has established rules regarding a uniform schedule for the filing and review of capital restoration plans. These rules require a bank to submit a capital restoration plan within 45 days after the bank has received notice, or has been deemed to have been notified, that it is undercapitalized, significantly undercapitalized, or critically undercapitalized. The Federal Reserve Board may change this period in individual cases, provided it notifies the bank that a different schedule has been adopted. The Federal Reserve Board must also

- review each capital restoration plan within 60 days of the bank's submission of the plan unless it extends the review time;
- provide written notice to the bank about whether it has approved or rejected the capital plan; and
- provide a copy of each acceptable capital restoration plan, and amendments thereto, to the FDIC within 45 days of accepting the plan.

There are two cases where a capital restoration plan may not be required:

1. When a bank has capital ratios consistent with those corresponding to the adequately capitalized category but, due to unsafe or unsound conditions or practices, has been reclassified to the undercapitalized category. (If the Federal Reserve requires a plan solely due to such a reclassification, the plan should specify the steps the bank will take to correct the unsafe or unsound condition or practice.)
2. When a bank's capital category changes, but the bank is already operating under a capital restoration plan accepted by the Federal Reserve.

The Federal Reserve Board will examine the circumstances of each of the above cases to determine whether a bank must submit a revised plan.

Capital Restoration Plan Guarantee

The Federal Reserve Board cannot approve a capital restoration plan unless each company that controls the bank has guaranteed the bank's compliance with the plan and has provided reasonable assurances of performance. The Federal Reserve Board will consider on a case-by-case basis the appropriate type of guarantee for multi-tier holding companies, or parent holding companies that are shell companies or that have limited resources. A guarantee that is backed by a contractual pledge of resources from a parent company may satisfy the requirements of FDIA section 38, particularly in situations involving the ownership of an insured bank by a foreign holding company through a wholly owned domestic shell holding. In other situations, a third-party guarantee made by a party with adequate financial resources may be satisfactory.

PCA also contains several provisions that clarify the capital restoration plan guarantee:

- *Limitation on liability.* The aggregate amount of liability under the guarantee for all companies that control a specific bank is limited to the lesser of (1) an amount equal to 5 percent of the bank's total assets, or (2) the amount necessary to restore the relevant capital ratios of the bank to the level required for the bank to be categorized as adequately capitalized.
- *Limitation on duration.* The guarantee and limit on liability expires after the Federal Reserve Board notifies the bank that it has remained adequately capitalized for each of the previous four consecutive calendar quarters.
- *Collection of guarantee.* Each company that controls a given bank is jointly and severally liable for the guarantee.
- *Failure to provide a guarantee.* A bank will be treated as if it had not submitted an acceptable capital restoration plan if its capital plan does not contain the required guarantee.
- *Failure to perform under a guarantee.* A bank will be treated as if it failed to implement the capital restoration plan if any company that controls the bank fails to perform its guarantee.

Failure to Submit an Acceptable Capital Plan

An undercapitalized bank that fails to submit or implement, in any material respect, an acceptable capital restoration plan within the required period is subject to the same provisions applicable to a bank that is significantly undercapitalized. If a bank's capital restoration plan is rejected by the Federal Reserve Board, the bank is required to submit a new capital plan within the time period specified by the Federal Reserve Board. During the period following notice of the rejection, and before Federal Reserve Board approval of a new or revised capital plan, the bank is treated in the same manner as a significantly undercapitalized bank.

ISSUANCE OF PCA DIRECTIVES

The Federal Reserve Board must provide a bank, or company controlling a bank (company), a written notice of proposed action under FDIA section 38 (referred to as a directive), unless the circumstances of a particular case indicate that immediate action is necessary to serve the purpose of PCA. These directives are issued for reasons such as reclassifying a bank and implementing discretionary provisions, the latter of which includes the dismissal of directors or senior executive officers.

A notice of intent to issue a directive should include

- a statement of the bank's capital measures and levels;
- a description of the restrictions, prohibitions, or affirmative actions that the Federal Reserve Board proposes to impose or require;
- the proposed date when such restrictions or prohibitions would be effective or the proposed date for completion of such affirmative actions; and
- the date by which the bank or company subject to the directive may file with the Federal Reserve Board a written response to the notice.

When a directive becomes effective at a future date, the Federal Reserve Board must provide the bank or company an opportunity to appeal the directive before taking final action. This requires the bank to submit information relevant to the decision within the time period set by the Federal Reserve Board, which must be at least 14 calendar days from the date of the notice, unless the Federal Reserve Board determines that a shorter period is appropriate in light of the financial condition of the bank or other relevant circumstances.

In the case of a directive that is immediately effective upon notification of the bank, the Federal Reserve Board's rules provide an opportunity for the bank or company to seek an expedited modification or rescission of the directive. A bank or company that appeals a directive effective immediately is required to file a written appeal within 14 days of receiving the notice, and the Federal Reserve Board will consider the appeal within 60 days of receiving it. During the period that the appeal is under review the directive remains in effect, unless the Federal Reserve Board stays the effectiveness of the directive.

Dismissal of Directors or Senior Executive Officers

The Federal Reserve Board's rules establish a special procedure permitting an opportunity for senior executive officers and directors dismissed from a bank as a result of a PCA directive to petition the Federal Reserve Board for reinstatement. A director or senior executive officer who is required to be dismissed in compliance with a Federal Reserve Board directive may have the dismissal reviewed by filing, within 10 days, a request for reinstatement with the Federal Reserve Board. The respondent will also be given the opportunity to submit written materials in support of the petition and to appear at an informal hearing before representatives of the Federal Reserve Board. Unless otherwise ordered by the Federal Reserve Board, the dismissal remains in effect while a request for reinstatement is pending. No later than 60 calendar days after the date the record is closed or the date of the response in a case where no hearing was requested, the Federal Reserve Board shall grant or deny the request for reinstatement and notify the respondent of the Federal Reserve Board's decision. The date for the hearing and for the ultimate decision follows the same timeframe as that indicated for the appeals process in the preceding paragraph.

Enforcement of Directives

PCA directives may be enforced in the federal courts, and may also subject any bank, company, or institution-affiliated party that violates the directive to civil money penalties or other enforcement actions. The failure of a bank to implement a capital restoration plan, or the failure of a company having control of a state member bank to fulfill a guarantee that the company has given in connection with a capital plan accepted by the Federal Reserve Board, could subject the bank or company or any of their institution-affiliated parties to a civil money penalty assessment.

TABLE 1—SUMMARY OF SPECIFICATIONS OF CAPITAL CATEGORIES FOR PROMPT CORRECTIVE ACTION FOR INSTITUTIONS NOT SUBJECT TO THE COMMUNITY BANK LEVERAGE RATIO FRAMEWORK

Capital Category	Total Risk-Based Capital (RBC) Measure	Tier 1 RBC Measure	Common Equity Tier 1 RBC Measure	Leverage Measure
Well Capitalized	10% or more and	8% or more and	6.5% or more and	5% or more* and
Adequately Capitalized	8% or more and	6% or more and	4.5% or more and	4% or more**
Under-capitalized	less than 8% or	less than 6% or	less than 4.5% or	less than 4%**
Significantly Under-capitalized	less than 6% or	less than 4% or	less than 3% or	less than 3%
Critically Under-capitalized	tangible equity to total assets ratio of 2% or less			

* For a bank that is a subsidiary of a G-SIB, a supplementary leverage ratio of 6.0 percent or more.
** For an advanced approaches bank or bank that is a Category III Board-regulated institution, a supplementary leverage ratio of 3.0 percent or more.

1. To assess whether prompt-corrective-action (PCA) provisions are necessary.
2. To assess whether the policies, practices, and procedures are in place to ensure compliance with PCA mandatory and discretionary provisions.
3. To verify that undercapitalized, significantly undercapitalized, and critically undercapitalized banks have effective capital restoration plans that comply with PCA.

1. During on-site examinations, validate the state member bank's capital levels, risk-weighted assets, and capital ratios in compliance with primary capital provisions of section 38 of the Federal Deposit Insurance Act (FDIA) and the Federal Reserve's respective capital adequacy rules. (See this manual's section on the Assessment of Capital Adequacy and 12 CFR 217.) Verify that the bank's
   a. capital instruments are appropriate for inclusion in common equity tier 1, tier 1, or tier 2 capital.
   b. assets were properly risk-weighted and that the appropriate credit equivalent measure (for example, the credit-conversion factors, credit-rating factors) were assigned for the bank's off-balance-sheet assets or transactions.
2. When a state member bank is considered undercapitalized, significantly undercapitalized, or critically undercapitalized, discuss with the bank's management the prompt corrective action restrictions under FDIA section 38 and the Board's Regulation H (12 CFR 208, subpart D).
3. When a state member bank is operating with an amount of consolidated capital that is near the undercapitalized levels, caution the board of directors and senior management about their ensuring that any proposed dividend or management fee payments do not cause the bank to violate FDIA section 38.
4. When the impact of the bank's examination findings (for example, loan-loss-reserve adjustments or other losses) will cause the bank to fall into a lower prompt-corrective-action category, explicitly state in the narrative portion of the capital examination report page the adjusted prompt-corrective-action capital ratios with a clear account of the adjustments that were made to the quarter-end or period-end ratios.
5. Include in the appropriate report page of the state member bank examination report any comments regarding the applicability of FDIA section 38 and Regulation H pertaining to prompt corrective action. With regard to prompt corrective action, limit the comments to the mandatory restrictions of the statute and the immediacy of those provisions. State that the receipt of the state member bank examination report serves as notification that the bank is subject to prompt corrective action.

INTRODUCTION

From a regulator's standpoint, the essential purpose of bank earnings, both current and accumulated, is to absorb losses and augment capital. Earnings is the initial safeguard against the risks that a bank incurs in the course of doing business, and represents a bank's first line of defense against capital depletion resulting from a decline in the value of its assets. This section is designed to provide a high-level overview for examiners in assessing a bank's earning through the use of analytical review techniques. Examiners need to remain cognizant of the inextricable links among capital, asset quality, earnings, liquidity, and market risk sensitivity.

GENERAL EXAMINATION APPROACH

As part of the off-site preparation for an on-site examination, examiners review and analyze a bank's financial condition. (See the manual sections entitled, "Examination Strategy and Risk-Focused Examinations" and "Federal Reserve System Bank Surveillance Program.") This analysis is meant to identify potential problem areas and to develop the examination scope so that proper staff levels and appropriate examination procedures can be used.

The analysis of earnings includes all bank operations and activities. When evaluating earnings, examiners should develop an understanding of the bank's core business activities. Core activities are those operations that are part of a bank's normal or continuing business. Examiners should understand a bank's composition of earnings and sustainability of the various earnings components. This would include balance-sheet composition, particularly the volume and type of earning assets and off-balance-sheet items, if applicable.

ANALYTICAL REVIEW

In performing the analytical review of a bank, examiners should use the most recent Uniform Bank Performance Report (UBPR) as well as the most recent financial statements and other related financial information that supports the source and trend in the bank's earnings. A well-performed analytical review provides examiners with an understanding of the bank's operations. An analytical review of bank earnings highlights matters of interest and potential problem situations which, examiners will need to address with the bank. In reviewing and assessing a bank's earning, examiners perform level and trend analysis of financial report data and ratios as well as reviewing other metrics. Analytical review is based on the assumption that period-to-period balances and ratios are free from significant error considering the procedures relating to income and expenses, and regulatory reports conducted by internal or external auditors. (See the manual section entitled, "Internal Control and Audit Function, Oversight, and Outsourcing," for a discussion of factors to consider in reviewing the audit work of others.)

Analytical Tools

The UBPR and the bank's financial statements are key sources of analysis for examination staff. Bank-prepared statements and supplemental schedules, if available, facilitate an in-depth analytical review. The information from those schedules may give examiners considerable insight into the interpretation of the bank's basic financial statements. To properly understand and interpret a particular bank's financial and statistical data, examiners should be familiar with current economic and industry conditions, including any idiosyncratic cyclical or seasonal factors in the nation, region, and local area that may have an affect on the bank's earnings. Economic and industry information, reports, and journals are useful informational sources of industry conditions and trends. Finally, examiners should be knowledgeable about new banking laws and new accounting standards or methodologies that could have a material effect on financial institutions' business and earnings.

UBPR

The information used to prepare UBPRs are largely based on the Consolidated Reports of

Condition and Income (Call Report). Each UBPR also contains corresponding average data for the bank's peer group (a group of banks of similar asset size and reporting characteristics) and percentile rankings for most ratios. The UBPR facilitates the evaluation of a bank's current condition, trends in its financial performance, and comparisons with the performance of its peer group.

The user's guide for the UBPR explains how a structured approach to financial analysis should be followed.[1] This approach breaks down a bank's income stream into its major components of interest margin performance, overhead, noninterest income, loan-loss provisions, tax factors, and extraordinary items. These major components can then be broken down into various subcomponents. Also, examiners should analyze the balance-sheet composition along with economic conditions to understand the source and future variability of a bank's income stream.

The dollar amounts displayed for most income and expense items in the UBPR are shown for the year-to-date period. However, to allow comparison of ratios between quarters, income and expense and related data used in certain ratios are annualized for interim reporting periods. Thus, the income or expense item is multiplied by the indicated factor listed below before dividing it by the corresponding asset or liability. The UBPR annualization factors are

- March 4.0,
- June 2.0, and
- September 1.3333.

Income and expense information reported on the December 31 Call Report is not annualized. Since the year-end UBPR represents a full fiscal year.

Frequently, examiners need a more detailed and current review of a bank's financial condition than that provided by the UBPR. Under certain circumstances, UBPR procedures may need to be supplemented because—

- asset-quality information must be linked to the income stream;
- more detailed information is necessary on asset-liability maturities and matching;
- more detailed information is necessary on other liquidity aspects, as they may affect earnings;
- yield or cost information, which may be difficult to interpret from the report, is needed;
- certain income or expense items may need clarification, as well as normal examination validation;
- volume information, such as the number of demand deposits, certificates of deposit, and other accounts, is not reported, and vulnerability in a bank subject to concentrations normally should be considered;
- components of interest and fees on loans are not reported separately by category of loan; thus, adverse trends in the loan portfolio may not be detected (for example, the yield of a particular bank's loan portfolio may be similar to those of its peer group, but examiners may detect an upward trend in yields for a specific category of loans. That upward trend might be partially or wholly offset by a downward trend of yields in another category of loans, and examiners should consider further investigating the circumstances applicable to each of those loan categories. A change in yields could be a result of a change in the bank's business model or risk "appetite" for certain types of loans or may indicate a change in loan underwriting standards.); or
- income or expense resulting from a change in the bank's operations, such as the opening of a new branch or starting of a mortgage banking activity or trust department, may skew performance ratios. (When there has been a significant change in a bank's operations, examiners should analyze the potential impact of the change on future bank earnings.)

Review of Management's Budget and Financial Statements

In addition to UBPR analysis, examiners should incorporate a review of management's budget and/or financial projections. In reviewing a bank's projections and individual variances from its operating budget, examiners should be able to identify the sources and trends in the bank's prior and future earnings. Examiners should also verify the reasonableness of the budgeted amounts, frequency of budget review by bank management and the board of directors, and level of involvement of key bank personnel in the budget process.

1. The Federal Financial Institutions Examination Council (FFIEC) provides additional information on the UBPR, including the UBPR User's Guide at www.ffiec.gov/ubpr.htm.

In reviewing a bank's financial statements, examiners should be cognizant of new accounting standards or changes in accounting methodologies. In addition, alternative accounting treatments for similar transactions among peer banks also should be considered because they may produce significantly different results. The analytical review must be based on figures derived under valid accounting practices consistently applied, particularly in the accrual areas. Accordingly, during the analytical review, examiners should work with Reserve Bank accounting specialists to determine any material inconsistencies in the application of accounting principles.

Review of Nonrecurring and Extraordinary Items

When assessing earnings, examiners should be aware of nonrecurring events or actions that have affected a bank's earnings performance, positively or negatively, and should adjust earnings on a tax equivalent (TE) basis for comparison purposes. Although the analysis should reflect adjustments for non-recurring events, examiners should also include within their analysis the impact that these items had on overall earnings performance. Examples of events that may affect earnings include adoption of new accounting standards, extraordinary items, or other actions taken by management that are not considered part of a bank's normal operations such as sales of securities for tax purposes or for some other reason unrelated to active management of the securities portfolio.

The exclusion of nonrecurring events from the analysis allows examiners to analyze the profitability of a bank's core operations without the distortions caused by non-recurring items. By adjusting for these distortions, examiners are better able to compare a bank's current earnings performance against the bank's past performance and industry norms (for example, peer group data).

Compliance with Laws and Regulations Relating to Earnings and Dividends

Examiners should consider the interrelationships that exist among the dividend-payout ratio, the rate of growth of retained earnings, and the bank's ability to cover losses and maintain adequate capital. A bank's earnings should also be more than sufficiently adequate in relation to its current dividend rate. In particular, examiners should consider whether a bank's dividend rate is prudent relative to its financial position and not based on overly optimistic earnings scenarios. See SR-09-4, "Applying Supervisory Guidance and Regulations on the Payment of Dividends, Stock Redemptions, and Stock Repurchases at Bank Holding Companies."[2] Prudent management dictates that a bank should consider the curtailment of the dividend rate if capital is inadequate and greater earnings retention is required. If it appears that a bank's dividend payout isexcessive or that there is a record of recent operating losses, examiners should refer to sections 5199(b) and 5204 of the United States Revised Statutes and section 208.19 of Regulation H which restrict state member bank dividends. See also this manual's section entitled, "Dividends."

ASSIGNING THE EARNINGS RATING

After performing the appropriate examination procedures and documenting the supervisory assessment of a bank, examiners assign a component Uniform Financial Institution Ratings System rating based on an evaluation of a banks earnings. Examiners assign a rating that addresses the quantity and trend of a bank's earnings, as well as factors that may affect the sustainability or quality of earnings. The quantity as well as the quality of a bank's earnings can be affected by excessive or inadequately managed credit risk that may result in loan losses and require additions to the allowance for loan and lease losses, or by high levels of market risk that may unduly expose an institution's earnings to volatility in interest rates.[3] The quality of earnings may also be diminished by undue reliance on extraordinary gains, nonrecurring events, or favorable tax effects. Future earnings may be adversely affected by an inabil-

2. See also the *Bank Holding Company Supervision Manual* for a discussion of the Board's "Policy Statement on the Payment of Cash Dividends by State Member Banks and Bank Holding Companies."

3. See this manual's section entitled, "Allowance for Loan and Lease Losses," for more information.

ity to forecast or control funding and operating expenses, improperly executed or ill-advised business strategies, or poorly managed or uncontrolled exposure to other risks.

Examiners base their rating of a bank's earnings based upon, but not limited to, an assessment of the following evaluation factors:

- the level of earnings, including trends and stability
- the bank's ability to provide for adequate capital through retained earnings
- the quality and sources of earnings
- the level of expenses in relation to the bank's operations
- the adequacy of the bank's budgeting systems, forecasting processes, and management information systems in general
- the adequacy of the bank's provisions for the allowance for loan and lease losses and other valuation allowance accounts
- the earnings exposure to market risk such as interest rate, foreign exchange, and price risks

Earnings—Analytical Review of Income and Expense
Examination Procedures
Effective date May 2022

Section 3100.3

Examination procedures are available on the Examination Documentation (ED) modules page on the Board's website. See the following ED module for examination procedures on this topic:

- Earnings

FACTORS INFLUENCING LIQUIDITY MANAGEMENT AND TYPES OF LIQUIDITY RISK

Liquidity is a financial institution's capacity to meet its cash and collateral obligations without incurring unacceptable losses. Adequate liquidity is dependent upon the institution's ability to efficiently meet both expected and unexpected cash flows and collateral needs without adversely affecting either daily operations or the financial condition of the institution. An institution's obligations and the funding sources used to meet them depend significantly on its business mix, balance-sheet structure, and the cash-flow profiles of its on- and off-balance-sheet obligations. In managing their cash flows, institutions 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 in accessing sources of funds (i.e., market liquidity), and contingent liquidity events. Changes in economic conditions or exposure to credit, market, operation, legal, and reputation risks also can affect an institution's liquidity-risk profile and should be considered in the assessment of liquidity and asset/liability management.

Liquidity risk is the risk to an institution's financial condition or safety and soundness arising from its inability (whether real or perceived) to meet its contractual obligations. Because banking organizations employ a significant amount of leverage in their business activities—and need to meet contractual obligations in order to maintain the confidence of customers and fund providers—adequate liquidity is critical to an institution's ongoing operation, profitability, and safety and soundness.

To ensure it has adequate liquidity, an institution must balance the costs and benefits of liquidity: Too little liquidity can expose an institution to an array of significant negative repercussions arising from its inability to meet contractual obligations. Conversely, too much liquidity can entail substantial opportunity costs and have a negative impact on the firm's profitability.

Note: The guidance complements existing guidance in the *Bank Holding Company Supervision Manual* (section 4010.2) and various SR-letters (see the "References" section).

Effective liquidity management entails the following three elements:

- assessing, on an ongoing basis, the 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
- providing for an adequate cushion of liquidity with a stock of liquid assets to meet unanticipated cash-flow needs that may arise from a continuum of potential adverse circumstances that can range from high-probability/low-severity events that occur in daily operations to low-probability/high-severity events that occur less frequently but could significantly affect an institution's safety and soundness
- striking an appropriate balance between the benefits of providing for adequate liquidity to mitigate potential adverse events and the cost of that liquidity

The primary role of liquidity-risk management is to (1) prospectively assess the need for funds to meet obligations and (2) ensure the availability of cash or collateral to fulfill those needs at the appropriate time by coordinating the various sources of funds available to the institution under normal and stressed conditions. Funds needs arise from the myriad of banking activities and financial transactions that create contractual obligations to deliver funds, including business initiatives for asset growth, the provision of various financial products and transaction services, and expected and unexpected changes in assets and the liabilities used to fund assets. Liquidity managers have an array of alternative sources of funds to meet their liquidity needs. These sources generally fall within one of four broad categories:

- net operating cash flows
- the liquidation of assets
- the generation of liabilities
- an increase in capital funds

Funds obtained from operating cash flows arise from net interest payments on assets; net principal payments related to the amortization and maturity of assets; and the receipt of funds from various types of liabilities, transactions, and service fees. Institutions obtain liquidity from operating cash flows by managing the

timing and maturity of their asset and liability cash flows, including their ongoing borrowing and debt-issuance programs.

Funds can also be obtained by reducing or liquidating assets. Most institutions incorporate scheduled asset maturities and liquidations as part of their ongoing management of operating cash flows. They also use the potential liquidation of a portion of their assets (generally a portion of the investment portfolio) as a contingent source of funds to meet cash needs under adverse liquidity circumstances. Such contingent funds need to be unencumbered for the purposes of selling or lending the assets and are often termed *liquidity reserves* or *liquidity warehouses* and are a critical element of safe and sound liquidity management. Assessments of the value of unencumbered assets should represent the amount of cash that can be obtained from monetized assets under normal as well as stressed conditions.

Asset securitization is another method that some institutions use to fund assets. Securitization involves the transformation of on-balance-sheet loans (e.g., auto, credit card, commercial, student, home equity, and mortgage loans) into packaged groups of loans in various forms, which are subsequently sold to investors. Depending on the business model employed, securitization proceeds can be both a material source of ongoing funding and a significant tool for meeting future funding needs. Securitization markets may provide a good source of funding; however, institutions should be cautious in relying too heavily on this market as it has been known to shutdown under market stress situations.

Funds are also generated through deposit-taking activities, borrowings, and overall liability management. Borrowed funds may include secured lending and unsecured debt obligations across the maturity spectrum. In the short term, borrowed funds may include purchased fed funds and securities sold under agreements to repurchase (repos). Longer-term borrowed funds may include various types of deposit products, collateralized loans, and the issuance of corporate debt. Depending on their contractual characteristics and the behavior of fund providers, borrowed funds can vary in maturity and availability because of their sensitivity to general market trends in interest rates and various other market factors. Considerations specific to the borrowing institution also affect the maturity and availability of borrowed funds.

External Factors and Exposure to Other Risks

The liquidity needs of a financial institution and the sources of liquidity available to meet those needs depend significantly on the institution's business mix and balance-sheet structure, as well as on the cash-flow profiles of its on- and off-balance-sheet obligations. While management largely determines these internal attributes, external factors and the institution's exposure to various types of financial and operating risks, including interest-rate, credit, operational, legal, and reputational risks, also influence its liquidity profile. As a result, an institution should assess and manage liquidity needs and sources by considering the potential consequences of changes in external factors *along with* the institution-specific determinants of its liquidity profile.

Changes in Interest Rates

The level of prevailing market interest rates, the term structure of interest rates, and changes in both the level and term structure of rates can significantly affect the cash-flow characteristics and costs of, and an institution's demand for, assets, liabilities, and off-balance-sheet (OBS) positions. In turn, these factors significantly affect an institution's funding structure or liquidity needs, as well as the relative attractiveness or price of alternative sources of liquidity available to it. Changes in the level of market interest rates can also result in the acceleration or deceleration of loan prepayments and deposit flows. The availability of different types of funds may also be affected, as a result of options embedded in the contractual structure of assets, liabilities, and financial transactions.

Economic Conditions

Cyclical and seasonal economic conditions can also have an impact on the volume of an institution's assets, liabilities, and OBS positions—and, accordingly, its cash-flow and liquidity profile. For example, during recessions, business demand for credit may decline, which affects the growth of an organization and its liquidity needs. At the same time, subpar economic growth and its impact on employ-

ment, bankruptcies, and business failures often create direct and indirect incentives for retail customers to reduce their deposits; a recession may also lead to higher loan delinquencies for financial institutions. All of these conditions have negative implications for an institution's cash flow and overall liquidity. On the other hand, periods of economic growth may spur asset or deposit growth, thus introducing different liquidity challenges.

Credit-Risk Exposures of an Institution

An institution's exposure to credit risk can have a material impact on its liquidity. Nonperforming loans directly reduce otherwise expected cash inflows. The reduced credit quality of problem assets impairs their marketability and potential use as a source of liquidity (either by selling the assets or using them as collateral). Moreover, problem assets have a negative impact on overall cash flows by increasing the costs of loan-collection and -workout efforts.

In addition, the price that a bank pays for funds, especially wholesale and brokered borrowed funds and deposits, will reflect the institution's perceived level of risk exposure in the marketplace. Fund suppliers use a variety of credit-quality indicators to judge credit risk and determine the returns they require for the risk to be undertaken. Such indicators include an institution's loan-growth rates; the relative size of its loan portfolio; and the levels of delinquent loans, nonperforming loans, and loan losses. For institutions that have issued public debt, the credit ratings of nationally recognized statistical rating organizations (NRSOs) are particularly critical.

Other Risk Exposures of an Institution

Importantly, exposures to operational, legal, reputational, and other risks can lead to adverse liquidity conditions. Operating risks can materially disrupt the dispersal and receipt of obligated cash flows and give rise to significant liquidity needs. Exposure to legal and reputational risks can lead fund providers to question an institution's overall credit risk, safety and soundness, and ability to meet its obligations in the future. A bank's reputation for operating in a safe and sound manner, particularly its ability to meet its contractual obligations, is an important determinant in its costs of funds and overall liquidity-risk profile.

Given the critical importance of liquidity to financial institutions and the potential impact that other risk exposures and external factors have on liquidity, effective liquidity managers ensure that liquidity management is fully integrated into the institution's overall enterprise-wide risk-management activities. Liquidity management is therefore an important part of an institution's strategic and tactical planning.

Types of Liquidity Risk

Banking organizations encounter the following three broad types of liquidity risk:

- mismatch risk
- market liquidity risk
- contingent liquidity risk

Mismatch risk is the risk that an institution will not have sufficient cash to meet obligations in the normal course of business, as a result of ineffective matches between cash inflows and outflows. The management and control of funding mismatches depend greatly on the daily projections of operational cash flow, including those cash flows that may arise from seasonal business fluctuations, unanticipated new business, and other everyday situations. To accurately project operational cash flows, an institution needs to estimate its expected cash-flow needs and ensure it has adequate liquidity to meet small variations to those expectations. Occurrences of funding mismatches may be frequent. If adequately managed, these mismatches may have little to no impact on the financial health of the firm.

Market liquidity risk is the risk that an institution will encounter market constraints in its efforts to convert assets into cash or to access financial market sources of funds.

The planned conversion of assets into cash is an important element in an institution's ongoing management of funding cash-flow mismatches. In addition, converting assets into cash is often a key strategic tool for addressing contingent liquidity events. As a result, market constraints on achieving planned, strategic, or contingent conversions of assets into cash can exacerbate the severity of potential funding mismatches and contingent liquidity problems.

Contingent liquidity risk is the risk that arises when unexpected events cause an institution to have insufficient funds to meet its obligations. Unexpected events may be firm-specific or arise from external factors. External factors may be geographic, such as local economic factors that affect the premiums required on deposits with certain local, state, or commercial areas, or they may be market-oriented, such as increases in the price volatility of certain types of securities in response to financial market developments. External factors may also be systemic, such as a payment-system disruption or major changes in economic or financial market conditions.

The nature and severity of contingent liquidity events vary substantially. At one extreme, contingent liquidity risk may arise from the need to fund unexpected asset growth as a result of commitment requests or the unexpected runoff of liabilities that occurs in the normal course of business. At the other extreme, institution-specific issues, such as the lowering of a public debt rating or general financial market stress, may have a significant impact on an institution's liquidity and safety and soundness. As a result, managing contingent liquidity risk requires an ongoing assessment of potential future events and circumstances in order to ensure that obligations are met and adequate sources of standby liquidity and/or liquidity reserves are readily available and easily converted to cash.

Diversification plays an important role in managing liquidity and its various component risks. Concentrations in particular types of assets, liabilities, OBS positions, or business activities that give rise to unique types of funding needs or create an undue reliance on specific types of funding sources can unduly expose an institution to the risks of funding mismatches, contingent events, and market liquidity constraints. Therefore, diversification of both the sources and uses of liquidity is a critical component of sound liquidity-risk management.

SOUND LIQUIDITY-RISK MANAGEMENT PRACTICES

Like the management of any type of risk, sound liquidity-risk management involves effective oversight of a comprehensive process that adequately identifies, measures, monitors, and controls risk exposure. This process includes oversight of exposures to funding mismatches, market liquidity constraints, and contingent liquidity events. Both international and U.S. banking supervisors have issued supervisory guidance on safe and sound practices for managing the liquidity risk of banking organizations. Guidance on liquidity risk management was published by the Basel Committee on Banking Supervision, Bank for International Settlements, "Principles for Sound Liquidity Risk Management and Supervision," in September 2008.[1] The U.S. regulatory agencies implemented these principles, jointly agreeing to incorporate those principles into their existing guidance. The revised guidance, "Interagency Policy Statement on Funding and Liquidity Risk Management" was issued on March 10, 2010 (see SR-10-6 and its attachment).

In summary, the critical elements of a sound liquidity-risk management process are—

- 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 manage and 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 institution.
- 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 free of legal, regulatory, or operational impediments that can be used to meet liquidity needs in stressful situations.
- Comprehensive contingency funding plans (CFPs) that sufficiently address potential adverse liquidity events and emergency cash flow requirements.
- Internal controls and internal audit processes sufficient to determine the adequacy of the institution's liquidity-risk-management process.

1. Basel Committee on Banking Supervision, "Principles for Sound Liquidity Risk Management and Supervision," September 2008. See www.bis.org/publ/bcbs144.htm.

Each of these elements should be customized to account for the sophistication, complexity, and business activities of an institution. The following sections discuss supervisory expectations for each of these critical elements.

Corporate Governance and Oversight

Effective liquidity-risk management requires the coordinated efforts of both an informed board of directors and capable senior management. The board should establish and communicate the institution's liquidity-risk tolerance in such a manner that all levels of management clearly understand the institution's approach to managing the trade-offs between management of liquidity risk and short-term profits. The board should ensure that the organizational structures and staffing levels are appropriate, given the institution's activities and the risks they present.

Involvement of the Board of Directors

The board of directors is ultimately responsible for the liquidity risk assumed by the institution. The board should understand and guide the strategic direction of liquidity-risk management. Specifically, the board of directors or a delegated committee of board members should oversee the establishment and approval of liquidity management strategies, policies and procedures, and review them at least annually. In addition, the board should ensure that it

- understands the nature of the institution's liquidity risks and periodically reviews information necessary to maintain this understanding;
- understands and approves those elements of liquidity-risk management policies that articulate the institution's general strategy for managing liquidity risk, and establishes acceptable risk tolerances;
- establishes executive-level lines of authority and responsibility for managing the institution's liquidity risk;
- enforces management's duties to identify, measure, monitor, and control liquidity risk.
- understands and periodically reviews the institution's CFP for handling potential adverse liquidity events; and
- understands the liquidity-risk profile of important subsidiaries and affiliates and their influence on the overall liquidity of the financial institution, as appropriate.

Role of Senior Management

Senior management should ensure that liquidity-risk management strategies, policies, and procedures are adequate for the sophistication and complexity of the institution. Management should ensure that these policies and procedures are appropriately executed on both a long-term and day-to-day basis, in accordance with board delegations. Management should oversee the development and implementation of—

- an appropriate risk-measurement system and standards for measuring the institution's liquidity risk;
- a comprehensive liquidity-risk reporting and monitoring process;
- establishment and monitoring of liquid asset buffers of unencumbered marketable securities;
- effective internal controls and review processes for the management of liquidity risk; and
- monitoring of liquidity risks for each entity across the institution on an on-going basis and;
- an appropriate CFP, including (1) adequate assessments of the institution's contingent liquidity risks under adverse circumstances and (2) fully developed strategies and plans for managing such events.

Senior management should periodically review the organization's liquidity-risk management strategies, policies, and procedures, as well as its CFP, to ensure that they remain appropriate and sound. Management should also coordinate the institution's liquidity-risk management with its efforts for disaster, contingency, and strategic planning, as well as with its business and risk-management objectives, strategies, and tactics. Senior management is also responsible for regularly reporting to the board of directors on the liquidity-risk profile of the institution.

Strategies, Policies, Procedures, and Risk Tolerances

Institutions should have documented strategies for managing liquidity and have formal written policies and procedures for limiting and controlling risk exposures. Strategies, policies, and procedures should translate the board's goals, objectives, and risk tolerances into operating standards that are well understood by institutional personnel and that are consistent with the board's intended risk tolerances. Policies should also ensure that responsibility for managing liquidity is assigned throughout the corporate structure of the institution, including separate legal entities and relevant operating subsidiaries and affiliates, where appropriate. Strategies set out the institution's general approach for managing liquidity, articulate its liquidity-risk tolerances, and address the extent to which key elements of funds management are centralized or delegated throughout the institution. Strategies also communicate how much emphasis the institution places on using asset liquidity, liabilities, and operating cash flows to meet its day-to-day and contingent funding needs. Quantitative and qualitative targets, such as the following, may also be included in policies:

- guidelines or limits on the composition of assets and liabilities
- the relative reliance on certain funding sources, both on an ongoing basis and under contingent liquidity scenarios
- the marketability of assets to be used as contingent sources of liquidity

An institution's strategies and policies should identify the primary objectives and methods for (1) managing daily operating cash flows, (2) providing for seasonal and cyclical cash-flow fluctuations, and (3) addressing various adverse liquidity scenarios. The latter includes formulating plans and courses of actions for dealing with potential temporary, intermediate-term, and long-term liquidity disruptions. Policies and procedures should formally document—

- lines of authority and responsibility for managing liquidity risk,
- liquidity-risk limits and guidelines,
- the institution's measurement and reporting systems, and
- elements of the institution's comprehensive CFP.

Incorporating these elements of liquidity-risk management into policies and procedures helps internal control and internal audit fulfill their oversight role in the liquidity-risk management process. Policies, procedures, and limits should address liquidity separately for individual currencies, where appropriate and material. All liquidity-risk policies, procedures, and limits should be reviewed periodically and revised as needed.

Delineating Clear Lines of Authority and Responsibility

Through formal written policies or clear operating procedures, management should delineate managerial responsibilities and oversight, including lines of authority and responsibility for the following:

- developing liquidity-risk management policies, procedures, and limits
- developing and implementing strategies and tactics for managing liquidity risk
- conducting day-to-day management of the institution's liquidity
- establishing and maintaining liquidity-risk measurement and monitoring systems
- authorizing exceptions to policies and limits
- identifying the potential liquidity risk associated with the introduction of new products and activities

Institutions should clearly identify the individuals or committees responsible for liquidity-risk decisions. Less complex institutions often assign such responsibilities to the CFO or an equivalent senior management official. Other institutions assign responsibility for liquidity-risk management to a committee of senior managers, sometimes called a finance committee or an asset/liability committee (ALCO). Policies should clearly identify individual or committee duties and responsibilities, the extent of the decision-making authority, and the form and frequency of periodic reports to senior management and the board of directors. In general, an ALCO (or a similar senior-level committee) is responsible for ensuring that (1) measurement systems adequately identify and quantify the institution's liquidity-risk exposure and (2) reporting sys-

tems communicate accurate and relevant information about the level and sources of that exposure.

When an institution uses an ALCO or other senior management committee, the committee should actively monitor the liquidity profile of the institution and should have sufficiently broad representation from the major institutional functions that influence liquidity risk (e.g., the lending, investment, deposit, or funding functions). Committee members should include senior managers who have authority over the units responsible for executing transactions and other activities that can affect liquidity. In addition, the committee should ensure that (1) the risk-measurement system adequately identifies and quantifies risk exposure and (2) the reporting process communicates accurate, timely, and relevant information about the level and sources of risk exposure.

In general, committees overseeing liquidity-risk management delegate the day-to-day responsibilities to the institution's treasury department or, at less complex institutions, to the CFO, treasurer, or other appropriate staff. The personnel charged with measuring and monitoring the day-to-day management of liquidity risk should have a well-founded understanding of all aspects of the institution's liquidity-risk profile. While the day-to-day management of liquidity may be delegated, the oversight committee should not be precluded from aggressively monitoring liquidity management.

In more-complex institutions that have separate legal entities and operating subsidiaries or affiliates, effective liquidity-risk management requires senior managers and other key personnel to have an understanding of the funding position and liquidity of any member of the corporate group that might provide or absorb liquid resources from another member. Centralized liquidity-risk assessment and management can provide significant operating efficiencies and comprehensive views of the liquidity-risk profile of the integrated corporate entity as well as members of the corporate group—including depository institutions. This integrated view is particularly important for understanding the impact other members of the group may have on insured depository entities. However, legal and regulatory restrictions on the flow of funds among members of a corporate group, in addition to differences in the liquidity characteristics and dynamics of managing the liquidity of different types of entities within a group, may call for decentralizing various elements of liquidity-risk management. Such delegation and associated strategies, policies, and procedures should be clearly articulated and understood throughout the organization. Policies, procedures, and limits should also address liquidity separately for individual currencies, legal entities, and business lines, when appropriate and material, as well as allow for legal, regulatory, and operational limits for the transferability of liquidity.

Diversified Funding

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

An institution should diversify available funding sources in the short-, medium- and long-term. Diversification targets should be part of the medium- to long-term funding plans and should be aligned with the budgeting and business planning process. Funding plans should take into account correlations between sources of funds and market conditions. Funding should also be diversified across a full range of retail as well as secured and unsecured wholesale sources of funds, consistent with the institution's sophistication and complexity. Management should also consider the funding implications of any government programs or guarantees it utilizes. As with wholesale funding, the potential unavailability of government programs over the intermediate- and long-term should be fully considered in the development of liquidity risk management strategies, tactics, and risk tolerances. Funding diversification should be implemented using limits addressing counterparties, secured versus unsecured market funding, instrument type, securitization vehicle, and geographic market. In general, funding concentrations should be avoided. Undue over reliance on any one source of funding is considered an unsafe and unsound practice.

An essential component of ensuring funding diversity is maintaining market access. Market

access is critical for effective liquidity risk management, as it affects both the ability to raise new funds and to liquidate assets. Senior management should ensure that market access is being actively managed, monitored, and tested by the appropriate staff. Such efforts should be consistent with the institution's liquidity-risk profile and sources of funding. For example, access to the capital markets is an important consideration for most large complex institutions, whereas the availability of correspondent lines of credit and other sources of whole funds are critical for smaller, less complex institutions.

An institution needs to identify alternative sources of funding that strengthen its capacity to withstand a variety of severe institution-specific and market-wide liquidity shocks. Depending upon the nature, severity, and duration of the liquidity shock, potential sources of funding include, but are not limited to, the following:

- Deposit growth.
- Lengthening maturities of liabilities.
- Issuance of debt instruments.
- Sale of subsidiaries or lines of business.
- Asset securitization.
- Sale (either outright or through repurchase agreements) or pledging of liquid assets.
- Drawing-down committed facilities.
- Borrowing.

Liquidity-Risk Limits and Guidelines

Liquidity-risk tolerances or limits should be appropriate for the complexity and liquidity-risk profile of an institution. They should employ both quantitative targets and qualitative guidelines and should be consistent with the institution's overall approach and strategy for measuring and managing liquidity. Policies should clearly articulate a liquidity-risk tolerance that is appropriate for the business strategy of the institution, considering its complexity, business mix, liquidity-risk profile, and its role in the financial system. Policies should also contain provisions for documenting and periodically reviewing assumptions used in liquidity projections. Policy guidelines should employ both quantitative targets and qualitative guidelines. These measurements, limits, and guidelines may be specified in terms of the following measures and conditions, as applicable:

- *Discrete or cumulative cash-flow mismatches or gaps (sources and uses of funds) over specified future short- and long-term time horizons under both expected and adverse business conditions.* Often, these are expressed as cash-flow coverage ratios or as specific aggregate amounts.
- *Target amounts of unpledged liquid-asset reserves sufficient to meet liquidity needs under normal and reasonably anticipated adverse business conditions.* These targets are often expressed as aggregate amounts or as ratios calculated in relation to, for example, total assets, short-term assets, various types of liabilities, or projected-scenario liquidity needs.
- *Volatile liability dependence and liquid-asset coverage of volatile liabilities under both normal and stress conditions.* These guidelines, for example, may include amounts of potentially volatile wholesale funding to total liabilities, volatile retail (e.g., high-cost or out-of-market) deposits to total deposits, potentially volatile deposit-dependency measures, or 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 issues, such as a large liability and dependency on borrowed funds, concentrations of single funds providers, funds providers by market segments, and types of volatile deposit or volatile wholesale funding dependency.* For small community banks, funding concentrations may be difficult to avoid. However, banks that rely on just a few primary sources should have appropriate systems in place to manage the concentrations of funding liquidity, including limit structures and reporting mechanisms.
- *Funding concentrations that address the term, re-pricing, and market characteristics of funding sources.* 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 liabilities, such as unfunded loan commitments and lines of credit supporting asset sales or securitizations, and collateral*

requirements for derivatives transactions and various types of secured lending.

- *The minimum and maximum average maturity of different categories of assets and liabilities.*

Institutions may use other risk indicators to specify their risk tolerances. Some institutions may use ratios such as loans to deposits, loans to equity capital, purchased funds to total assets, or other common measures. However, when developing and using such measures, institutions should be fully aware that some measures may not appropriately assess the timing and scenario-specific characteristics of the institution's liquidity-risk profile. *Liquidity-risk measures that are constructed using static balance-sheet amounts may hide significant liquidity risk that can occur in the future under both normal and adverse business conditions. As a result, institutions should not rely solely on these static measures to monitor and manage liquidity.*

Policies on Measuring and Managing Reporting Systems

Policies and procedures should also identify the methods used to measure liquidity risk, as well as the form and frequency of reports to various levels of management and the board of directors. Policies should identify the nature and form of cash-flow projections and other liquidity measures to be used. Policies should provide for the categorization, measurement, and monitoring of both stable and potentially volatile sources of funds. Policies should also provide guidance on the types of business-condition scenarios used to construct cash-flow projections and should contain provisions for documenting and periodically reviewing the assumptions used in liquidity projections.

Moreover, policies should explicitly provide for more-frequent reporting under adverse business or liquidity conditions. Under normal business conditions, senior managers should receive liquidity-risk reports at least monthly, while the board of directors should receive liquidity-risk reports at least quarterly. If the risk exposure is more complex, the reports should be more frequent. These reports should tell senior management and the board how much liquidity risk the bank is assuming, whether management is complying with risk limits, and whether management's strategies are consistent with the board's expressed risk tolerance.

Policies on Contingency Funding Plans

Policies should also provide for senior management to develop and maintain a written, comprehensive, and up-to-date liquidity CFP. Policies should also ensure that, as part of ongoing liquidity-risk management, senior management is alerted to early-warning indicators or triggers of potential liquidity problems.

Compliance with Laws and Regulations

Institutions should ensure that their policies and procedures take into account compliance with appropriate laws and regulations that can have an impact on an institution's liquidity-risk management and liquidity-risk profile. These laws and regulations include the Federal Deposit Insurance Corporation Improvement Act (FDICIA) and its constraints on an institution's use of brokered deposits, as well as pertinent sections of Federal Reserve regulations A, D, F, and W. (See appendix 2, for a summary of some of the pertinent legal and regulatory issues that should be factored into the management of liquidity risk.)

Liquidity-Risk Measurement Systems

The analysis and measurement of liquidity risk should be tailored to the complexity and risk profile of an institution, incorporating the cash flows and liquidity implications of all the institution's material assets, liabilities, off-balance-sheet positions, and major business activities. Liquidity-risk analysis should consider what effect options embedded in the institution's sources and uses of funds may have on its cash flows and liquidity-risk measures. The analysis of liquidity risk should also be forward-looking and strive to identify potential future funding mismatches as well as current imbalances. Liquidity-risk measures should advance management's understanding of the institution's exposure to mismatch, market, and contingent liquidity risks. Measures should also assess the institution's liquidity sources and needs in relation to the specific business environments it

operates in and the time frames involved in securing and using funds.

Adequate liquidity-risk measurement requires the ongoing review of an institution's sources and uses of funds and generally includes analysis of the following:

- trends in balance-sheet structure and funding vehicles
- pro forma cash-flow statements and funding mismatch gaps over varying time horizons
- trends and expectations in the volume and pricing trends for assets, liabilities, and off-balance-sheet items that can have a significant impact on the institution's liquidity
- trends in the relative costs of funds required by existing and alternative funds providers
- the diversification of funding sources and trends in funding concentrations
- the adequacy of asset liquidity reserves, trends in these reserves, and the market dynamics that could influence their market liquidity
- the sensitivity of funds providers to both financial market and institution-specific trends and events
- the institution's exposure to both broad-based market and institution-specific contingent liquidity events

The formality and sophistication of liquidity-risk measurement, and the policies and procedures used to govern the measurement process, depend on the sophistication of the institution, the nature and complexity of its funding structures and activities, and its overall liquidity-risk profile.

(See appendix 1, for background information on the types of liquidity analysis and measures of liquidity risk used by effective liquidity-risk managers. The appendix also discusses the considerations for evaluating the liquidity-risk characteristics of various assets, liabilities, OBS positions, and other activities, such as asset securitization, that can influence an institution's liquidity.)

Pro Forma Cash-Flow Analysis

Regardless of the size and complexity of an institution, pro forma cash-flow statements are a critical tool for adequately managing liquidity risk. In the normal course of measuring and managing liquidity risk and analyzing their institution's sources and uses of funds, effective liquidity managers project cash flows under expected and alternative liquidity scenarios. Such cash-flow-projection statements range from simple spreadsheets to very detailed reports, depending on the complexity and sophistication of the institution and its liquidity-risk profile.

A sound practice is to project, on an ongoing basis, an institution's cash flows under normal business-as-usual conditions, incorporating appropriate seasonal and business-growth considerations over varying time horizons. This cash-flow projection should be regularly reviewed under both short-term and intermediate- to long-term institution-specific contingent scenarios. Institutions that have more-complex liquidity-risk profiles should also assess their exposure to broad systemic and adverse financial market events, as appropriate to their business mix and overall liquidity-risk profile (e.g., securitization, derivatives, trading, processing, international, and other activities).

The construction of pro forma cash-flow statements under alternative scenarios and the ongoing monitoring of an institution's liquidity-risk profile depend importantly on liquidity management's review of trends in the institution's balance-sheet structure and its funding sources. This review should consider past experience and include expectations for the volume and pricing of assets, liabilities, and off-balance-sheet items that may significantly affect the institution's liquidity.

Effective liquidity-risk monitoring systems should assess (1) trends in the relative cost of funds, as required by the institution's existing and alternative funds providers; (2) the diversification or concentration of funding sources; (3) the adequacy of the institution's asset liquidity reserves; and (4) the sensitivity of funds providers to both financial market and institution-specific trends and events. *Detailed examples and further discussion of cash-flows are included in appendix 1, section I, "Basic Cash-Flow Projections."*

Assumptions

Given the critical importance of assumptions in constructing liquidity-risk measures and projections of future cash flows, institutions should ensure that all their assumptions are reasonable and appropriate. Institutions should document and periodically review and approve key assumptions. Assumptions used in assessing the liquid-

ity risk of complex instruments and assets; liabilities; and OBS positions that have uncertain cash flows, market value, or maturities should be subject to rigorous documentation and review.

Assumptions about the stability or volatility of retail deposits, brokered deposits, wholesale or secondary-market borrowings, and other funding sources with uncertain cash flows are particularly important—especially when such assumptions are used to evaluate alternative sources of funds under adverse contingent liquidity scenarios (such as a deterioration in asset quality or capital). When assumptions about the performance of deposits and other sources of funds are used in the computation of liquidity measures, these assumptions should be based on reasoned analysis considering such factors as the following:

- the historical behavior of deposit customers and funds providers
- how current or future business conditions may change the historical responses and behaviors of customers and other funds providers
- the general conditions and characteristics of the institution's market for various types of funds, including the degree of competition
- the anticipated pricing behavior of funds providers (for instance, wholesale or retail) under the scenario investigated
- haircuts (that is, the reduction from the stated value of an asset) applied to assets earmarked as contingent liquidity reserves

Further discussion of liquidity characteristics of assets, liabilities, and off-balance-sheet items is included in appendix 1, section III, "Liquidity Characteristics of Assets, Liabilities, Off-Balance-Sheet Positions, and Various Types of Banking Activities." Institutions that have complex liquidity profiles should perform sensitivity tests to determine what effect any changes to its material assumptions will have on its liquidity.

Institutions should ensure that assets are properly valued according to relevant financial reporting and supervisory standards. An institution should fully factor into its risk management the consideration that valuations may deteriorate under market stress and take this into account in assessing the feasibility and impact of asset sales on its liquidity position during stress events.

Institutions should ensure that their vulnerabilities to changing liquidity needs and liquidity capacities are appropriately assessed within meaningful time horizons, including intraday, day-to-day, short-term weekly and monthly horizons, medium-term horizons of up to one year, and longer-term liquidity needs over one year. These assessments should include vulnerabilities to events, activities, and strategies that can significantly strain the capability to generate internal cash.

Stress Testing

Once normal operating cash-flow statements are established then those tools can be used to generate stress tests. Stress assumptions are simply layered on top of the normal operating cash-flow projections. The quantitative results provided by the stress test also serve as a key component within the CFP.

Institutions should conduct stress tests on a regular basis for a variety of institution-specific and market-wide events across multiple time horizons. The magnitude and frequency of stress testing should be commensurate with the complexity of the financial institution and the level of its risk exposures. Stress test outcomes should be used to identify and quantify sources of potential liquidity strain and to analyze possible impacts on the institution's cash flows, liquidity position, profitability, and solvency.

Stress tests should also be used to ensure that current exposures are consistent with the financial institution's established liquidity-risk tolerance. The stress test serves as a key component of the CFP and the quantification of the risk to which the institution may be exposed. Management's active involvement and support is critical to the effectiveness of the stress-testing process. Management should discuss the results of stress tests and take remedial or mitigating actions to limit the institution's exposures, build up a liquidity cushion, and adjust its liquidity profile to fit its risk tolerance. The results of stress tests therefore play a key role in determining the amount of buffer assets the institution should maintain.

Cushion of Liquid Assets

Liquid assets are an important source of both primary (operating liquidity) and secondary (contingent liquidity) funding at many institutions. Indeed, a critical component of an institution's ability to effectively respond to potential liquid-

ity stress is the availability of a cushion of highly liquid assets without legal, regulatory, or operational impediments (i.e., unencumbered) that can be sold or pledged to obtain funds in a range of stress scenarios. These assets should be held as insurance against a range of liquidity stress scenarios, including those that involve the loss or impairment of typically available unsecured and/or secured funding sources. The size of the cushion of such high-quality liquid assets should be supported by estimates of liquidity needs performed under an institution's stress testing as well as aligned with the risk tolerance and risk profile of the institution. Management estimates of liquidity needs during periods of stress should incorporate both contractual and non-contractual cash flows, including the possibility of funds being withdrawn. Such estimates should also assume the inability to obtain unsecured funding as well as the loss or impairment of access to funds secured by assets other than the safest, most liquid assets.

Management should ensure that unencumbered, highly liquid assets are readily available and are not pledged to payment systems or clearing houses. The quality of unencumbered liquid assets is important as it will ensure accessibility during the time of most need. For example, an institution could utilize 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.

Liquidity-Risk Monitoring and Reporting Systems

Methods used to monitor and measure liquidity risk should be sufficiently robust and flexible to allow for the timely computation of the metrics an institution uses in its ongoing liquidity-risk management. Risk monitoring and reporting systems should regularly provide information on day-to-day liquidity management and risk control; this information should also be readily available during contingent liquidity events.

In keeping with the other elements of sound liquidity-risk management, the complexity and sophistication of management reporting and management information systems (MIS) should be consistent with the liquidity profile of the institution. For example, complex institutions that are highly dependent on wholesale funds may need daily reports on the use of various funding sources, maturities of various instruments, and rollover rates. Less complex institutions may require only simple maturity-gap or cash-flow reports that depict rollovers and mismatch risks; these reports may also include pertinent liquidity ratios. Liquidity-risk reports can be customized to provide management with aggregate information that includes sufficient supporting detail to enable them to assess the sensitivity of the institution to changes in market conditions, its own financial performance, and other important risk factors. Reportable items may include, but are not limited to—

- cash-flow gap-projection reports and forward-looking summary measures that assess both business-as-usual and contingent liquidity scenarios;
- asset and funding concentrations that highlight the institution's dependence on funds that may be highly sensitive to institution-specific contingent liquidity or market liquidity risk (including information on the types and amounts of negotiable certificates of deposit (CDs) and other bank obligations, as well as information on major liquidity funds providers);
- critical assumptions used in cash-flow projections and other measures;
- the status of key early-warning signals or risk indicators;
- funding availability;
- reports on the impact of new products and activities;
- reports documenting compliance with established policies and procedures; and
- where appropriate, both consolidated and unconsolidated reports for institutions that have multiple offices, international branches, affiliates, or subsidiaries.
- Institutions should also report on the use of and availability of government support, such as lending and guarantee programs, and implications on liquidity positions, particularly since these programs are generally temporary or reserved as a source for contingent funding.

The types of reports or information and their timing should be tailored to the institution's funding strategies and will vary according to the complexity of the institution's operations and risk profile. For example, institutions relying on investment securities for their primary source of

contingent liquidity should employ reports on the quality, pledging status, and maturity distribution of those assets. Similarly, institutions conducting securitization activities, or placing significant emphasis on the sale of loans to meet contingent liquidity needs, should customize their liquidity reports to target these activities.

Collateral-Position Management

An institution should have the ability to calculate all of its collateral positions in a timely manner, including assets currently pledged relative to the amount of security required and unencumbered assets available to be pledged. An institution's level of available collateral should be monitored by legal entity, by jurisdiction, and by currency exposure. Systems should be capable of monitoring shifts between intraday and overnight or term-collateral usage. An institution should be aware of the operational and timing requirements associated with accessing the collateral given its physical location (i.e., the custodian institution or securities settlement system with which the collateral is held). Institutions should also fully understand the potential demand on required and available collateral arising from various types of contractual contingencies during periods of both market-wide and institution-specific stress.

Liquidity Across Legal Entities, and Business Lines

An institution should actively monitor and control liquidity-risk exposures and funding needs within and across legal entities and business lines, taking into account legal, regulatory, and operational limitations to the transferability of liquidity. Separately regulated entities will need to maintain liquidity commensurate with their own risk profiles on a stand-alone basis.

Regardless of its organizational structure, it is important that an institution actively monitor and control liquidity risks at the level of individual legal entities, and the group as a whole, incorporating processes that aggregate data across multiple systems in order to develop a group-wide view of liquidity-risk exposures and identify constraints on the transfer of liquidity within the group.

Assumptions regarding the transferability of funds and collateral should be described in liquidity-risk management plans.

Intraday Liquidity Position Management

Intraday liquidity monitoring is an important component of the liquidity-risk management process for institutions engaged in significant payment, settlement, and clearing activities. An institution'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 has the potential to lead to systemic disruptions that can prevent the smooth functioning of all payment systems and money markets. Therefore, institutions 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 institution to

- 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.

Contingency Funding Plans

A CFP is a compilation of policies, procedures, and action plans for responding to contingent liquidity events. It is a sound practice for all institutions, regardless of size and complexity, to engage in comprehensive contingent liquidity planning. The objectives of the CFP are to provide a plan for responding to a liquidity crisis, identify a menu of contingent liquidity

sources that the institution can use under adverse liquidity circumstances, and describe steps that should be taken to ensure that the institution's sources of liquidity are sufficient to fund scheduled operating requirements and meet the institution's commitments with minimal costs and disruption. CFPs should be commensurate with an institution's complexity, risk profile, and scope of operations.

Contingent liquidity events are unexpected situations or business conditions that may increase the risk that an institution will not have sufficient funds to meet liquidity needs. These events can negatively affect any institution, regardless of its size and complexity, by

- interfering with or preventing the funding of asset growth,
- disrupting the institution's ability to renew or replace maturing funds.

Contingent liquidity events may be institution-specific or arise from external factors. Institution-specific risks are determined by the risk profile and business activities of the institution. They generally are a result of unique credit, market, operational, and strategic risks taken by the institution. A potential result of this type of event would be customers unexpectedly exercising options to withdraw deposits or exercise off-balance-sheet (OBS) commitments.

In contrast, external contingent events may be systemic financial-market occurrences, such as

- increases or decreases in the price volatility of certain types of securities in response to market events;
- major changes in economic conditions, market perception, or dislocations in financial markets;
- disturbances in payment and settlement systems due to operational or local disasters.

Contingent liquidity events range from high-probability/low-impact events that occur during the normal course of business to low-probability/high-impact events that may have an adverse impact on an institution's safety and soundness. Institutions should incorporate planning for high-probability/low-impact liquidity risks into their daily management of the sources and uses of their funds. This objective is best accomplished by assessing possible variations in expected cash-flow projections and provisioning for adequate liquidity reserves in the normal course of business.

Liquidity risks driven by lower-probability, higher-impact events should be addressed in the CFP, which should—

- identify reasonably plausible stress events;
- evaluate those stress events under different levels of severity;
- make a quantitative assessment of funding needs under the stress events;
- identify potential funding sources in response to a stress event; and
- provide for commensurate management processes, reporting, and external communication throughout a stress event.

The CFP should address both the severity and duration of contingent liquidity events. The liquidity pressures resulting from low-probability, high-impact events may be immediate and short term, or they may present sustained situations that have long-term liquidity implications. The potential length of an event should factor into decisions about sources of contingent liquidity.

Identifying Liquidity Stress Events

Stress events are those events that may have a significant impact on an institution's liquidity, given its specific balance-sheet structure, business lines, organizational structure, and other characteristics. Possible stress events include changes in credit ratings, a deterioration in asset quality, a prompt-corrective-action (PCA) downgrade, and CAMELS ratings downgrade widening of credit default spreads, operating losses, negative press coverage, or other events that call into question an institution's ability to meet its obligations.

An institution should customize its CFP. Separate CFPs may be required for the parent company and the consolidated banks in a multibank holding company, for separate subsidiaries (when appropriate), or for each significant foreign currency and global political entity, as necessary. These separate CFPs may be necessary because of legal requirements and restrictions, or the lack thereof. Institutions that have significant payment-system operations should have a formal, written plan in place for managing the risk of both intraday and end-of-day funding failures. Failures may occur as a result of system

failure at the institution or at an institution from which payments are expected. Clear, formal communication channels should be established between the institution's operational areas responsible for handling payment-system operations.

Assessing Levels of Severity and Timing

The CFP should delineate the various levels of stress severity that can occur during a contingent liquidity event and, for each type of event, identify the institution's response plan at each stage of an event. (As an event unfolds, it often progresses through various stages and levels of severity.) The events, stages, and severity levels identified should include those that cause temporary disruptions, as well as those that may cause intermediate- or longer-term disruptions. Institutions can use the different stages or levels of severity to design early-warning indicators, assess potential funding needs at various points during a developing crisis, and specify comprehensive action plans.

Assessing Funding Needs and Sources of Liquidity

A critical element of the CFP is an institution's quantitative projection and evaluation of its expected funding needs and funding capacity during a stress event. The institution should identify the sequence of responses that it will mobilize during a stress event and commit sources of funds for contingent needs well in advance of a stress-related event. To accomplish this objective, the institution needs to analyze potential erosion in its funding at alternative stages or severity levels of the stress event, as well as analyze the potential cash-flow mismatches that may occur during the various stress scenarios and levels. Institutions should base their analyses on realistic assessments of the behavior of funds providers during the event; they should also incorporate alternative contingency funding sources into their plans. The analysis should also include all material on- and OBS cash flows and their related effects, which should result in a realistic analysis of the institution's cash inflows, outflows, and funds availability at different time intervals throughout the potential liquidity stress event—and allow the institution to measure its ability to fund operations over an extended period.

Common tools to assess funding mismatches include

- *Liquidity-gap analysis*—A cash-flow report that essentially represents a base case estimate of where funding surpluses and shortfalls will occur over various future timeframes.
- *Stress tests*—A pro forma cash-flow report with the ability to estimate future funding surpluses and shortfalls under various liquidity stress scenarios and the institution's ability to fund expected asset growth projections or sustain an orderly liquidation of assets under various stress events.

Identify Potential Funding Sources

Because of the potential for liquidity pressures to spread from one source of funding to another during a significant liquidity event, institutions should identify, well in advance, alternative sources of liquidity and ensure that they have ready access to contingent funding sources. These funding sources will rarely be used in the normal course of business. Therefore, institutions should conduct advance planning to ensure that contingent funding sources are readily available. For example, the sale, securitization, or pledging of assets as collateral requires a review of these assets to determine the appropriate haircuts and to ensure compliance with the standards required for executing the strategy. Administrative procedures and agreements should also be in place before the institution needs to access the planned source of liquidity. Institutions should identify what advance steps they need to take to promote the readiness of each of their sources of standby liquidity.

Processes for Managing Liquidity Events

The CFP should identify a reliable crisis-management team and an administrative structure for responding to a liquidity crisis, including realistic action plans executing each element of the plan for each level of a stress event. Frequent communication and reporting among crisis team members, the board of directors, and other affected managers optimizes the effectiveness of a contingency plan by ensur-

ing that business decisions are coordinated to minimize further liquidity disruptions. Effective management of a stress event requires the daily computation of regular liquidity-risk reports and supplemental information. The CFP should provide for more-frequent and more-detailed reporting as a stress situation intensifies. Reports that should be available in a funding crisis include—

- a CD breakage report to identify early redemptions of CDs;
- funding-concentration reports;
- cash-flow projections and run-off reports;
- funding-availability or -capacity reports, by types of funding; and
- reports on the status of contingent funding sources.

Framework for Monitoring Contingent Events

Financial institutions should monitor for potential liquidity stress events by using early-warning indicators and event triggers. These indicators should be tailored to an institution's specific liquidity-risk profile. By recognizing potential stress events early, the institution can proactively position itself into progressive states of readiness as an event evolves. This proactive stance also provides the institution with a framework for reporting or communicating among different institutional levels and to outside parties. Early-warning signals may include but are not limited to—

- rapid asset growth that is funded with potentially volatile liabilities;
- growing concentrations in assets or liabilities;
- negative trends or heightened risk associated with a particular product line;
- rating-agency actions (e.g., agencies watchlisting the institution or downgrading its credit rating);
- negative publicity;
- significant deterioration in the institution's earnings, asset quality, and overall financial condition;
- widening debt or credit-default-swap spreads;
- difficulty accessing longer-term funding;
- increasing collateral margin requirements;
- rising funding costs in a stable market;
- increasing redemptions of CDs before maturity;
- counterparty resistance to OBS products;
- counterparties that begin requesting backup collateral for credit exposures; and
- correspondent banks that eliminate or decrease their credit lines.

To mitigate the potential for reputation contagion when liquidity problems arise, effective communication with counterparties, credit-rating agencies, and other stakeholders is of vital importance. Smaller institutions that rarely interact with the media should have plans in place for how they will manage press inquiries that may arise during a liquidity event. In addition, group-wide CFPs, liquidity cushions, and multiple sources of funding are mechanisms that may mitigate reputation concerns.

In addition to early-warning indicators, institutions that issue public debt, use warehouse financing, securitize assets, or engage in material OTC derivative transactions typically have exposure to event triggers that are embedded in the legal documentation governing these transactions. These triggers protect the investor or counterparty if the institution, instrument, or underlying asset portfolio does not perform at certain predetermined levels. Institutions that rely upon brokered deposits should also incorporate PCA-related downgrade triggers into their CFPs since a change in PCA status could have a material bearing on the availability of this funding source. Contingent event triggers should be an integral part of the liquidity-risk monitoring system.

Asset-securitization programs pose heightened liquidity concerns because an early-amortization event could produce unexpected funding needs. Liquidity contingency plans should address this risk, if it is material to the institution. The unexpected funding needs associated with an early amortization of a securitization event pose liquidity concerns for the originating bank. The triggering of an early-amortization event can result in the securitization trust immediately passing principal payments through to investors. As the holder of the underlying assets, the originating institution is responsible for funding new charges that would normally have been purchased by the trust. Financial institutions that engage in asset securitization should have liquidity contingency plans that address this potential unexpected funding requirement. Management should receive and review reports showing the performance of the

securitized portfolio in relation to the early-amortization triggers.[2]

Securitization covenants that cite supervisory thresholds or adverse supervisory actions as triggers for early-amortization events are considered an unsafe and unsound banking practice that undermines the objective of supervisory actions. An early amortization triggered by a supervisory action can create or exacerbate liquidity and earnings problems that can lead to further deterioration in the financial condition of the banking organization.[3]

Securitizations of asset-backed commercial paper programs (ABCPs) are generally supported by a liquidity facility or commitment to purchase assets from the trust if funds are needed to repay the underlying obligations. Liquidity needs can result from either cash-flow mismatches between the underlying assets and scheduled payments of the overriding security or from credit-quality deterioration of the underlying asset pool. Therefore, the use of liquidity facilities introduces additional risk to the institution, and a commensurate capital charge is required.[4]

Institutions that rely upon secured funding sources also are subject to potentially higher margin or collateral requirements that may be triggered upon the deterioration of a specific portfolio of exposures or the overall financial condition of the institution. The ability of a financially stressed institution to meet calls for additional collateral should be considered in the CFP. Potential collateral values also should be subject to stress tests since devaluations or market uncertainty could reduce the amount of contingent funding that can be obtained from pledging a given asset.

Testing the CFP

Periodic testing of the operational elements of the CFP is an important part of liquidity-risk management. By testing the various operational elements of the CFP, institutions can prevent unexpected impediments or complications in accessing standby sources of liquidity during a contingent liquidity event. It is prudent to test the operational elements of a CFP that are associated with the securitization of assets, repurchase lines, Federal Reserve discount window borrowings, or other borrowings, since efficient collateral processing during a crisis is especially important for such sources. Institutions should carefully consider whether to include unsecured funding lines in their CFPs, since these lines may be unavailable during a crisis.

Larger, more-complex institutions can benefit from operational simulations that test communications, coordination, and decision-making of managers who have different responsibilities, who are in different geographic locations, or who are located at different operating subsidiaries. Simulations or tests run late in the day can highlight specific problems, such as late-day staffing deficiencies or difficulty selling assets or borrowing new funds near the closing time of the financial markets.

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Internal Controls

An institution's internal controls consist of policies, procedures, approval processes, reconciliations, reviews, and other types of controls to provide assurances that the institution manages liquidity risk in accordance with the board's strategic objectives and risk tolerances. Appropriate internal controls should address relevant elements of the risk-management process, including the institution's adherence to policies and procedures; the adequacy of its risk identification, risk measurement, and risk reporting; and its compliance with applicable rules and regulations. The results of reviews of the liquidity-risk management process, along with any recommendations for improvement, should be reported to the board of directors, which should take appropriate and timely action.

2. See sections 2130.1, 3020.1, and 4030.1, and the *OCC Handbook on Credit Card Lending*, October 1996.

3. SR-02-14, "Covenants in Securitization Documents Linked to Supervisory Actions or Thresholds."

4. SR-05-13, "Interagency Guidance on the Eligibility of ABCP Liquidity Facilities and the Resulting Risk-Based Capital Treatment."

An important element of a bank's internal controls is management's comprehensive evaluation and review. Management should ensure that an independent party regularly reviews and evaluates the components of the institution's liquidity-risk management process. These reviews should assess the extent to which the institution's liquidity-risk management complies with both supervisory guidance and industry sound practices, taking into account the level of sophistication and complexity of the institution's liquidity-risk profile. In larger, complex institutions, an internal audit function usually performs this review. Smaller, less complex institutions may assign the responsibility for conducting an independent evaluation and review to qualified individuals who are independent of the function they are assigned to review. The independent review should report key issues requiring attention, including instances of noncompliance, to the appropriate level of management to initiate a prompt correction of the issues, consistent with approved policies.

Periodic reviews of the liquidity-risk management process should address any significant changes that have occurred since the last review, such as changes in the institution's types or characteristics of funding sources, limits, and internal controls. Reviews of liquidity-risk measurement systems should include assessments of the assumptions, parameters, and methodologies used. These reviews should also seek to understand, test, and document the current risk-measurement process; evaluate the system's accuracy; and recommend solutions to any identified weaknesses.

Controls for changes to the assumptions the institution uses to make cash-flow projections should require that the assumptions not be altered without clear justification consistent with approved strategies. The name of the individual authorizing the change, along with the date of the change, the nature of the change, and justification for each change, should be fully documented. Documentation for all assumptions used in cash-flow projections should be maintained in a readily accessible, understandable, and auditable form. Because liquidity-risk measurement systems may incorporate one or more subsidiary systems or processes, institutions should ensure that multiple component systems are well integrated and consistent with each other.

LIQUIDITY-RISK MANAGEMENT FOR BANK HOLDING COMPANIES

Bank holding companies (BHCs) should develop and maintain liquidity-risk management processes and funding programs that are consistent with their level of sophistication and complexity. For BHCs (includes financial holding companies, which are BHCs) see the *Bank Holding Company Supervision Manual*, section 4066, *"Funding and Liquidity Risk Management,"* and sections 1050.0 and 1050.1, that discuss the consolidated supervision of BHCs. See also SR-10-6, "Interagency Policy Statement on Funding and Liquidity Risk Management." Also see sections 4010.0, "Parent Only—Debt Servicing Capacity/Cash Flow" and 4010.2 "Parent Only—Liquidity."

SUPERVISORY PROCESS FOR EVALUATING LIQUIDITY RISK

Liquidity risk is a primary concern for all banking organizations and is an integral component of the CAMELS rating system. Examiners should consider liquidity risk during the preparation and performance of all on-site safety-and-soundness examinations as well as during targeted supervisory reviews. To meet examination objectives efficiently and effectively and remain sensitive to potential burdens imposed on institutions, examiners should follow a structured, risk-focused approach for the examination of liquidity risk. Key elements of this examination process include off-site monitoring and a risk assessment of the institution's liquidity-risk profile. These elements will help the examiner develop an appropriate plan and scope for the on-site examination, thus ensuring the exam is as efficient and productive as possible. A fundamental tenet of the risk-focused examination approach is the targeting of supervisory resources at functions, activities, and holdings that pose the most risk to the safety and soundness of an institution.

For smaller institutions that have less complex liquidity profiles, stable funding sources, and low exposures to contingent liquidity circumstances, the liquidity element of an examination may be relatively simple and straightforward. On the other hand, if an institution is experiencing significant asset and product growth;

is highly dependent on potentially volatile funds; or has a complex business mix, balance-sheet structure, or liquidity-risk profile that exposes the institution to contingent liquidity risks, that institution should generally receive greater supervisory attention. Given the contingent nature of liquidity risk, institutions whose corporate structure gives rise to inherent operational risk, or institutions encountering difficulties associated with their earnings, asset quality, capital adequacy, or market sensitivity, should be especially targeted for review of the adequacy of their liquidity-risk management.

Off-Site Risk Assessment

In off-site monitoring and analysis, a preliminary view, or *risk assessment,* is developed before initiating an on-site examination. Both the inherent level of an institution's liquidity-risk exposure and the quality of its liquidity-risk management should be assessed to the fullest extent possible during the off-site phase of the examination process. The following information can be helpful in this assessment:

- organizational charts and policies that identify authorities and responsibilities for managing liquidity risk
- liquidity policies, procedures, and limits
- ALCO committee minutes and reports (minutes and reports issued since the last examination or going back at least six to twelve months before the examination)
- board of directors reports on liquidity-risk exposures
- audit reports (both internal and external)
- other available internal liquidity-risk management reports, including cash-flow projections that detail key assumptions
- internal reports outlining funding concentrations, the marketability of assets, analysis that identifies the relative stability or volatility of various types of liabilities, and various cash-flow coverage ratios projected under adverse liquidity scenarios
- supervisory surveillance reports and supervisory screens
- external public debt ratings (if available)

Quantitative liquidity exposure should be assessed by conducting as much of the supervisory review off-site as practicable. This off-site work includes assessing the bank's overall liquidity-risk profile and the potential for other risk exposures, such as credit, market, operational, legal, and reputational risks, that may have a negative impact on the institution's liquidity under adverse circumstances. These assessments can be conducted on a preliminary basis using supervisory screens, examiner-constructed measures, internal bank measures, and cash-flow projections obtained from management reports received before the on-site engagement. Additional factors to be incorporated in the off-site risk assessment include the institution's balance-sheet composition and the existence of funding concentrations, the marketability of its assets (in the context of liquidation, securitization, or use of collateral), and the institution's access to secondary markets of liquidity.

The key to assessing the quality of management is an organized discovery process aimed at determining whether appropriate corporate-governance structures, policies, procedures, limits, reporting systems, CFPs, and internal controls are in place. This discovery process should, in particular, ascertain whether all the elements of sound liquidity-risk management are applied consistently. The results and reports of prior examinations, in addition to internal management reports, provide important information about the adequacy of the institution's risk management.

Examination Scope

The off-site risk assessment provides the examiner with a preliminary view of both the adequacy of liquidity management and the magnitude of the institution's exposure. The scope of the on-site liquidity-risk examination should be designed to confirm or reject the off-site hypothesis and should target specific areas of interest or concern. In this way, on-site examination procedures are tailored to the institution's activities and risk profile and use flexible and targeted work-documentation programs. In general, if liquidity-risk management is identified as adequate, examiners can rely more heavily on a bank's internal liquidity measures for assessing its inherent liquidity risk.

The examination scope for assessing liquidity risk should be commensurate with the complexity of the institution and consistent with the

off-site risk assessment. For example, only baseline examination procedures would be used for institutions whose off-site risk assessment indicates that they have adequate liquidity-risk management processes and low levels of inherent liquidity exposure. These institutions include those that have noncomplex balance-sheet structures and banking activities and that also meet the following criteria:

- well capitalized; minimal issues with asset quality, earnings, and market-risk-sensitive activities
- adequate reserves of marketable securities that can serve as standby sources of liquidity
- minimal funding concentrations
- funding structures that are principally composed of stable liabilities
- few OBS items, such as loan commitments, that represent contingent liquidity draws
- minimal potential exposure to legal and reputational risk
- formal adoption of well-documented liquidity-management policies, procedures, and CFPs

For these and other institutions identified as potentially low risk, the scope of the on-site examination would consist of only those examination procedures necessary to confirm the risk-assessment hypothesis. The adequacy of liquidity-risk management could be verified through a basic review of the appropriateness of the institution's policies, internal reports, and controls and its adherence to them. The integrity and reliability of the information used to assess the quantitative level of risk could be confirmed through limited sampling and testing. In general, if basic examination procedures validate the risk assessment, the examiner may conclude the examination process.

High levels of inherent liquidity risk may arise if an institution has concentrations in specific business activities, products, and sectors, or if it has balance-sheet risks, such as unstable liabilities, risky assets, or planned asset growth without an adequate plan for funding the asset growth. OBS items that have uncertain cash inflows may also be a source of inherent liquidity risk. Institutions for which a risk assessment indicated high levels of inherent liquidity-risk exposure and strong liquidity management may require a more extensive examination scope to confirm the assessment. These expanded procedures may entail more analysis of the institution's liquidity-risk measurement system and its liquidity-risk profile. When high levels of liquidity-risk exposure are found, examiners should focus special attention on the sources of this risk. When a risk assessment indicates an institution has high exposure and weak risk-management systems, an extensive work-documentation program is required. The institution's internal measures should be used cautiously, if at all.

Regardless of the sophistication or complexity of an institution, examiners must use care during the on-site phase of an examination to confirm the off-site risk assessment and identify issues that may have escaped off-site analysis. Accordingly, the examination scope should be adjusted as on-site findings dictate.

Assessing CAMELS "L" Ratings

The assignment of the "L" rating is integral to the CAMELS ratings process for commercial banks. Examination findings on both (1) the inherent level of an institution's liquidity risk and (2) the adequacy of its liquidity-risk management process should be incorporated in the assignment of the "L" rating. Findings on the adequacy of liquidity-risk management should also be reflected in the CAMELS "M" rating for risk management.

Examiners can develop an overall assessment of an institution's liquidity-risk exposure by reviewing the various characteristics of its assets, liabilities, OBS instruments, and material business activities. An institution's asset credit quality, earnings integrity, and market risk may also have significant implications for its liquidity-risk exposure. Importantly, assessments of the adequacy of an institution's liquidity-management practices may affect the assessment of its inherent level of liquidity risk. For institutions judged to have sound and timely liquidity-risk measurement and reporting systems and CFPs, examiners may use the results of the institution's adverse-scenario cash-flow projections in order to gain insight into its level of inherent exposure. Institutions that have less-than-adequate measurement and reporting systems and CFPs may have higher exposure to liquidity risk as a result of their potential inability to respond to adverse liquidity events.

Elements of strong liquidity-risk management are particularly important during stress events and include many of the items discussed previ-

ously: communication among the departments responsible for managing liquidity, reports that indicate a diversity of funding sources, standby funding sources, cash-flow analyses, liquidity stress tests, and CFPs. Liquidity-risk management should also manage the ongoing costs of maintaining liquidity.

Liquidity risk should be rated in accordance with the Uniform Financial Institutions Rating System (UFIRS).[5] The assessment of the adequacy of liquidity-risk management should provide the primary basis for reaching an overall assessment on the "L" component rating since it is a leading indicator of potential liquidity-risk exposure. Accordingly, overall ratings for liquidity-risk sensitivity should be no greater than the rating given to liquidity-risk management.

In evaluating the adequacy of a financial institution's liquidity position, consideration should be given to the current level and prospective sources of liquidity compared with funding needs, as well as to the adequacy of funds-management practices relative to the institution's size, complexity, and risk profile. In general, funds-management practices should ensure that an institution is able to maintain a level of liquidity sufficient to meet its financial obligations in a timely manner and to fulfill the legitimate banking needs of its community. Practices should reflect the ability of the institution to manage unplanned changes in funding sources, as well as react to changes in market conditions that affect the ability to quickly liquidate assets with minimal loss. In addition, funds-management practices should ensure that liquidity is not maintained at a high cost or through undue reliance on funding sources that may not be available in times of financial stress or adverse changes in market conditions.

Liquidity is rated based upon, but not limited to, an assessment of the following evaluation factors:

- the adequacy of liquidity sources compared with present and future needs and the ability of the institution to meet liquidity needs without adversely affecting its operations or condition
- the availability of assets readily convertible to cash without undue loss
- access to money markets and other sources of funding
- the level of diversification of funding sources, both on- and off-balance-sheet
- the degree of reliance on short-term, volatile sources of funds, including borrowings and brokered deposits, to fund longer-term assets
- the trend and stability of deposits
- the ability to securitize and sell certain pools of assets
- the capability of management to properly identify, measure, monitor, and control the institution's liquidity position, including the effectiveness of funds-management strategies, liquidity policies, management information systems, and CFPs

Ratings of liquidity-risk management should follow the general framework used to rate overall risk management:

- A rating of 1 indicates strong liquidity levels and well-developed funds-management practices. The institution has reliable access to sufficient sources of funds on favorable terms to meet present and anticipated liquidity needs.
- A rating of 2 indicates satisfactory liquidity levels and funds-management practices. The institution has access to sufficient sources of funds on acceptable terms to meet present and anticipated liquidity needs. Modest weaknesses may be evident in funds-management practices.
- A rating of 3 indicates liquidity levels or funds-management practices in need of improvement. Institutions rated 3 may lack ready access to funds on reasonable terms or may evidence significant weaknesses in funds-management practices.
- A rating of 4 indicates deficient liquidity levels or inadequate funds-management practices. Institutions rated 4 may not have or be able to obtain a sufficient volume of funds on reasonable terms to meet liquidity needs.
- A rating of 5 indicates liquidity levels or funds-management practices so critically deficient that the continued viability of the institution is threatened. Institutions rated 5 require immediate external financial assistance to meet maturing obligations or other liquidity needs.

Unsafe liquidity-risk exposures and weaknesses in managing liquidity risk should be fully reflected in the overall liquidity-risk ratings.

5. SR-96-38, "Uniform Financial Institutions Rating System" and section A.5020.1.

Unsafe exposures and unsound management practices that are not resolved during the on-site examination should be addressed through subsequent follow-up actions by the examiner and other supervisory personnel.

REFERENCES

The following sources provide additional information on liquidity-risk management:

- *Bank Holding Company Supervision Manual*, Board of Governors of the Federal Reserve System.
- Basel Committee on Banking Supervision, ''Sound Practices for Managing Liquidity in Banking Organisations,'' publication 69, February 2000.
- ''Determining Conformance With Interest Rate Restrictions for Less Than Well Capitalized Institutions,'' Federal Deposit Insurance Corporation, November 3, 2009 (FIL 62-2009)
- Federal Deposit Insurance Corporation, *Risk Management Manual of Examination Policies*, section 6.1—''Liquidity and Funds Management.''
- Federal Financial Institutions Examination Council, Uniform Bank Performance Report.
- Interagency Policy Statement on Funding and Liquidity Risk Management, March 17, 2010
- Office of the Comptroller of the Currency, *Comptroller's Handbook (Safety & Soundness)*, ''Liquidity,'' February 2001.
- ''Process for Determining If An Institution Subject to Interest-Rate Restrictions is Operating in a High-Rate Area,'' Federal Deposit Insurance Corporation, December 4, 2009 (FIL 69-2009)
- SR-01-08, ''Supervisory Guidance on Complex Wholesale Borrowings,'' Board of Governors of the Federal Reserve System, April 5, 2001.
- SR-01-14, ''Joint Agency Advisory on Rate-Sensitive Deposits,'' Board of Governors of the Federal Reserve System, May 31, 2001.
- SR-03-15, ''Interagency Advisory on the Use of the Federal Reserve's Primary Credit Program in Effective Liquidity Management,'' Board of Governors of the Federal Reserve System, July 25, 2003.
- SR-10-6, ''Interagency Policy Statement on Funding and Liquidity-Risk Management,'' Board of Governors of the Federal Reserve System, March 17, 2010.
- *Trading and Capital-Markets Activities Manual*, Board of Governors of the Federal Reserve System.

APPENDIX 1—FUNDAMENTALS OF LIQUIDITY-RISK MEASUREMENT

Measuring a financial institution's liquidity-risk profile and identifying alternative sources of funds to meet cash-flow needs are critical elements of sound liquidity-risk management. The liquidity-measurement techniques and the liquidity measures employed by depository institutions vary across a continuum of granularity, specificity, and complexity, depending on the specific characteristics of the institution and the intended users of the information. At one extreme, highly granular cash-flow projections under alternative scenarios are used by both complex and noncomplex firms to manage their day-to-day funding mismatches in the normal course of business and for assessing their contingent liquidity-risk exposures. At the other end of the measurement spectrum, aggregate measures and various types of liquidity ratios are often employed to convey summary views of an institution's liquidity-risk profile to various levels of management, the board of directors, and other stakeholders. As a result of this broad continuum, effective managers generally use a combination of cash-flow analysis and summary liquidity-risk measures in managing their liquidity-risk exposures, since no one measure or measurement technique can adequately capture the full dynamics of a financial institution's liquidity-risk exposure.

This appendix provides background material on the basic elements of liquidity-risk measurement and is intended to enhance examiners' understanding of the key elements of liquidity-risk management. First, the fundamental structure of cash-flow-projection worksheets and their use in assessing cash-flow mismatches under both normal business conditions and contingent liquidity events are discussed. The appendix then discusses the key liquidity characteristics of common depository institution assets, liabilities, off-balance-sheet (OBS) items, and other activities. These discussions also present key management considerations surrounding various

sources and uses of liquidity in constructing cash-flow worksheets and addressing funding gaps under both normal and adverse conditions. Finally, commonly used summary liquidity measures and ratios are discussed, along with special considerations that should enter into the construction and use of these summary measures.[6]

I. Basic Cash-Flow Projections

In measuring an institution's liquidity-risk profile, effective liquidity managers estimate cash inflows and cash outflows over future periods. For day-to-day operational purposes, cash-flow projections for the next day and subsequent days out over the coming week are used in order to ensure that contractual obligations are met on time. Such daily projections can be extended out beyond a one-week horizon, although it should be recognized that the further out such projections are made, the more susceptible they become to error arising from unexpected changes.

For planning purposes, effective liquidity managers project cash flows out for longer time horizons, employing various incremental time periods, or "buckets," over a chosen horizon. Such buckets may encompass forward weeks, months, quarters, and, in some cases, years. For example, an institution may plan its cash inflows and outflows on a daily basis for the next 5–10 business days, on a weekly basis over the coming month or quarter, on a monthly basis over the coming quarter or quarters, and on a quarterly basis over the next half-year or year. Such cash-flow bucketing is usually compiled into a single cash-flow-projection worksheet or report that represents cash flows under a specific future scenario. The goal of this bucketing approach is a measurement system with sufficient granularity to (1) reveal the time dimension of the needs and sources of liquidity and (2) identify potential liquidity-risk exposure to contingent events.

In its most basic form, a cash-flow-projection worksheet is a table with columns denoting the selected time periods or buckets for which cash flows are to be projected. The rows of this table consist of various types of assets, liabilities, and OBS items, often grouped by their cash-flow characteristics. Different groupings may be used to achieve different objectives of the cash-flow projection. For each row, net cash flows arising from the particular asset, liability, or OBS activity are projected across the time buckets.

The detail and granularity of the rows, and thus the projections, depend on the sophistication and complexity of the institution. Complex banks generally favor more detail, while less complex banks may use higher levels of aggregation. Static projections based only on the contractual cash flows of assets, liabilities, and OBS items as of a point in time are helpful for identifying gaps between needs and sources of liquidity. However, static projections may inadequately quantify important aspects of potential liquidity risk because they ignore new business, funding renewals, customer options, and other potential events that may have a significant impact on the institution's liquidity profile. Since liquidity managers are generally interested in evaluating how available liquidity sources may cover both expected and potential unexpected liquidity needs, a dynamic analysis that includes management's projected changes in cash flows is normally far more useful than a static projection based only on contractual cash flows as of a given projection date.

In developing a cash-flow-projection worksheet, cash inflows occurring within a given time horizon or time bucket are represented as positive numbers, while outflows are represented as negative numbers. Cash inflows include increases in liabilities as well as decreases in assets, and cash outflows include decreases in liabilities as well as increases in assets. For each type of asset, liability, or OBS item, and in each time bucket, the values shown in the cells of the projected worksheet are net cash-flow numbers. One format for a cash-flow-projection worksheet arrays sources of net cash inflows (such as loans and securities) in one group and sources of net cash outflows (such as deposit runoffs) in another. For example, the entries across time buckets for a loan or loan category would net the positives (cash inflows) of projected interest, scheduled principal payments, and prepayments with the negatives (cash outflows) of customer draws on existing commitments and new loan growth in each appropriate time bucket. Summing the net cash flows within a given column or time bucket identifies the extent of maturity mismatches that may exist. Funding shortfalls caused by mismatches in particular time frames

6. Material presented in this appendix draws from the OCC *Liquidity Handbook,* FDIC guidance, Federal Reserve guidance, findings from Federal Reserve supervision reviews, and other material developed for the Federal Reserve by consultants and other outside parties.

are revealed as a ''negative gap,'' while excess funds within a time bucket denote a ''positive gap.'' Identifying such gaps early can help managers take the appropriate action to either fill a negative gap or reduce a positive gap. The subtotals of the net inflows and net outflows may also be used to construct net cash-flow coverage ratios or the ratio of net cash inflows to net cash outflows.

The specific worksheet formats used to array sources and uses of cash can be customized to achieve multiple objectives. Exhibit 1 provides an example of one possible form of a cash-flow-projection worksheet. The time buckets (columns) and sources and uses (rows) are selected for illustrative purposes, as the specific selection will depend on the purpose of the particular cash-flow projection. In this example, assets and liabilities are grouped into two broad categories: those labeled ''customer-driven cash flows'' and those labeled ''management-controlled cash flows.'' This grouping arrays projected cash flows on the basis of the relative extent to which funding managers may have control over changes in the cash flows of various assets, liabilities, OBS items, and other activities that have an impact on cash flow. For example, managers generally have less control over loan and deposit cash flows (e.g., changes arising from either growth or attrition) and more control over such items as fed funds sold, investment securities, and borrowings.

The net cash-flow gap illustrated in the next-to-the-last row of exhibit 1 is the sum of the net cash flows in each time-bucket column and reflects the funding gap that will have to be financed in that time period. For the daily time buckets, this gap represents the net overnight position that needs to be funded in the unsecured short-term (e.g., fed funds) market. The final row of the exhibit identifies a cumulative net cash-flow gap, which is constructed as the sum of the net cash flows in that particular time bucket and all previous time buckets. It provides a running picture across time of the cumulative funding sources and needs of the institution. The worksheet presented in exhibit 1 is only one of many alternative formats that can be used in measuring liquidity gaps.

II. Scenario Dependency of Cash-Flow Projections

Cash-flow-projection worksheets describe an institution's liquidity profile under an established set of assumptions about the future.

The set of assumptions used in the cash-flow projection constitutes a specific scenario customized to meet the liquidity manager's objective for the forecast. Effective liquidity managers generally use multiple forecasts and scenarios to achieve an array of objectives over planning time horizons. For example, they may use three broad types of scenarios every time they make cash-flow projections: normal-course-of-business scenarios; short-term, institution-specific stress scenarios; and more-severe, intermediate-term, institution-specific stress scenarios. Larger, more complex institutions that engage in significant capital-markets and derivatives activities also routinely project cash flows for various systemic scenarios that may have an impact on the firm. Each scenario requires the liquidity manager to assess and plan for potential funding shortfalls. Importantly, no single cash-flow projection reflects the range of liquidity sources and needs required for advance planning.

Normal-course-of-business scenarios establish benchmarks for the ''normal'' behavior of cash flows of the institution. The cash flows projected for such scenarios are those the institution expects under benign conditions and should reflect seasonal fluctuations in loans or deposit flows. In addition, expected growth in assets and liabilities is generally incorporated to provide a dynamic view of the institution's liquidity needs under normal conditions.

Adverse, institution-specific scenarios are those that subject the institution to constrained liquidity conditions. Such scenarios are generally defined by first specifying the type of liquidity event to be considered and then identifying various levels or stages of severity for that type of event. For example, institutions that do not have publicly rated debt generally employ scenarios that entail a significant deterioration in the credit quality of their loan and security holdings. Institutions that have publicly rated debt generally include a debt-rating downgrade scenario in their CFPs. The downgrade of an institution's public debt rating might be specified as one type of event, with successively lower ratings grades, including below-investment-grade ratings, to identify increasing

Exhibit 1—Example Cash-Flow-Projection Worksheet

	Day 1	*Week 1*	*Week 2*	*Week 3*	*Month 1*	*Month 3*	*Months 4–6*	*Months 7–12*
Customer-driven cash flows								
Consumer loans								
Business loans								
Residential mortgage loans								
Fixed assets								
Other assets								
Noninterest-bearing deposits								
NOW accounts								
MMDAs								
Passbook savings								
Statement savings								
CDs under $100,000								
Jumbo CDs								
Net noninterest income								
Miscellaneous and other liabilities								
Other								
Subtotal								
Management-controlled cash flows								
Investment securities								
Repos, FFP, & other short-term borrowings								
FHLB & other borrowings								
Committed lines								
Uncommitted lines								
Other								
Subtotal								
Net cash-flow gap								
Cumulative position								

levels of severity. Each level of severity can be viewed as an individual scenario for planning purposes. Effective liquidity managers ensure that they choose potential adverse liquidity scenarios that entail appropriate degrees of severity and model cash flows consistent with each level of stress. Events that limit access to important sources of funding are the most common institution-specific scenarios used.

The same type of cash-flow-projection worksheet format shown in exhibit 1 can be used for adverse, institution-specific scenarios. However, in making such cash-flow projections, some institutions find it useful to organize the accounts differently to accommodate a set of very different assumptions from those used in the normal-course-of-business scenarios. Exhibit 2 presents a format in which accounts are organized by those involving potential cash outflows and cash inflows. This format focuses the analysis first on liability erosion and potential off-balance-sheet draws, followed by an evaluation of the bank's ability to cover potential runoff, primarily from assets that can be sold or pledged. Funding sources are arranged by their sensitivity to the chosen scenario. For example, deposits may be segregated into insured and uninsured portions. The time buckets used are generally of a shorter

Exhibit 2—Example Cash-Flow-Projection Worksheet—Liquidity Under an Adverse Scenario

Potential outflows/funding erosion	*Day 1*	*Day 2*	*Days 3–7*	*Week 2*	*Week 3*	*Week 4*	*Month 2*	*Months 2+*
Federal funds purchased								
Uncollateralized borrowings (sub-debt, MTNs, etc.)								
Nonmaturity deposits: insured								
— Noninterest-bearing deposits								
— NOW accounts								
— MMDAs								
— Savings								
Nonmaturity deposits: uninsured								
— Retail CDs under $100,000								
— Jumbo CDs								
— Brokered CDs								
— Miscellaneous and other liabilities								
Subtotal								
Off-balance-sheet funding requirements								
Loan commitments								
Amortizing securitizations								
Out-of-the-money derivatives								
Backup lines								
Total potential outflows								
Potential sources to cover outflows								
Overnight funds sold								
Unencumbered investment securities (with appropriate haircut)								
Residential mortgage loans								
Consumer loans								
Business loans								
Fixed/other assets								
Unsecured borrowing capacity								
Brokered-funds capacity								
Total potential inflows								
Net cash flows								
Coverage ratio (inflows/outflows)								
Cumulative coverage ratio								

term than those used under business-as-usual scenarios, reflecting the speed at which deteriorating conditions can affect cash flows.

A key goal of creating adverse-situation cash-flow projections is to alert management as to whether incremental funding resources available under the constraints of each scenario are sufficient to meet the incremental funding needs that result from that scenario. To the extent that projected funding deficits are larger than (or projected funding surpluses are smaller than) desired levels, management has the opportunity to adjust its liquidity position or develop strategies to bring the institution back within an acceptable level of risk.

Adverse systemic scenarios entail macroeconomic, financial market, or organizational events that can have an adverse impact on the institution and its funding needs and sources. Such scenarios are generally customized to the individual institution's funding characteristics and business activities. For example, an institution involved in clearing and settlement activities may choose to model a payments-system disruption, while a bank heavily involved in capital-markets transactions may choose to model a capital-markets disruption.

The number of cash-flow projections necessary to fully assess potential adverse liquidity scenarios can result in a wealth of information that often requires summarization in order to appropriately communicate contingent liquidity-risk exposure to various levels of management. Exhibit 3 presents an example of a report format that assesses available sources of liquidity under alternative scenarios. The worksheet shows the amount of anticipated funds erosion and potential sources of funds under a number of stress scenarios, for a given time bucket (e.g., overnight, one week, one month, etc.). In this example, two rating-downgrade scenarios of different severity are used, along with a scenario built on low-earnings projections and a potential reputational-risk scenario.

Exhibit 4 shows an alternative format for summarizing the results of multiple scenarios. In this case, summary funding gaps are presented across various time horizons (columns) for each scenario (rows). Actual reports used should be tailored to the specific liquidity-risk profile and other institution-specific characteristics.

III. Liquidity Characteristics of Assets, Liabilities, Off-Balance-Sheet Positions, and Various Types of Banking Activities

A full understanding of the liquidity and cash-flow characteristics of the institution's assets, liabilities, OBS items, and banking activities is critical to the identification and management of mismatch risk, contingent liquidity risk, and market liquidity risk. This understanding is required for constructing meaningful cash-flow-projection worksheets under alternative scenarios, for developing and executing strategies used in managing mismatches, and for customizing summary liquidity measures or ratios.

A. Assets

The generation of assets is one of the primary uses of funds at banking organizations. Once acquired, assets provide cash inflows through principal and interest payments. Moreover, the liquidation of assets or their use as collateral for borrowing purposes makes them an important source of funds and, therefore, an integral tool in managing liquidity risk. As a result, the objectives underlying an institution's holdings of various types of assets range along a continuum that balances the tradeoffs between maximizing risk-adjusted returns and ensuring the fulfillment of an institution's contractual obligations to deliver funds (ultimately in the form of cash). Assets vary by structure, maturity, credit quality, marketability, and other characteristics that generally reflect their relative ability to be convertible into cash.

Cash operating accounts that include vault cash, cash items in process, correspondent accounts, accounts with the Federal Reserve, and other cash or "near-cash" instruments are the primary tools institutions use to execute their immediate cash-transaction obligations. They are generally not regarded as sources of additional or incremental liquidity but act as the operating levels of cash necessary for executing day-to-day transactions. Accordingly, well-managed institutions maintain ongoing balances in such accounts to meet daily business transactions. Because they generate no or very low interest earnings, such holdings are generally maintained at the minimum levels necessary to meet day-to-day transaction needs.

Exhibit 3—Example Summary Contingent-Liquidity-Exposure Report (for an Assumed Time Horizon)

Events:	*Current*	*Ratings downgrade*		*Earnings*	*Reputation*	*Other (?)*
Scenarios:		*1 category*	*BBB to BB*	*RoA = ?*		
Potential funding erosion						
Large fund providers	___	___	___	___	___	___
Fed funds	___	___	___	___	___	___
CDs	___	___	___	___	___	___
Eurotakings/foreign deposits	___	___	___	___	___	___
Commercial paper	___	___	___	___	___	___
Subtotal	___	___	___	___	___	___
Other funds providers						
Fed funds	___	___	___	___	___	___
CDs	___	___	___	___	___	___
Eurotakings/foreign deposits	___	___	___	___	___	___
Commercial paper	___	___	___	___	___	___
DDAs	___	___	___	___	___	___
Consumer						
MMDAs	___	___	___	___	___	___
Savings	___	___	___	___	___	___
Other	___	___	___	___	___	___
Total uninsured funds	___	___	___	___	___	___
Total insured funds	___	___	___	___	___	___
Total funding	___	___	___	___	___	___
Off-balance-sheet needs						
Letters of credit	___	___	___	___	___	___
Loan commitments	___	___	___	___	___	___
Securitizations	___	___	___	___	___	___
Derivatives	___	___	___	___	___	___
Total OBS items	___	___	___	___	___	___
Total funding erosion	___	___	___	___	___	___
Sources of funds						
Surplus money market	___	___	___	___	___	___
Unpledged securities	___	___	___	___	___	___
Securitizations						
Credit cards	___	___	___	___	___	___
Autos	___	___	___	___	___	___
Mortgages	___	___	___	___	___	___
Loan sales	___	___	___	___	___	___
Other	___	___	___	___	___	___
Total internal sources	___	___	___	___	___	___
Borrowing capacity	___	___	___	___	___	___
Brokered-funds capacity	___	___	___	___	___	___
Fed discount borrowings	___	___	___	___	___	___
Other	___	___	___	___	___	___

Exhibit 4—Example Summary Contingent-Liquidity-Exposure Report (Across Various Time Horizons)

	Projected liquidity cushion				
	1 week	2–4 weeks	2 months	3 months	4+ months
Normal course of business					
Total cash inflows	___	___	___	___	___
Total cash outflows	___	___	___	___	___
Liquidity cushion (shortfall)	___	___	___	___	___
Liquidity coverage ratio	___	___	___	___	___
Mild institution-specific					
Total cash inflows	___	___	___	___	___
Total cash outflows	___	___	___	___	___
Liquidity cushion (shortfall)	___	___	___	___	___
Liquidity coverage ratio	___	___	___	___	___
Severe institution-specific					
Total cash inflows	___	___	___	___	___
Total cash outflows	___	___	___	___	___
Liquidity cushion (shortfall)	___	___	___	___	___
Liquidity coverage ratio	___	___	___	___	___
Severe credit crunch					
Total cash inflows	___	___	___	___	___
Total cash outflows	___	___	___	___	___
Liquidity cushion (shortfall)	___	___	___	___	___
Liquidity coverage ratio	___	___	___	___	___
Capital-markets disruption					
Total cash inflows	___	___	___	___	___
Total cash outflows	___	___	___	___	___
Liquidity cushion (shortfall)	___	___	___	___	___
Liquidity coverage ratio	___	___	___	___	___
Custom scenario					
Total cash inflows	___	___	___	___	___
Total cash outflows	___	___	___	___	___
Liquidity cushion (shortfall)	___	___	___	___	___
Liquidity coverage ratio	___	___	___	___	___

Beyond cash and near-cash instruments, the extent to which assets contribute to an institution's liquidity profile and the management of liquidity risk depends heavily on the contractual and structural features that determine an asset's cash-flow profile, its marketability, and its ability to be pledged to secure borrowings. The following sections discuss important aspects of these asset characteristics that effective managers factor into their management of liquidity risk on an ongoing basis and during adverse liquidity events.

Structural cash-flow attributes of assets. Knowledge and understanding of the contractual and structural features of assets, such as their maturity, interest and amortization payment schedules, and any options (either explicit or embedded) that might affect contractual cash flows under alternative scenarios, is critical for the adequate measurement and management of liquidity risk. Clearly, the maturity of assets is a key input in cash-flow analysis. Indeed, the management of asset maturities is a critical tool used in matching expected cash outflows and

inflows. This matching is generally accomplished by ''laddering'' asset maturities in order to meet scheduled cash needs out through short and intermediate time horizons.

Short-term money market assets (MMAs) are the primary ''laddering'' tools used to meet funding gaps over short-term time horizons. They provide vehicles for institutions to ensure future cash availability while earning a return. Given the relatively low return on such assets, managers face important tradeoffs between earnings and the provision of liquidity in deploying such assets. In general, larger institutions employ a variety of MMAs in making such tradeoffs, while smaller community organizations face fewer potential sources of short-term investments.

The contractual and structural features, such as the maturity and payment streams of all financial assets, should be factored into both cash-flow projections and the strategies developed for filling negative funding gaps. This practice includes the assessment of embedded options in assets that can materially affect an asset's cash flow. Effective liquidity managers incorporate the expected exercise of options in projecting cash flows for the various scenarios they use in measuring liquidity risk. For example, normal ''business as usual'' projections may include an estimate of the expected amount of loan and security principal prepayments under prevailing market interest rates, while alternative-scenario projections may employ estimates of expected increases in prepayments (and cash flows) arising from declining interest rates and expected declines in prepayments or ''maturity extensions'' resulting from rising market interest rates.

Market liquidity, or the ''marketability'' of assets. Marketability is the ability to convert an asset into cash through a quick ''sale'' and at a fair price. This ability is determined by the market in which the sale transaction is conducted. In general, investment-grade securities are more marketable than loans or other assets. Institutions generally view holdings of investment securities as a first line of defense for contingency purposes, but banks need to fully assess the marketability of these holdings. The availability and size of a bid-asked spread for an asset provides a general indication of the market liquidity of that asset. The narrower the spread, and the deeper and more liquid the market, the more likely a seller will find a willing buyer at or near the asked price. Importantly, however, the market liquidity of an asset is not a static attribute but is a function of conditions prevailing in the secondary markets for the particular asset. Bid-asked spreads, when they exist, generally vary with the volume and frequency of transactions in the particular type of assets. Larger volumes and greater frequency of transactions are generally associated with narrower bid-asked spreads. However, disruptions in the marketplace, contractions in the number of market makers, the execution of large block transactions in the asset, and other market factors may result in the widening of the bid-asked spread—and thus reduce the market liquidity of an instrument. Large transactions, in particular, can constrain the market liquidity of an asset, especially if the market for the asset is not deep.

The marketability of assets may also be constrained by the volatility of overall market prices and the underlying rates, which may cause widening bid-asked spreads on marketable assets. Some assets may be more subject to this type of market volatility than others. For example, securities that have inherent credit or interest-rate risk can become more difficult to trade during times when market participants have a low tolerance for these risks. This may be the case when market uncertainties prompt investors to shun risky securities in favor of more-stable investments, resulting in a so-called flight to quality. In a flight to quality, investors become much more willing to sacrifice yield in exchange for safety and liquidity.

In addition to reacting to prevailing market conditions, the market liquidity of an asset can be affected by other factors specific to individual investment positions. Small pieces of security issues, security issues from nonrated and obscure issuers, and other inactively traded securities may not be as liquid as other investments. While brokers and dealers buy and sell inactive securities, price quotations may not be readily available, or when they are, bid-asked spreads may be relatively wide. Bids for such securities are unlikely to be as high as the bids for similar but actively traded securities. Therefore, even though sparsely traded securities can almost always be sold, an unattractive price can make the seller unenthusiastic about selling or result in potential losses in order to raise cash through the sale of an asset.

Accounting conventions can also affect the market liquidity of assets. For example, Accounting Standards Codification (ASC) 320, ''Investments—Debt and Equity Securities,'' (or

Statement of Financial Accounting Standards No. 115 (FAS 115)) requires investment securities to be categorized as held-to-maturity (HTM), available-for-sale (AFS), or trading, significantly affects the liquidity characteristics of investment holdings. Of the three categories, securities categorized as HTM provide the least liquidity, as they cannot be sold to meet liquidity needs without potentially onerous repercussions.[7]

Securities categorized as AFS can be sold at any time to meet liquidity needs, but care must be taken to avoid large swings in earnings or triggering impairment recognition of securities with unrealized losses.

Trading account securities are generally considered the most marketable from an accounting standpoint, since selling a trading account investment has little or no income effect.

While securities are generally considered to have greater market liquidity than loans and other assets, liquidity-risk managers increasingly consider the ability to obtain cash from the sale of loans as a potential source of liquidity. Many types of bank loans can be sold, securitized, or pledged as collateral for borrowings. For example, the portions of loans that are insured or guaranteed by the U.S. government or by U.S. government–sponsored enterprises are readily saleable under most market conditions. From a market liquidity perspective, the primary difference between loans and securities is that the process of turning loans into cash can be less efficient and more time-consuming. While securitizations of loan portfolios (discussed below) are more common in practice, commercial loans and portfolios of mortgages or retail loans can be, and often are, bought and sold by banking organizations. However, the due diligence and other requirements of these transactions generally take weeks or even months to complete, depending on the size and complexity of the loans being sold. Liquidity-risk managers may include selling marketable loans as a potential source of cash in their liquidity analyses, but they must be careful to realistically time the expected receipt of cash and should carefully consider past experience and market conditions at the expected time of sale. Institutions that do not have prior experience selling a loan or a mortgage portfolio often need more time to close a loan sale than does an institution that makes such transactions regularly. Additionally, in systemic liquidity or institution-specific credit-quality stress scenarios, the ability to sell loans outright may not be a realistic assumption.

Securitization can be a valuable method for converting otherwise illiquid assets into cash. Advances in the capital markets have made residential mortgage, credit card, student, home equity, automobile, and other loan types increasingly amenable to securitization. As a result, the securitization of loans has become an important funds-management tool at many depository institutions. Many institutions have business lines that originate assets specifically for securitization in the capital markets. However, while securitization can play an important role in managing liquidity, it can also increase liquidity risk—especially when excessive reliance is placed on securitization as a single source of funding.

Securitization can be regarded as an ongoing, reliable source of liquidity only for institutions that have experience in securitizing the specific type of loans under consideration. The time and effort involved in structuring loan securitizations make them difficult to use as a source of asset liquidity for institutions that have limited experience with this activity. Moreover, peculiarities involved in the structures used to securitize certain types of assets may introduce added complexity in managing an institution's cash flows. For example, the securitization of certain retail-credit receivables requires planning for the possible return of receivable balances arising from scheduled or early amortization, which may entail the funding of sizable balances at unexpected or inopportune times. Institutions using securitization as a source of funding should have adequate monitoring systems and ensure that such activities are fully incorporated into all aspects of their liquidity-risk management processes—which includes assessing the liquidity impact of securitizations under adverse scenarios. This assessment is especially important for institutions that originate assets specifically for securitization since market disruptions have the potential to impose the need for significant contingent liquidity if securitizations cannot be executed. As a result, effective liquidity managers ensure that the implications of securitization activities are fully considered in both their day-to-day liquidity management and their liquidity contingency planning.

7. HTM securities can be pledged, however, so they do still provide a potential source of liquidity. Furthermore, since the HTM-sale restriction is only an accounting standard (FAS 115)—not a market limitation—HTM securities can be sold in cases of extreme need.

Pledging of assets to secure borrowings. The potential to pledge securities, loans, or other assets to obtain funds is another important tool for converting assets into cash to meet funding needs. Since the market liquidity of assets is a significant concern to the lender of secured funds, assets with greater market liquidity are more easily pledged than less marketable assets. An institution that has a largely unpledged investment-securities portfolio has access to liquidity either through selling the investments outright or through pledging the investments as collateral for borrowings or public deposits. However, once pledged, assets are generally unavailable for supplying contingent liquidity through their sale. When preparing cash-flow projections, liquidity-risk managers do not classify pledged assets as ''liquid assets'' that can be sold to generate cash since the liquidity available from these assets has already been ''consumed'' by the institution. Accordingly, when computing liquidity measures, effective liquidity managers avoid double-counting unpledged securities as both a source of cash from the potential sale of the asset and as a source of new liabilities from the potential collateralization of the same security. In more-sophisticated cash-flow projections, the tying of the pledged asset to the funding is made explicit.

Similar to the pledging of securities, many investments can be sold under an agreement to repurchase. This agreement provides the institution with temporary cash without having to sell the investment outright and avoids the potential earnings volatility and transaction costs that buying and selling securities would entail.

Use of haircuts in measuring the funds that can be raised through asset sales, securitizations, or repurchase agreements. The planned use of asset sales, asset securitizations, or collateralized borrowings to meet liquidity needs necessarily involves some estimation of the value of the asset at the future point in time when the asset is anticipated to be converted into cash. Based on changes in market factors, future asset values may be more or less than current values. As a result, liquidity managers generally apply discounts, or *haircuts,* to the current value of assets to represent a conservative estimate of the anticipated proceeds available from asset sales or securitization in the capital markets. Similarly, lenders in secured borrowings also apply haircuts to determine the amount to lend against pledged collateral as protection if the value of that collateral declines. In this case, the haircut represents, in addition to other factors, the portion of asset value that cannot be converted to cash because secured lenders wish to have a collateral-protection margin.

When computing cash-flow projections under alternative scenarios and developing plans to meet cash shortfalls, liquidity managers ensure that they incorporate haircuts in order to reflect the market liquidity of their assets. Such haircuts are applied consistent with both the relative market liquidity of the assets and the specific scenario utilized. In general, longer-term, riskier assets, as well as assets with less liquid markets, are assigned larger haircuts than are shorter-term, less risky assets. For example, within the securities portfolio, different haircuts might be assigned to short-term and long-term Treasuries, rated and unrated municipal bonds, and different types of mortgage securities (e.g., pass-throughs versus CMOs). When available and appropriate, historical price changes over specified time horizons equal to the time until anticipated liquidation or the term of a borrowing are used by liquidity-risk managers to establish such haircuts. Haircuts used by nationally recognized statistical ratings organizations (NRSROs) are a starting point for such calculations but should not be unduly relied on since institution- and scenario-specific considerations may have important implications.

Haircuts should be customized to the particular projected or planned scenario. For example, adverse scenarios that hypothesize a capital-markets disruption would be expected to use larger haircuts than those used in projections assuming normal markets. Under institution-specific, adverse scenarios, certain assets, such as loans anticipated for sale, securitization, or pledging, may merit higher haircuts than those used under normal business scenarios. Institutions should fully document the haircuts they use to estimate the marketability of their assets.

Bank-owned life insurance (BOLI) is a popular instrument offering tax benefits as well as life insurance on bank employees. Some BOLI policies are structured to provide liquidity; however, most BOLI policies only generate cash in the event of a covered person's death and impose substantial fees if redeemed. In general, BOLI should not be considered a liquid asset. If it is included as a potential source of funds in a cash-flow analysis, a severe haircut reflecting

the terms of the BOLI contract and current market conditions should be applied.

Liquid assets and liquidity reserves. Sound practices for managing liquidity risk call for institutions to maintain an adequate reserve of liquid assets to meet both normal and adverse liquidity situations. Such reserves should be structured consistent with the considerations discussed above regarding the marketability of different types of assets. Many institutions identify a specific portion of their investment account to serve as a liquidity reserve, or *liquidity warehouse.* The size of liquidity reserves should be based on the institution's assessments of its liquidity-risk profile and potential liquidity needs under alternative scenarios, giving full consideration to the costs of maintaining those assets. In general, the amount of liquid assets held will be a function of the stability of the institution's funding structures and the potential for rapid loan growth. If the sources of funds are stable, if adverse-scenario cash-flow projections indicate adequate sources of contingent liquidity (including sufficient sources of unused borrowing capacity), and if asset growth is predictable, then a relatively low asset liquidity reserve may be required. The availability of the liquidity reserves should be tested from time to time. Of course, liquidity reserves should be actively managed to reflect the liquidity-risk profile of the institution and current trends that might have a negative impact on the institution's liquidity, such as—

- trading market, national, or financial market trends that might lead rate-sensitive customers to pursue investment alternatives away from the institution;
- significant actual or planned growth in assets;
- trends evidencing a reduction in large liability accounts;
- a substantial portion of liabilities from rate-sensitive and credit-quality-sensitive customers;
- significant liability concentrations by product type or by large deposit account holders;
- a loan portfolio consisting of illiquid, nonmarketable, or unpledgeable loans;
- expectations for substantial draws on loan commitments by customers;
- significant loan concentrations by product, industry, customer, and location;
- significant portions of assets pledged against wholesale borrowings; and
- impaired access to the capital markets.

B. Liabilities

Similar to its assets, a depository institution's liabilities present a complicated array of liquidity characteristics. Banking organizations obtain funds from a wide variety of sources using an array of financial instruments. The primary characteristics that determine a liability's liquidity-risk profile include its term, optionality, and counterparty risk tolerance (which includes the counterparty's need for insurance or collateral). These features help to determine if an individual liability can be considered as stable or volatile. A stable liability is a reliable source of funds that is likely to remain available in adverse circumstances. A volatile liability is a less stable source of funds that may disappear or be unavailable to the institution under heavy price competition, deteriorating credit or market- risk conditions, and other possible adverse events. Developing assumptions on the relative stability or volatility of liabilities is a crucial step in forecasting a bank's future cash flows under various scenarios and in constructing various summary liquidity measures. As a result, effective liquidity managers segment their liabilities into volatile and stable components on the basis of the characteristics of the liability and on the risk tolerance of the counterparty. These funds may be characterized as credit-sensitive, rate-sensitive, or both.

Characteristics of stability and risk tolerance. The stability of an individual bank liability is closely related to the customer's or counterparty's risk tolerance, or its willingness and ability to lend or deposit money for a given risk and reward. Several factors affect the stability and risk tolerance of funds providers, including the fiduciary responsibilities and obligations of funds providers to their customers, the availability of insurance on the funds advanced by customers to banking organizations, the reliance of customers on public debt ratings, and the relationships funds providers have with the institution.

Institutional providers of funds to banking organizations, such as money market funds, mutual funds, trust funds, public entities, and

other types of investment managers, have fiduciary obligations and responsibilities to adequately assess and monitor the relative risk-and-reward tradeoffs of the investments they make for their customers, participants, or constituencies. These fund providers are especially sensitive to receiving higher returns for higher risk, and they are more apt to withdraw funds if they sense that an institution has a deteriorating financial condition. In general, funds from sources that lend or deposit money on behalf of others are less stable than funds from sources that lend their own funds. For example, a mutual fund purchaser of an institution's negotiable CD may be expected to be less stable than a local customer buying the same CD.

Institutionally placed funds and other funds providers often depend on the published evaluations or ratings of NRSROs. Indeed, many such funds providers may have bylaws or internal guidelines that prohibit placing funds with institutions that have low ratings or, in the absence of actual guidelines, may simply be averse to retaining funds at an institution whose rating is poor or whose financial condition shows deterioration. As a result, funds provided by such investors can be highly unstable in adverse liquidity environments.

The availability of insurance on deposits or collateral on borrowed funds are also important considerations in gauging the stability of funds provided. Insured or collateralized funds are usually more stable than uninsured or unsecured funds since the funds provider ultimately relies on a third party or the value of collateral to protect its investment.

Clearly, the nature of a customer's relationship with an institution has significant implications for the potential stability or volatility of various sources of funds. Customers who have a long-standing relationship with an institution and a variety of accounts, or who otherwise use multiple banking services at the institution, are usually more stable than other types of customers.

Finally, the sensitivity of a funds provider to the rates paid on the specific instrument or transaction used by the banking organization to access funds is also critical for the appropriate assessment of the stability or volatility of funds. Customers that are very rate-driven are more likely not to advance funds or remove existing funds from an institution if more competitive rates are available elsewhere.

All of these factors should be analyzed for the more common types of depositors and funds providers and for the instruments they use to place funds with the institution. Such assessments lead to general conclusions regarding each type of customer's or counterparty's risk sensitivity and the stability of the funds provided by the instruments they use to place funds with the institution. Exhibit 5 provides a heuristic schematic of how effective liquidity-risk managers conduct such an assessment regarding the array of their different funds providers. It uses a continuum to indicate the general level of risk sensitivity (and thus the expected stability of funds) expected for each type of depositor, customer, or investor in an institution's debt obligations. Of course, individual customers and counterparties may have various degrees of such concerns, and greater granularity is generally required in practice. An additional instrument assessment of the stability or volatility of funds raised using that instrument from each type of fund provider is a logical next step in the process of evaluating the relative stability of various sources of funds to an institution.

There are a variety of methods used to assess the relative stability of funds providers. Effective liquidity managers generally review deposit accounts by counterparty type, e.g., consumer, small business, or municipality. For each type, an effective liquidity manager evaluates the applicability of risk or stability factors, such as whether the depositor has other relationships with the institution, whether the depositor owns the funds on deposit or is acting as an agent or manager, or whether the depositor is likely to be more aware of and concerned by adverse news reports. The depositors and counterparties considered to have a significant relationship with the institution and who are less sensitive to market interest rates can be viewed as providing *stable* funding. Statistical analysis of funds volatility is often used to separate total volumes into stable and nonstable segments. While such analysis can be very helpful, it is important to be mindful that historical volatility is unlikely to include a period of acute liquidity stress.

The following discussions identify important considerations that should be factored into the assessment of the relative stability of various sources of funds utilized by banking organizations.

Maturity of liabilities used to gather funds. An important factor in assessing the stability of funds sources is the remaining contractual life of the liability. Longer-maturity liabilities obvi-

Exhibit 5—General Characteristics of Stable and Volatile Liabilities

	Characteristics of funds providers that affect the stability/volatility of the funds provided				
Types of funds providers	*Fiduciary agent or own funds*	*Insured or secured*	*Reliance on public information*	*Relationship*	*Stability assessment*
Consumers	owner	yes	low	high	high
Small business	owner	in part	low	high	medium
Large corporate	owner	no	medium	medium	low
Banks	agent	no	high	medium	medium
Municipalities	agent	in part	high	medium	medium
Money market mutual funds	quasi-fiduciary	no	high	low	low
Other	—	—	—	—	—

ously provide more-stable funding than do shorter maturities. Extending liability maturities to reduce liquidity risk is a common management technique and an important sound practice used by most depository institutions. It is also a major part of the cost of liquidity management, since longer-term liabilities generally require higher interest rates than are required for similar short-term liabilities.

Indeterminate maturity deposits. Evaluations of the stability of deposits with indeterminate maturities, such as various types of transaction accounts (e.g., demand deposits, negotiable order of withdrawal accounts (NOWs) or money market demand accounts (MMDAs), and savings accounts) can be made using criteria similar to those shown in exhibit 5. In doing so, effective liquidity managers recognize that the relative stability or volatility of these accounts derives from the underlying characteristics of the customers that use them and not on the account type itself. As a result, most institutions delineate the relative volatility or stability of various subgroups of these account types on the basis of customer characteristics. For example, MMDA deposits of customers who have fiduciary obligations may be less stable than those of individual retail customers. Additionally, funds acquired through a higher pricing strategy for these types of deposit accounts are generally less stable than are deposits from customers who have long-standing relationships with the institution. Increasingly, liquidity managers recognize that traditional measures of "core" deposits may be inappropriate, and thus these deposits require more in-depth analysis to determine their relative stability.

Assessment of the relative stability or volatility of deposits that have indeterminate maturities can be qualitative as well as quantitative, consistent with the size, complexity, and sophistication of the institution. For example, at larger institutions, models based on statistical analysis can be used to estimate the stability of various subsets of such funds under alternative liquidity environments. Such models can be used to formulate expected behaviors in reaction to rate changes and other more-typical financial events. As they do when using models to manage any type of risk, institutions should fully document and understand the assumptions and methodologies used. This is especially the case when external parties conduct such analysis. Effective liquidity managers aggressively avoid "black-box" estimates of funding behaviors.

In most cases, insured deposits from consumers may be less likely to leave the institution under many liquidity circumstances than are funds supplied by more-institutional funds providers. Absent extenuating circumstances (e.g., the deposit contract prohibits early withdrawal), funds provided by agents and fiduciaries are generally treated by banking organizations as volatile liabilities.

Certificates of deposit and time deposits. At maturity, certificates of deposit (CDs) and time deposits are subject to the general factors regarding stability and volatility discussed above, including rate sensitivity and relationship factors. Nonrelationship and highly-rate-sensitive

deposits tend to be less stable than deposits placed by less-rate-sensitive customers who have close relationships with the institution. Insured CDs are generally considered more stable than uninsured "jumbo" CDs in denominations of more than $100,000. In general, jumbo CDs and negotiable CDs are more volatile sources of funds—especially during times of stress—since they may be less relationship-driven and have a higher sensitivity to potential credit problems.

Brokered deposits and other rate-sensitive deposits. Brokered deposits are funds a bank obtains, directly or indirectly, by or through any deposit broker, for deposit into one or more accounts. Thus, brokered deposits include both those in which the entire beneficial interest in a given bank deposit account or instrument is held by a single depositor and those in which the deposit broker pools funds from more than one investor for deposit in a given bank deposit account. Rates paid on brokered deposits are often higher than those paid for local-market-area retail deposits since brokered-deposit customers are generally focused on obtaining the highest FDIC-insured rate available. These rate-sensitive customers have easy access to, and are frequently well informed about, alternative markets and investments, and they may have no other relationship with or loyalty to the bank. If market conditions change or more-attractive returns become available, these customers may rapidly transfer their funds to new institutions or investments. Accordingly, these rate-sensitive depositors may exhibit characteristics more typical of wholesale investors, and liquidity-risk managers should model brokered deposits accordingly.

The use of brokered deposits is governed by law and covered by the 2001 Joint Agency Advisory on Brokered and Rate-Sensitive Deposits.[8] Under 12 USC 1831f and 12 CFR 337.6, determination of "brokered" status is based initially on whether a bank actually obtains a deposit directly or indirectly through a deposit broker. Banks that are considered only "adequately capitalized" under the "prompt corrective action" (PCA) standard must receive a waiver from the FDIC before they can accept, renew, or roll over any brokered deposit. They are also restricted in the rates they may offer on such deposits. Banks falling below the adequately capitalized range may not accept, renew, or roll over any brokered deposit, nor solicit deposits with an effective yield more than 75 basis points above the "national rate." The national rate is defined as "a simple average of rates paid by all insured depository institutions and branches for which data are available." On a weekly basis, the "national rate" is posted on the FDIC's website. If a depository institution believes that the "national rate" does not correspond to the actual prevailing rate in the applicable market, the institution may seek a determination from the FDIC that the institution is operating in a "high-rate area." If the FDIC makes such a determination, the bank will be allowed to offer the actual prevailing rate plus 75 basis points. In any event, for deposits accepted outside the applicable market area, the bank will not be allowed to offer rates in excess of the "national rate" plus 75 basis points.

These restrictions will reduce the availability of funding alternatives as a bank's condition deteriorates. The FDIC is not authorized to grant waivers for banks that are less than adequately capitalized. Bank managers who use brokered deposits should be familiar with the regulations governing brokered deposits and understand the requirements for requesting a waiver. Further detailed information regarding brokered deposits can be found in the FDIC's Financial Institution Letter (FIL), 69-2009.

Deposits attracted over the Internet, through CD listing services, or through special advertising programs that offer premium rates to customers who do not have another banking relationship with the institution also require special monitoring. Although these deposits may not fall within the technical definition of "brokered" in 12 USC 1831f and 12 CFR 337.6, their inherent risk characteristics may be similar to those of brokered deposits. That is, such deposits are typically attractive to rate-sensitive customers who may not have significant loyalty to the bank. Extensive reliance on funding products of this type, especially those obtained from outside a bank's geographic market area, has the potential to weaken a bank's funding position in times of stress.

Under the 2001 joint agency advisory, banks are expected to perform adequate due diligence before entering any business relationship with a deposit broker; assess the potential risks to earnings and capital associated with brokered deposits; and fully incorporate the assessment

8. Board of Governors of the Federal Reserve System, Office of the Comptroller of the Currency, Federal Deposit Insurance Corporation, and Office of Thrift Supervision. May 11, 2001. See SR-01-14.

and control of brokered deposits into all elements of their liquidity-risk management processes, including CFPs.

Public or government deposits. Public funds generally represent deposits of the U.S. government, state governments, and local political subdivisions; they typically require collateral to be pledged against them in the form of securities. In most banks, deposits from the U.S. government represent a much smaller portion of total public funds than that of funds obtained from states and local political subdivisions. Liquidity-risk managers generally consider the secured nature of these deposits as being a double-edged sword. On the one hand, they reduce contingent liquidity risk because secured funds providers are less credit-sensitive, and therefore their deposits may be more stable than those of unsecured funds providers. On the other hand, such deposits reduce standby liquidity by ''consuming'' the potential liquidity in the pledged collateral.

Rather than pledge assets as collateral for public deposits, banks may also purchase an insurance company's surety bond as coverage for public funds in excess of FDIC insurance limits. Here, the bank would not pledge assets to secure deposits, and the purchase of surety bonds would not affect the availability of funds to all depositors in the event of insolvency. The costs associated with the purchase of a surety bond must be taken into consideration when using this alternative.

Deposits from taxing authorities (most school districts and municipalities) also tend to be highly seasonal. The volume of public funds rises around tax due dates and falls near the end of the period before the next tax due date. This fluctuation is clearly a consideration for liquidity managers projecting cash flows for normal operations. State and local governments tend to be very rate-sensitive. Effective liquidity managers fully consider the contingent liquidity risk these deposits entail, that is, the risk that the deposits will not be maintained, renewed, or replaced unless the bank is willing to offer very competitive rates.

Eurodollar deposits. Eurodollar time deposits are certificates of deposit issued by banks outside of the United States. Large, internationally active U.S. banks may obtain Eurodollar funding through their foreign branches—including offshore branches in the Cayman Islands or other similar locales. Eurodollar deposits are usually negotiable CDs issued in amounts of $100,000 or more, with rates tied to LIBOR. Because they are negotiable, the considerations applicable to negotiable CDs set forth above also apply to Eurodollar deposits.

Federal funds purchased. Federal funds (fed funds) are excess reserves held at Federal Reserve Banks. The most common type of federal funds transaction is an overnight, unsecured loan. Transactions that are for a period longer than one day are called *term fed funds.* The day-to-day use of fed funds is a common occurrence, and fed funds are considered an important money market instrument used in managing daily liquidity needs and sources.

Many regional and money-center banks, acting in the capacity of correspondents to smaller community banks, function as both providers and purchasers of federal funds. Overnight fed funds purchased can pose a contingent liquidity risk, particularly if a bank is unable to roll over or replace the maturing borrowing under stress conditions. Term fed funds pose almost the same risk since the term is usually just a week or two. Fed funds purchased should generally be treated as a volatile source of funds.

Loans from correspondent banks. Small and medium-sized banks often negotiate loans from their principal correspondent banks. The loans are usually for short periods and may be secured or unsecured. Correspondent banks are usually moderately credit-sensitive. Accordingly, cash-flow projections for normal business conditions and mild adverse scenarios may often treat these funds as stable. However, given the credit sensitivity of such funds, projections computed for severe adverse liquidity scenarios should treat these funds as volatile.

FHLB borrowings. The Federal Home Loan Banks (FHLBs) provide loans, referred to as *advances,* to members. Advances must be secured by collateral acceptable to the FHLB, such as residential mortgage loans and mortgage-backed securities. Both short-term and long-term FHLB borrowings, with maturities ranging from overnight to 10 years, are available to member institutions at generally competitive interest rates. For some small and medium-sized banks, long-term FHLB advances may be a significant or the only source of long-term funding.

It should be noted that FHLBs may also sell their excess cash into the market in the form of fed funds. This is a transaction where the FHLB is managing its excess funding and has chosen to invest that excess in short-term unsecured fed funds. This transaction is executed through the capital markets and is not done with specific members of the FHLB.

Some FHLB advances contain embedded options or other features that may increase funding risk. For example, some types of advances, such as putable and convertible advances, provide the FHLB with the option to either recall the advance or change the interest rate on an advance from a fixed rate to a floating rate under specified conditions. When such optionality exists, institutions should fully assess the implications of this optionality on the liquidity-risk profile of the institution.

In general, an FHLB establishes a line of credit for each of its members. Members are required to purchase FHLB stock before a line of credit is established, and the FHLB has the ability to restrict the redemption of its stock. An FHLB may also limit or deny a member's request for an advance if the member engages in any unsafe or unsound practice, is inadequately capitalized, sustains operating losses, is deficient with respect to financial or managerial resources, or is otherwise deficient.

Because FHLB advances are secured by collateral, the unused FHLB borrowing capacity of a bank is a function of both its eligible, unpledged collateral and its unused line of credit with its FHLB.

FHLBs have access to bank regulatory information not available to other lenders. The composite rating of an institution is a factor in the approval for obtaining an FHLB advance, as well as the level of collateral required and the continuance of line availability. Because of this access to regulatory data, an FHLB can react quickly to reduce its exposure to a troubled institution by exercising options or not rolling over unsecured lines of credit. Depending on the severity of a troubled institution's condition, an FHLB has the right to increase collateral requirements or to discontinue or withdraw (at maturity) its collateralized funding program because of concerns about the quality or reliability of the collateral or other credit-related concerns. On the one hand, this right may create liquidity problems for an institution, especially if it has large amounts of short-term FHLB funding. At the same time, because FHLB advances are fully collateralized, the various FHLBs have historically worked with regulators prior to exercising their option to fully withdraw funding from members. To this extent, FHLB borrowings are viewed by many liquidity managers as a relatively stable source of funding, barring the most severe of adverse funding situations.

Sound liquidity-risk management practices call for institutions to fully document the purpose of any FHLB-borrowing transaction. Each transaction should be analyzed on an ongoing basis to determine whether the arrangement achieves the stated purpose or whether the borrowings are a sign of liquidity deficiencies. Some banks may use their FHLB line of credit to secure public funds; however, doing so will reduce their available funds and may present problems if the FHLB reduces the institution's credit line. Additionally, the institution should periodically review its borrowing agreement with the FHLB to determine the assets collateralizing the borrowings and the potential risks presented by the agreement. In some instances, the borrowing agreement may provide for collateralization by all assets not already pledged for other purposes.

Repurchase agreements and dollar rolls. The terms *repurchase agreement*[9] (repo) and *reverse repurchase agreement* refer to transactions in which a bank acquires funds by selling securities and simultaneously agreeing to repurchase the securities after a specified time at a given price, which typically includes interest at an agreed-on rate. A transaction is considered a repo when viewed from the perspective of the supplier of the securities (the borrower) and a reverse repo or matched sale–purchase agreement when described from the point of view of the supplier of funds (the lender).

A repo commonly has a near-term maturity (overnight or a few days) with tenors rarely exceeding three months. Repos are also usually arranged in large dollar amounts. Repos may be used to temporarily finance the purchase of securities and dealer securities inventories. Banking organizations also use repos as a substitute for direct borrowings. Bank securities holdings as well as loans are often sold under repurchase agreements to generate temporary working funds. These types of agreements are often used because the rate on this

9. See section 3010.1.

type of borrowing is less than the rate on unsecured borrowings, such as federal funds purchased.

U.S. government and agency securities are the most common type of instruments sold under repurchase agreements, since they are exempt from reserve requirements. However, market participants sometimes alter various contract provisions to accommodate specific investment needs or to provide flexibility in the designation of collateral. For example, some repo contracts allow substitutions of the securities subject to the repurchase commitment. These transactions are often referred to as *dollar repurchase agreements* (dollar rolls), and the initial seller's obligation is to repurchase securities that are substantially similar, but not identical, to the securities originally sold. To qualify as a financing, these agreements require the return of "substantially similar securities" and cannot exceed 12 months from the initiation of the transaction. The dollar-roll market primarily consists of agreements that involve mortgage-backed securities.

Another common repo arrangement is called an *open repo*, which provides a flexible term to maturity. An open repo is a term agreement between a dealer and a major customer in which the customer buys securities from the dealer and may sell some of them back before the final maturity date.

Effective liquidity-risk managers ensure that they are aware of special considerations and potential risks of repurchase agreements, especially when the bank enters into large-dollar-volume transactions with institutional investors or brokers. It is a fairly common practice to adjust the collateral value of the underlying securities daily to reflect changes in market prices and to maintain the agreed-on margin. Accordingly, if the market value of the repo-ed securities declines appreciably, the borrower may be asked to provide additional collateral. Conversely, if the market value of the securities rises substantially, the lender may be required to return the excess collateral to the borrower. If the value of the underlying securities exceeds the price at which the repurchase agreement was sold, the bank could be exposed to the risk of loss if the buyer is unable to perform and return the securities. This risk would increase if the securities were physically transferred to the institution or broker with which the bank has entered into the repurchase agreement.

Because these instruments are usually very short-term transactions, institutions using them incur contingent liquidity risk. Accordingly, cash-flow projections for normal and mild scenarios usually treat these funds as stable. However, projections computed for severe scenarios generally treat these funds as volatile.

International borrowings. International borrowings may be direct or indirect. Common forms of direct international borrowings include loans and short-term call money from foreign banks, borrowings from the Export-Import Bank of the United States, and overdrawn nostro accounts (due from foreign bank demand accounts). Indirect forms of borrowing include notes and trade bills rediscounted with the central banks of various countries; notes, acceptances, import drafts, or trade bills sold with the bank's endorsement or guarantee; notes and other obligations sold subject to repurchase agreements; and acceptance pool participations. In general, these borrowings are often considered to be highly volatile, nonstable sources of funds.

Federal Reserve Bank borrowings. In 2003, the Federal Reserve Board revised Regulation A to provide for primary and secondary credit programs at the discount window.[10] (See section 4025.1.) Reserve Banks will extend primary credit at a rate above the target fed funds rate on a short-term basis (typically, overnight) to eligible depository institutions, and acceptable collateral is required to secure all obligations. Discount window borrowings can be secured with an array of collateral, including consumer and commercial loans. Eligibility for primary credit is based largely on an institution's examination rating and capital status. In general, institutions with composite CAMELS ratings of 1, 2, or 3 that are at least adequately capitalized are eligible for primary credit unless supplementary information indicates their condition is not generally sound. Other conditions exist to determine eligibility for 4- and 5-rated institutions.

An institution eligible for primary credit need not exhaust other sources of funds before coming to the discount window. However, because

10. See the "Interagency Advisory on the Use of the Federal Reserve's Primary Credit Program in Effective Liquidity Management," Board of Governors of the Federal Reserve System, Office of the Comptroller of the Currency, Federal Deposit Insurance Corporation, and Office of Thrift Supervision, July 25, 2003, and SR-03-15. See also section 3010.1.

of the above-market price of primary credit, the Reserve Banks expect institutions to mainly use the discount window as a backup source of liquidity rather than as a routine source. Generally, Reserve Banks extend primary credit on an overnight basis with minimal administrative requirements to eligible institutions. Reserve Banks may also extend primary credit to eligible institutions for periods of up to several weeks if funding is not available from other sources. These longer extensions of credit are subject to greater administrative oversight. Reserve Banks also offer secondary credit to institutions that do not qualify for primary credit. Secondary credit is another short-term backup source of liquidity, although its availability is more limited and is generally used for emergency backup purposes. Reserve Banks extend secondary credit to assist in an institution's timely return to a reliance on traditional funding sources or in the resolution of severe financial difficulties. This program entails a higher level of Reserve Bank administration and oversight than primary credit.

Treasury Tax and Loan deposits. Treasury Tax and Loan accounts (TT&L accounts) are maintained at banks by the U.S. Treasury to facilitate payments of federal withholding taxes. Banks may select either the ''remittance-option'' or the ''note-option'' method of forwarding deposited funds to the U.S. Treasury. In the remittance option, the bank remits the TT&L account deposits to the Federal Reserve Bank the next business day after deposit, and the remittance portion is not interest-bearing. The note option permits the bank to retain the TT&L deposits. In the note option, the bank debits the TT&L remittance account for the amount of the previous day's deposit and simultaneously credits the note-option account. Note-option accounts are interest-bearing and can grow to a substantial size.

TT&L funds are considered purchased funds, evidenced by an interest-bearing, variable-rate, open-ended, secured note callable on demand by Treasury. As per 31 CFR 203.24, the TT&L balance requires pledged collateral, usually from the bank's investment portfolio. Because they are secured, TT&L balances reduce standby liquidity from investments, and because they are callable, TT&L balances are considered to be volatile and they must be carefully monitored. However, in most banks, TT&L deposits constitute only a minor portion of total liabilities.

C. Off-Balance-Sheet Obligations

Off-balance-sheet transactions have been one of the fastest-growing areas of banking activity. While these activities may not be reflected on the balance sheet, they must be thoroughly reviewed in assessing an institution's liquidity-risk profile, as they can expose the institution to significant contingent liquidity risk. Effective liquidity-risk managers pay particular attention to potential liquidity risks in loan commitments, lines of credit, performance guarantees, and financial guarantees. Banks should estimate both the amount and the timing of potential cash flows from off-balance-sheet claims.

Effective liquidity managers ensure that they consider the correlation of draws on various types of commitments that can trend with macroeconomic conditions. For example, standby letters of credit issued in lieu of construction completion bonds are often drawn when builders cannot fulfill their contracts. Some types of credit lines, such as those used to provide working capital to businesses, are most heavily used when either the borrower's accounts receivable or inventory is accumulating faster than its collections of accounts payable or sales. Liquidity-risk managers should work with the appropriate lending managers to track such trends.

In addition, funding requirements arising from some types of commitments can be highly correlated with the counterparty's credit quality. Financial standby letters of credit (SBLOCs) are often used to back the counterparty's direct financial obligations, such as commercial paper, tax-exempt securities, or the margin requirements of securities and derivatives exchanges. At some institutions, a major portion of off-balance-sheet claims consists of SBLOCs supporting commercial paper. If the institution's customer issues commercial paper supported by an SBLOC and if the customer is unable to repay the commercial paper at maturity, the holder of the commercial paper will request that the institution perform under the SBLOC. Liquidity-risk managers should work with the appropriate lending manager to (1) monitor the credit grade or default probability of such counterparties and (2) manage the industry diversification of these commitments in order to reduce the probability that multiple counterparties will be forced to draw against the bank's commitments at the same time.

Funding under some types of commitments can also be highly correlated with changes in the institution's own financial condition or perceived credit quality. Commitments supporting various types of asset-backed securities, asset-backed commercial paper, and derivatives can be subject to such contingent liquidity risk. The securitization of assets generally requires some form of credit enhancement, which can take many forms, including SBLOCs or other types of guarantees issued by a bank. Similarly, many structures employ *special-purpose entities* (SPEs) that own the collateral securing the asset-backed paper. Bank SBLOCs or guarantees often support those SPEs. As long as the institution's credit quality remains above defined minimums, which are usually based on ratings from NRSROs, few or none of the SBLOCs will fund. However, if the institution's credit rating falls below the minimum, a significant amount or all of such commitments may fund at the same time.

Financial derivatives can also give rise to contingent liquidity risk arising from financial market disruptions and deteriorating credit quality of the banking organization. Derivatives contracts should be reviewed, and their potential for early termination should be assessed and quantified, to determine the adequacy of the institution's available liquidity. Many forms of standardized derivatives contracts allow counterparties to request collateral or to terminate contracts early if the institution experiences an adverse credit event or deterioration in its financial condition. In addition, under situations of market stress, a customer may ask for early termination of some contracts. In such circumstances, an institution that owes money on derivatives transactions may be required to deliver collateral or settle a contract early, when the institution is encountering additional funding and liquidity pressures. Early terminations may also create additional, unintended market exposures. Management and directors should be aware of these potential liquidity risks and address them in the institution's CFP. All off-balance-sheet commitments and obligations should receive the focused attention of liquidity-risk managers throughout the liquidity-risk management process.

D. Specialized Business Activities

Institutions that engage in specialized banking activities should ensure that all elements of these activities are fully incorporated into their assessment of liquidity-risk exposure and their ongoing management of the firm's liquidity. Such activities may include mortgage servicing, trading and dealer activities, and various types of fee-income-generating businesses.

Institutions engaged in significant payment, clearing, and settlement activities face particular challenges. Institutions that are active in payment, settlement, or clearing activities should ensure that they have mechanisms for measuring, monitoring, and identifying the amount of liquidity they may need to settle obligations in normal as well as stressed environments. These institutions should fully consider the unique risks that may result from their participation in different payment-system activities and factor these risks into their liquidity contingency planning. Factors that banks should consider when developing liquidity plans related to payment activities include—

- the impact of pay-in rules of individual payment systems, which may result in short-notice payment adjustments and the need to assess peak pay-in requirements that could result from the failure of another participant;
- the potential impact of operational disruptions at a payment utility and the potential need to move activity to another venue in which settlement is gross rather than net, thereby increasing liquidity requirements to settle;
- the impact that the deteriorating credit quality of the institution may have on collateral requirements, changes in intraday lending limits, and the institution's intraday funding needs; and
- for clearing and nostro service providers, the impact of potential funding needs that could be generated by their clearing customers in addition to the bank's own needs.

IV. Summary Measures of Liquidity-Risk Exposure

Cash-flow projections constructed assuming normal and adverse conditions provide a wealth of information about the liquidity profile of an institution. However, liquidity managers, bank

supervisors, rating agencies, and other interested parties use a myriad of summary measures of liquidity to identify potential liquidity risk. These measures include various types of financial ratios. Many of these measures attempt to achieve some of the same insights provided by comprehensive cash-flow scenario analyses but use significantly less data. When calculated using standard definitions and comparable data, such measures provide the ability to track trends over time and facilitate comparisons across peers. At the same time, however, many summary measures necessarily entail simplifying assumptions regarding the liquidity of assets, the relative stability or volatility of liabilities, and the ability of the institution to meet potential funding needs. Supervisors, management, and other stakeholders that use these summary measures should fully understand the effect of these assumptions and the limitations associated with summary measures.

Although general industry conventions may be used to compute various summary measures, liquidity managers should ensure that the specific measures they use for internal purposes are suitably customized for their particular institution. Importantly, effective liquidity managers recognize that no single summary measure or ratio captures all of the available sources and uses of liquidity for all situations and for all time periods. Different ratios capture different facets of liquidity and liquidity risk. Moreover, the same summary measure or ratio calculated using different assumptions can also capture different facets of liquidity. This is an especially important point since, by definition, many liquidity ratios are scenario-specific. Measures constructed using normal-course-of-business assumptions can portray liquidity profiles that are significantly different from those constructed assuming stress contingency events. Indeed, many liquidity managers use the same summary measures and financial ratios computed under alternative scenarios and assumptions to evaluate and communicate to senior management and the board of directors the institution's liquidity-risk profile and the adequacy of its CFPs.

A. *Cash-Flow Ratios*

Cash-flow ratios are especially valuable summary liquidity measures. These measures summarize the information contained in detailed cash-flow projections and forecasts. They are generally constructed as the ratio of total projected cash inflows divided by total projected cash outflows for a particular time period or cash-flow-projection time bucket. The ratio for a given time bucket indicates the relative amount by which the projected sources of liquidity cover projected needs. For example, a ratio of 1.20 indicates a liquidity "surplus" equal to 20 percent of projected outflows. In general, such coverage ratios are compiled for each time bucket in the cash-flow projections used to assess both normal and adverse liquidity circumstances.

Some institutions also employ cumulative cash-flow ratios that are computed as the ratio of the cumulative sum of cash inflows to the cumulative sum of cash outflows for all time buckets up to a given time bucket. However, care should be taken to recognize that cumulative cash-flow ratios used alone and without the benefit of assessing the individual time-period exposures for each of their component time buckets may mask liquidity-risk exposures that can exist at intervals up to the cumulative time horizons chosen.

B. *Other Summary Liquidity Measures*

Other common summary liquidity measures employ assumptions about, and depend heavily on, the assessment and characterization of the relative marketability and liquidity of assets and the relative stability or volatility of funding needs and sources, consistent with the considerations discussed in the prior section. Liquidity managers use these other measures to review historical trends, summarize their projections of potential liquidity-risk exposures under adverse liquidity conditions, and develop strategies to address contingent liquidity events. In selecting from the myriad of available measures, effective liquidity managers focus primarily on those measures that are most related to the liquidity-management strategies pursued by the institution. For example, institutions that focus on managing asset liquidity place greater emphasis on measures that gauge such conditions, while institutions placing greater emphasis on managing liability liquidity emphasize measures that address those aspects of their liquidity-risk profile.

The following discussions briefly describe some of the more common summary measures

of liquidity and liquidity risk. Some of these measures are employed by liquidity managers, rating agencies, and supervisors using definitions and calculation methods amenable to publicly available Call Report or BHC Performance Report data. Because such data require the use of assumptions on the liquidity of broad classes of assets and on the stability of various types of aggregated liabilities, liquidity managers and supervisors should take full advantage of the available granularity of internal data to customize the summary measures they are using. Incorporating internal data ensures that summary measures fit the specific liquidity profile of the institution. Such customization permits a more robust assessment of the institution's liquidity-risk profile.

In general, most common summary measures of liquidity and liquidity risk can be grouped into the following three broad categories:

1. those that portray the array of assets along a continuum of liquidity and cash-flow characteristics for normal and potentially adverse circumstances
2. those that portray the array of liabilities along a continuum of potential volatility and stability characteristics under normal and potentially adverse circumstances
3. those that assess the balance between funding needs and sources based on assumptions about both the relative liquidity of assets and the relative stability of liabilities

Relative liquidity of assets. Summary measures that address the liquidity of assets usually start with assessments of the maturity or type of assets in an effort to gauge their contributions to actual cash inflows over various time horizons. In general, they represent an attempt to summarize and characterize the expected cash inflows from assets that are estimated in more-detailed cash-flow-projection worksheets assuming normal business conditions. Summary measures assessing the liquidity of assets include such measures as—

- short-term investments (defined as maturing within a specified time period, such as 3 months, 6 months, or 1 year) as a percent of total investments, and
- short-term assets (defined as maturing within a specified time period) as a percent of total assets.

Other measures within this category attempt to assess the expected time period over which longer-term, illiquid assets may need to be funded. These measures, which use broad asset categories and employ strong assumptions on the liquidity of these assets, include—

- loans and leases as a percent of total assets, and
- long-term assets (defined as maturing beyond a specified time period) as a percent of total assets.

To better gauge the potential for assets to be used as sources of liquidity to meet uncertain future cash needs, effective liquidity managers use additional "liquid asset" summary measures that are customized to take into account the ability (or inability) to convert assets into cash or borrowed funds. Such measures attempt to summarize the potential for sale, securitization, or use as collateral of different types of assets, subject to appropriate scenario-specific haircuts. Such measures also attempt to recognize the constraints on potential securitization and on those assets that have already been pledged as collateral for existing borrowings. Examples of these measures include—

- marketable securities (as determined by the assessment of cash-flow, accounting, and haircut considerations discussed in the previous section) to total securities;
- marketable securities as a percent of total assets;
- marketable assets (as determined by the assessment of cash-flow, accounting, and haircut considerations discussed in the previous section) to total assets;
- pledgable assets (e.g., unpledged securities and loans) as a percent of total assets;
- pledged securities (or pledged assets) to total pledgable securities (or pledgable assets);
- securitizable assets to total assets (sometimes computed to include some assessment of the time frame that may be involved); and
- liquid assets to total assets with the measure of liquid assets being some combination of short-term assets, marketable securities, and securitizable and pledgable assets (ensuring that any pledged assets are not double-counted).

Relative stability or volatility of liabilities as a source of funding. Summary measures used to assess the relative stability or volatility of lia-

bilities as sources of funding often start with assessments of the maturity of liabilities and their ability to be "rolled-over" or renewed under both normal business and potentially adverse circumstances. These measures also represent an attempt to summarize and characterize the use of actual and potential sources of funds, which are estimated in more-detailed cash-flow-projection worksheets. In fact, proper construction of many of these summary measures requires the same analytical assessments required for cash-flow projections. Such measures attempt to gauge and array the relative sensitivity and availability of different sources of funds on the basis of the anticipated behavior of various types of transactions, business activities, funds providers, or other attributes.

Given the difficulties involved in portraying funding sources across the entire continuum of stability and volatility characteristics, along with the complexity of overlaying alternative contingent scenarios on such portrayals, some common summary measures attempt to group funding sources as falling on one side or the other of this continuum. Financial ratios that attempt to portray the extent to which an institution's funding sources are stable include—

- total deposits as a percent of total liabilities or total assets;
- insured deposits as a percent of total deposits;
- deposits with indeterminate maturities as a percent of total deposits; and
- long-term liabilities (defined as maturing beyond a specified time period) to total liabilities.

These measures necessarily employ assumptions about the stability of an institution's deposit base in an attempt to define a set of relatively stable or core funding sources. Liquidity managers and examiners should take care in constructing their estimates of stable or core liabilities for use in such measures. This caution has become especially important as changes in customer sophistication and interest-rate sensitivity have altered behavioral patterns and, therefore, the stability characteristics traditionally assumed for retail and other types of deposits traditionally termed "core." As a result, examiners, liquidity managers, and other parties should use more-granular breakouts of funding sources to assess the relative stability of deposits and should not place undue reliance on standardized traditional measures of core deposits. Breakouts that use such a greater granularity include—

- various breakouts of retail deposits to total deposits based on product type (MMDA, demand deposit, savings account, etc.) and customer segmentation to total deposits or liabilities;
- breakouts of various types of institutional deposits (e.g., collateralized deposits of municipal and government entities) as a percent of deposits; and
- various breakouts of brokered deposits (by size, types of fund providers, and maturity).

At the other end of the stability/volatility continuum, some summary measures focus on identifying those sources of funding that need to be rolled over in the short term under normal business conditions and those whose rollover or usage in the future may be especially sensitive to institution-specific contingent liquidity events. These measures include—

- short-term liabilities (defined as fund sources maturing within a specified time period, such as 3 months, 6 months, or 1 year) as a percent of total liabilities;
- short-term brokered deposits as a percent of total deposits;
- insured short-term brokered deposits as a percent of total deposits;
- purchased funds (including short-term liabilities such as fed funds purchased, repos, FHLB borrowings, and other funds raised in secondary markets) as a percent of total liabilities;
- uncollateralized purchased funds as a percent of total liabilities; and
- short-term purchased funds to total purchased funds.

When computing measures to assess the availability of potential sources of funds under contingent liquidity scenarios, institutions may adjust the carrying values of their liabilities in order to develop best estimates of available funding sources. Similar to the haircuts applied when assessing marketable securities and liquid assets, such adjustments endeavor to identify more-realistic rollover rates on current and potential funding sources.

Balance between funding needs and sources. Measures used to assess the relationship between

actual or potential funding needs and funding sources are constructed across a continuum that arrays both the tenor or relative liquidity of assets and the potential volatility or stability of liabilities. Many of these measures use concepts discussed earlier regarding the liquidity of assets and the relative stability or volatility of liabilities as funding sources. Some measures express various definitions of short-term liquid assets to total liabilities or alternative definitions of volatile or stable liabilities to total assets. Such measures may include—

- net short-term liabilities (short-term liabilities minus short-term assets) as a percent of total assets;
- stable deposits as a percent of total assets;
- total purchased funds as a percent of total assets;
- uncollateralized borrowings as a percent of total assets; and
- liquid assets as a percent of total liabilities.

Other measures attempt to identify the relationships between different classifications of liquid or illiquid assets and stable or volatile liabilities. Exhibit 6 provides a conceptual schematic of the range of relationships that are often addressed in such assessments.

Some commonly used summary liquidity measures and ratios focus on the amount of different types of liquid assets that are funded by various types of short-term and potentially volatile liabilities (upper-left quadrant of exhibit 6). One of the most common measures of this type is the "net short-term position" (used by some NRSROs). Liquidity managers, bank supervisors, and rating agencies use this measure to assess an institution's ability to meet its potential cash obligations over a specified period of time. It is computed as an institution's liquid assets (incorporating appropriate haircuts on marketable assets) minus the potential cash obligations expected over the specified time period (e.g., 3 months, 6 months, or 1 year). Other measures used to assess the relationship or coverage of potentially volatile liabilities by liquid assets include—

- short-term investments (defined as investments maturing within a specified time period, such as 3 months, 6 months, or 1 year) as a percent of short-term and potentially volatile liabilities; and
- short-term investments (defined as investments maturing within a specified time period, such as 3 months, 6 months, or 1 year) as a percent of short-term liabilities (defined as liabilities maturing within a specified time period, such as 3 months, 6 months, or 1 year).

Other summary liquidity measures take a more expansive approach to assessing the continuum of liquid assets and volatile liabilities by including more items or expanding the breadth of analysis. Such measures include—

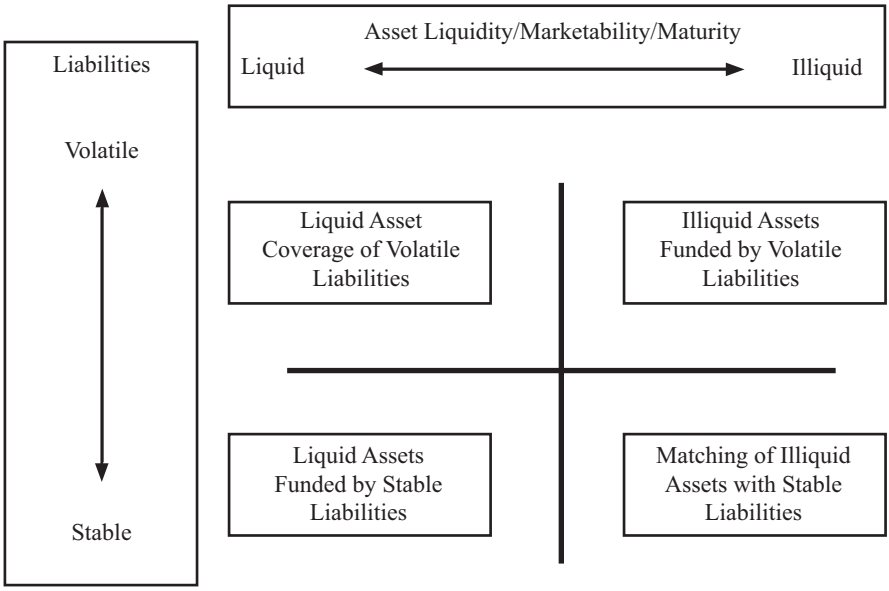
- liquid assets (defined as a combination of short-term assets, marketable securities, and securitizable and pledgable assets—ensuring that any pledged assets are not double-counted—over a certain specified time frame) as a percent of liabilities judged to be volatile (over the same time period);
- liquidity-surplus measures, such as liquid assets minus short-dated or volatile liabilities; and
- liquid assets as a percent of purchased funds.

Other common summary measures of liquidity focus on the potential mismatch of using short-term or potentially volatile liabilities to fund illiquid assets (upper-right-hand quadrant of exhibit 6). Often these measures factor only those volatile liabilities in excess of short-term and highly liquid assets or marketable investment securities into this assessment. Such volatile-liability-dependence measures provide insights as to the extent to which alternative funding sources might be needed to fund long-term liquidity needs under adverse liquidity conditions. These measures include—

- net short-term noncore-funding-dependence measures, such as short-term volatile funding minus short-term investments as a percent of illiquid assets; and
- net volatile-funding-dependence measures, such as volatile funding minus liquid assets as a percent of illiquid assets.

Another set of summary liquidity ratios can be constructed to focus on the extent to which illiquid assets are match-funded by stable liabilities (lower-right quadrant of exhibit 6). Common examples of such measures include traditional loan-to-deposit ratios (which incorrectly assume all deposits are stable) and loan-to-core-

Exhibit 6—Relationships Between Liquid or Illiquid Assets and Stable or Volatile Liabilities



deposit ratios (which often take a product-specific approach to defining the stability of certain types of deposits). However, since such traditional measures necessarily require the use of broad assumptions on the stability of deposits, they should not be relied on to provide meaningful insights regarding potential funding mismatches between stable funding sources and illiquid assets.

One meaningful measure used to gauge such relationships is the concept of "net cash capital" (which is also used by some NRSROs). This measure is the dollar amount by which stable sources of funds exceed illiquid assets; it can be computed as a percent of total assets to facilitate comparisons across institutions. In addition, it can be computed using customized assessments of the relative stability of different types of liabilities and the ability to convert assets into cash through sale, securitization, or collateralization. For example, firms may choose to exclude portions of loans sold regularly (e.g., loans conforming to secondary-market standards) as illiquid assets, or they may choose to include long-term debt as stable liabilities.

A final set of summary measures are used by liquidity managers to optimize the liquidity profiles of their institutions. These measures assess the extent to which relatively stable funding sources are used to fund short-term and liquid assets (lower-left quadrant of exhibit 6). Since short-term liquid assets generally entail relatively lower returns than longer-term less-liquid assets, measures assessing such potential mismatches focus liquidity managers on the cost of carrying liquid assets.

V. Liquidity-Measurement Considerations for Bank Holding Companies

Liquidity-risk measurement considerations for BHCs can be found in the *Bank Holding Company Supervision Manual*, sections 4000.1, 4010, and 4020.

APPENDIX 2—SUMMARY OF MAJOR LEGAL AND REGULATORY CONSIDERATIONS

The following discussions summarize some of the major legal and regulatory considerations that should be taken into account in managing the liquidity risk of banking organizations. The discussions are presented only to highlight

potential issues and to direct bankers and supervisors to source documents on those issues.

A. Federal Reserve Regulation A

Federal Reserve Regulation A addresses borrowing from the discount window. Rules defining eligible collateral can be found in this regulation.

B. Federal Reserve Regulation D

Federal Reserve Regulation D addresses required reserves for deposits. One portion of the regulation, however, restricts the type of eligible collateral that can be pledged for repurchase-agreement borrowings.

C. Federal Reserve Regulation F

Federal Reserve Regulation F imposes limits on interbank liabilities. This regulation implements section 308 of the Federal Deposit Insurance Corporation Improvement Act (FDICIA). Banks that sell funds to other banks must have written policies to limit excessive exposure, must review the financial condition or credit rating of the debtor, must have internal limits on the size of exposures that are consistent with the credit risk, may not lend more than 25 percent of their capital to a single borrowing bank, and must undertake other steps.

Banks that borrow federal funds or other borrowings from correspondent banks may find, as a result of the seller's compliance with Regulation F, that the amount they may borrow has suddenly declined as a result of a reduction in their credit rating or credit quality. Regulation F may make it harder for a bank to use borrowings as a liquidity source for a bank-specific liquidity crisis.

D. Federal Reserve Regulation W

Federal Reserve Regulation W governs transactions between an insured bank or thrift and its affiliates. The regulation establishes a consistent and comprehensive compilation of requirements found in section 23A of the Federal Reserve Act, 70 years of Board interpretations of section 23A, section 23B of the Federal Reserve Act, and portions of the Gramm-Leach-Bliley Act of 1999. Covered transactions include purchases of assets from an affiliate, extensions of credit to an affiliate, investments in securities issued by an affiliate, guarantees on behalf of an affiliate, and certain other transactions that expose the member bank to an affiliate's credit or investment risk. Derivatives transactions and intraday extensions of credit are also covered.

The intentions of the regulation are (1) to protect the depository institution, (2) to ensure that all transactions between the bank and its affiliates are on terms and conditions that are consistent with safe and sound banking practices, and (3) to limit the ability of a depository institution to transfer to its affiliates the subsidy arising from the institution's access to the federal safety net. The regulation achieves these goals in four major ways:

1. It limits a member bank's covered transactions with any single affiliate to no more than 10 percent of the bank's capital stock and surplus, and limits transactions with all affiliates combined to no more than 20 percent of the bank's capital stock and surplus.
2. It requires all transactions between a member bank and its affiliates to be on terms and conditions that are consistent with safe and sound banking practices.
3. It prohibits a member bank from purchasing low-quality assets from its affiliates.
4. It requires that a member bank's extensions of credit to affiliates and guarantees on behalf of affiliates be appropriately secured by a statutorily defined amount of collateral.

Section 23B protects member banks by requiring that certain transactions between the bank and its affiliates occur on market terms, that is, on terms and under circumstances that are substantially the same, or at least as favorable to the bank, as those prevailing at the time for comparable transactions with unaffiliated companies. Section 23B applies the market-terms restriction to any covered transaction (as defined in section 23A) with an affiliate as well as certain other transactions, such as (1) any sale of assets by the member bank to an affiliate, (2) any payment of money or furnishing of services by the member bank to an affiliate, and (3) any transaction by the member bank with a

third party if an affiliate has a financial interest in the third party or if an affiliate is a participant in the transaction.

Liquidity-risk managers working in banks that have affiliates must give careful attention to Regulation W, which addresses transactions between banks and their affiliates. In the normal course of business, the prohibition on unsecured funding can tie up collateral, complicate collateral management, and restrict the availability of funding from affiliates. In stressed conditions, all of those problems—plus the size limit and the prohibition on sales of low-quality assets to affiliates—effectively close down many transactions with affiliates.

E. Statutory Restriction of FHLB Advances

The Federal Home Loan Banks (FHLBs) provide a number of different advance programs with very attractive terms to member banks. Many banks now use the FHLBs for term funding. The FHLBs are very credit-sensitive lenders.

A federal regulation (12 CFR 935, Federal Housing Finance Board—Advances) requires the FHLBs to be credit-sensitive. In addition to monitoring the general financial condition of commercial banks and using rating information provided by bank rating agencies, the FHLBs have access to nonpublic regulatory information and supervisory actions taken against banks. The FHLBs often react quickly, sometimes before other funds providers, to reduce exposure to a troubled bank by not rolling over unsecured borrowing lines. Depending on the severity of a troubled bank's condition, even the collateralized funding program may be discontinued or withdrawn at maturity because of concerns about the quality or reliability of the collateral or other credit-related concerns. Contractual provisions requiring increases in collateral may also be invoked. Any of these changes in FHLB-loan availability or terms can create significant liquidity problems, especially in banks that use large amounts of short-term FHLB funding.

F. Statutory Restriction on the Use of Brokered Deposits

The use of brokered deposits is restricted by 12 CFR 337.6. Well-capitalized banks may accept brokered deposits without restriction. Adequately capitalized banks must obtain a waiver from the FDIC to solicit, renew, or roll over brokered deposits. Adequately capitalized banks must also comply with restrictions on the rates that they pay for these deposits. Banks that have capital levels below adequately capitalized are prohibited from using brokered deposits. In addition to these restrictions, banking regulators have also issued detailed guidance, discussed in section H below, on the use of brokered deposits.

G. Legal Restrictions on Dividends

A number of statutory restrictions limit the amount of dividends that a bank may pay to its stockholders. As a result, a bank holding company that depends on cash from its bank subsidiaries can find this source of funds limited or closed. This risk is particularly significant for bank holding companies with nonbank subsidiaries that require funding or debt service.

H. Restrictions on Investments That Affect Liquidity-Risk Management

Interagency guidance issued in 1998 by the FFIEC, "Supervisory Policy Statement on Investment Securities and End-User Activities," contains provisions that may affect liquidity and liquidity management. (See SR-98-12.) The following points summarize some of these potential impacts, although readers should review the entire rule for more-complete information.

1. When banks specify permissible instruments for accomplishing established objectives, they must take into account the liquidity of the market for those investments and the effect that liquidity may have on achieving their objective.
2. Banks are required to consider the effects that market risk can have on the liquidity of different types of instruments under various scenarios.

3. Banks are required to clearly articulate the liquidity characteristics of the instruments they use to accomplish institutional objectives.

In addition, the policy statement specifically highlights the greater liquidity risk inherent in complex and less actively traded instruments.

APPENDIX 3—INTERAGENCY GUIDANCE ON FUNDS TRANSFER PRICING RELATED TO FUNDING AND CONTINGENT LIQUIDITY RISKS

The Board of Governors of the Federal Reserve System (FRB), the Federal Deposit Insurance Corporation (FDIC), and the Office of the Comptroller of the Currency (OCC) issued this guidance on funds transfer pricing (FTP) practices related to funding risk (including interest rate and liquidity components) and contingent liquidity risk at large financial institutions (hereafter referred to as "firms") to address weaknesses observed in some firms' FTP practices.[11] The guidance builds on the principles of sound liquidity risk management described in the "Interagency Policy Statement on Funding and Liquidity Risk Management,"[12] and incorporates elements of the international statement issued by the Basel Committee on Banking Supervision titled "Principles for Sound Liquidity Risk Management and Supervision."[13]

For purposes of this guidance, FTP refers to a process performed by a firm's central management function that allocates costs and benefits associated with funding and contingent liquidity risks (FTP costs and benefits), as measured at transaction or trade inception, to a firm's business lines, products, and activities. While this guidance specifically addresses FTP practices related to funding and contingent liquidity risks, firms may incorporate other risks in their overall FTP frameworks.

FTP is an important tool for managing a firm's balance sheet structure and measuring risk-adjusted profitability. By allocating funding and contingent liquidity risks to business lines, products, and activities within a firm, FTP influences the volume and terms of new business and ongoing portfolio composition. This process helps align a firm's funding and contingent liquidity risk profile and risk appetite and complements, but does not replace, broader liquidity and interest rate risk-management programs (for example, stress testing) that a firm uses to capture certain risks (for example, basis risk). If done effectively, FTP promotes more resilient, sustainable business models. FTP is also an important tool for centralizing the management of funding and contingent liquidity risks for all exposures. Through FTP, a firm can transfer these risks to a central management function that can take advantage of natural offsets, centralized hedging activities, and a broader view of the firm.

Failure to consistently and effectively apply FTP can misalign the risk-taking incentives of individual business lines with the firm's risk appetite, resulting in a misallocation of financial resources. This misallocation can arise in new business and ongoing portfolio composition where the business metrics do not reflect risks taken, thereby undermining the business model. Examples include entering into excessive off-balance sheet commitments and on-balance sheet asset growth because of mispriced funding and contingent liquidity risks.

The 2008 financial crisis exposed weak risk-management practices for allocating liquidity costs and benefits across business lines. Several firms "acknowledged that if robust FTP practices had been in place earlier, and if the systems had charged not just for funding but for liquidity risks, they would not have carried the significant levels of illiquid assets and the significant risks that were held off-balance sheet that ultimately led to sizable losses."[14] Refer to SR-16-3.

11. For purposes of this guidance, large financial institutions includes national banks, federal savings associations and state-chartered banks with consolidated assets of $250 billion or more, domestic bank and savings and loan holding companies with consolidated assets of $250 billion or more or foreign exposure of $10 billion or more, and foreign banking organizations with combined U.S. assets of $250 billion or more.

12. Refer to FRB's SR-10-6, "Interagency Policy Statement on Funding and Liquidity Risk Management"; FDIC's FIL-13-2010, "Funding and Liquidity Risk Management Interagency Guidance"; and OCC Bulletin 2010-13, "Final Policy Statement: Interagency Policy Statement on Funding and Liquidity Management."

13. The Basel Committee on Banking Supervision statement on "Principles for Sound Liquidity Risk Management and Supervision" (September 2008) is available at www.bis.org/publ/bcbs144.htm.

14. Senior Supervisors Group report on "Risk Management Lessons from the Global Financial Crisis of 2008" (October 21, 2009) is available at www.newyorkfed.org/medialibrary/

Funds Transfer Pricing Principles

A firm should have an FTP framework to support its broader risk-management and governance processes that incorporates the general principles described in this section and is commensurate with its size, complexity, business activities, and overall risk profile. The framework should incorporate FTP costs and benefits into product pricing, business metrics, and new product approval for all material business lines, products, and activities to align risk-taking incentives with the firm's risk appetite.

Principle 1: A firm should allocate FTP costs and benefits based on funding risk and contingent liquidity risk.

A firm should have an FTP framework that allocates costs and benefits based on the following risks.

- *Funding risk,* measured as the cost or benefit (including liquidity and interest rate components) of raising funds to finance ongoing business operations, should be allocated based on the characteristics of the business lines, products, and activities that give rise to those costs or benefits (for example, higher costs allocated to assets that will be held over a longer time horizon and greater benefits allocated to stable sources of funding).

- *Contingent liquidity risk,* measured as the cost of holding standby liquidity composed of unencumbered, highly liquid assets, should be allocated to the business lines, products, and activities that pose risk of contingent funding needs during a stress event (for example, draws on credit commitments, collateral calls, deposit run-off, and increasing haircuts on secured funding).

media/newsevents/news/banking/2009/SSG_report.pdf.

Principle 2: A firm should have a consistent and transparent FTP framework for identifying and allocating FTP costs and benefits on a timely basis and at a sufficiently granular level, commensurate with the firm's size, complexity, business activities, and overall risk profile.

FTP costs and benefits should be allocated based on methodologies that are set forth by a firm's FTP framework. The methodologies should be transparent, repeatable, and sufficiently granular such that they align business decisions with the firm's desired funding and contingent liquidity risk appetite. To the extent a firm applies FTP at an aggregated level to similar products and activities, the firm should include the aggregating criteria in the report on FTP.[15] Additionally, the senior management group that oversees FTP should review the basis for the FTP methodologies. The attachment to this interagency guidance describes illustrative FTP methodologies that a firm may consider when implementing its FTP framework.[16]

A firm should allocate FTP costs and benefits, as measured at transaction or trade inception, to the appropriate business line, product, or activity. If a firm retains any FTP costs or benefits in a centrally managed pool pursuant to its FTP framework, it should analyze the implications of such decisions on business line incentives and the firm's overall risk profile. The firm customarily would include its findings in the report on FTP.

The FTP framework should be implemented consistently across the firm to appropriately align risk-taking incentives. While it is possible to apply different FTP methodologies within a firm due to, among other things, legal entity type or specific jurisdictional circumstances, a firm should generally implement the FTP framework in a consistent manner across its corporate structure to reduce the likelihood of misaligned incentives. If there are implementation differences across the firm, management should analyze the implications of such differences on business line incentives and the firm's overall funding and contingent liquidity risk profile.

15. See Principle 3 for a discussion of the report on FTP.

16. The FRB, the FDIC, and the OCC will monitor evolving FTP practices in the market and may update or add to the illustrative methodologies in the interagency guidance attachment.

The firm customarily would include its findings in the report on FTP.

A firm should allocate, report, and update data on FTP costs and benefits at a frequency that is appropriate for the business line, product, or activity. Allocating, reporting, and updating of data should occur more frequently for trading exposures (for example, on a daily basis). Infrequent allocation, reporting, or updating of data for trading exposures (for example, based on month-end positions) may not fully capture a firm's day-to-day funding and contingent liquidity risks. For example, a firm should monitor the age of its trading exposures, and those held longer than originally intended should be reassessed and FTP costs and benefits should be reallocated based on the modified holding period.

A firm's FTP framework should address derivative activities commensurate with the size and complexity of those activities. The FTP framework may consider the fair value of current positions, the rights of rehypothecation for collateral received, and contingent outflows that may occur during a stress event.

To avoid a misalignment of risk-taking incentives, a firm should adjust its FTP costs and benefits as appropriate based on both market-wide and idiosyncratic conditions, such as trapped liquidity, reserve requirements, regulatory requirements, illiquid currencies, and settlement or clearing costs. These idiosyncratic conditions should be contemplated in the FTP framework, and the firm customarily would include a discussion of the implications in the report on FTP.

Principle 3: A firm should have a robust governance structure for FTP, including the production of a report on FTP and oversight from a senior management group and central management function.

A firm should have a senior management group that oversees FTP, which should include a broad range of stakeholders, such as representatives from the firm's asset-liability committee (if separate from the senior management group), the treasury function, and business line and risk management functions. This group should develop the policy underlying the FTP framework, which should identify assumptions, responsibilities, procedures, and authorities for FTP. The policy should be reviewed and updated on a regular basis or when the firm's asset-liability structure or scope of activities undergoes a material change. Further, senior management with oversight responsibility for FTP should periodically, but no less frequently than quarterly, review the report on FTP to ensure that the established FTP framework is being properly implemented.

A firm should also establish a central management function tasked with implementing the FTP framework. The central management function should have visibility over the entire firm's on- and off-balance sheet exposures. Among its responsibilities, the central management function should regularly produce and analyze a report on FTP generated from accurate and reliable management information systems. The report on FTP should be at a sufficiently granular level to enable the senior management group and central management function to effectively monitor the FTP framework (for example, at the business line, product, or activity level, as appropriate). Among other items, all material approvals, such as those related to any exception to the FTP framework, including the reason for the exception, would customarily be documented in the report on FTP. The report on FTP may be standalone or included within a broader risk-management report.

Independent risk and control functions and internal audit should provide oversight of the FTP process and assess the report on FTP, which should be reviewed as appropriate to reflect changing business and financial market conditions and to maintain the appropriate alignment of incentives. Lastly, consistent with existing supervisory guidance on model risk management,[17] models used in FTP implementation should be independently validated and regularly reviewed to ensure that the models continue to perform as expected, that all assumptions remain appropriate, and that limitations are understood and appropriately mitigated.

17. Refer to FRB's SR-11-7, "Guidance on Model Risk Management" and OCC Bulletin 2011-12, "Supervisory Guidance on Model Risk Management."

Principle 4: A firm should align business incentives with risk-management and strategic objectives by incorporating FTP costs and benefits into product pricing, business metrics, and new product approval.

Through its FTP framework, a firm should incorporate FTP costs and benefits into product pricing, business metrics, and new product approval for all material business lines, products, and activities (both on- and off-balance sheet). The framework, the report on FTP, and any associated management information systems should be designed to provide decision makers sufficient and timely information about FTP costs and benefits so that risk-taking incentives align with the firm's strategic objectives.

The information may be either at the transaction level or, if the transactions have homogenous funding and contingent liquidity risk characteristics, at an aggregated level. In deciding whether to allocate FTP costs and benefits at the transaction or aggregated level, firms should consider advantages and disadvantages of both approaches when developing the FTP framework. Although transaction-level FTP allocations may add complexity and involve higher implementation and maintenance costs, such allocations may provide a more accurate measure of risk-adjusted profitability. A firm assigning FTP allocations at an aggregated level should have aggregation criteria based on funding and contingent liquidity risk characteristics that are transparent.

There should be ongoing dialogue between the business lines and the central function responsible for allocating FTP costs and benefits to ensure that funding and contingent liquidity risks are being captured and are well-understood for product pricing, business metrics, and new product approval. The business lines should understand the rationale for the FTP costs and benefits, and the central function should understand the funding and contingent liquidity risks implicated by the business lines' transactions. Decisions by senior management to incentivize certain behaviors through FTP costs and benefits customarily would be documented and included in the report on FTP.

Conclusion

A firm should use the principles laid out in this guidance to develop, implement, and maintain an effective FTP framework. In doing so, a firm's risk-taking incentives should better align with its risk-management and strategic objectives. The framework should be adequately tailored to a firm's size, complexity, business activities, and overall risk profile.

Interagency Guidance Attachment Illustrative Funds Transfer Pricing Methodologies

March 1, 2016

The FTP methodologies described below are intended for illustrative purposes only and provide examples for addressing principles set forth in the guidance. A firm's FTP framework should be commensurate with its size, complexity, business activities, and overall risk profile. In designing its FTP framework, a firm may utilize other methodologies that are consistent with the principles set forth in the guidance. Therefore, these illustrative methodologies should not be interpreted as directives for implementing any particular FTP methodology.

Non-Trading Exposures

For non-trading exposures, a firm's FTP methodology may vary based on its business activities and specific exposures. For example, certain firms may have higher concentrations of exposures that have less predictable time horizons, such as non-maturity loans and non-maturity deposits.

Matched-Maturity Marginal Cost of Funding

Matched-maturity marginal cost of funding is a commonly used methodology for non-trading exposures. Under this methodology, FTP costs and benefits are based on a firm's market cost of funds across the term structure (for example, wholesale long-term debt curve adjusted based on the composition of the firm's alternate sources of funding such as Federal Home Loan Bank

advances and customer deposits). This methodology incentivizes business lines to generate stable funding (for example, core deposits) by crediting them the benefit or premium associated with such funding. It also ensures that business lines are appropriately charged the cost of funding for the life of longer-dated assets (for example, a five-year commercial loan). Given that funding costs can change over time, the market cost of funds across the term structure should be derived from reliable and readily available data sources and be well understood by FTP users.

FTP rates should, as closely as possible, match the characteristics of the transaction or the aggregated transactions to which they are applied. In determining the appropriate point on the derived FTP curve for a transaction or pool of transactions, a firm could consider a variety of characteristics, including the holding period, cash flow, re-pricing, prepayments, and expected life of the transaction or pool. For example, for a five-year commercial loan that has a rate that resets every three months and will be held to maturity, the interest rate component of the funding risk could be based on a three-month horizon for determining the FTP cost, and the liquidity component of the funding risk could be based on a five-year horizon for determining the FTP cost. Thus, the total FTP cost for holding the five-year commercial loan would be the combination of these two components.

Contingent Liquidity Risk

A firm may calculate the FTP cost related to non-trading exposure contingent liquidity risk using models based on behavioral assumptions. For example, charges for contingent commitments could be based on their modeled likelihood of drawdown, considering customer drawdown history, credit quality, and other factors; whereas, credits applied to deposits could be based on volatility and modeled behavioral maturity. A firm should document and include all modeling analyses and assumptions in the report on FTP. If behavioral assumptions used in a firm's FTP framework do not align with behavioral assumptions used in its internal stress test for similar types of non-trading exposures, the firm should document and include in the report on FTP these inconsistencies.

Trading Exposures

For trading exposures, a firm could consider a variety of factors, including the type of funding source (for example, secured or unsecured), the market liquidity of the exposure (for example, the size of the haircut relative to the overall exposure), the holding period of the position, the prevailing market conditions, and any potential impact the chosen approach could have on firm incentives and overall risk profile. If a firm's trading activities are not material, its FTP framework may require a less complex methodology for trading exposures. The following FTP methodologies have been observed for allocating FTP costs for trading exposures.

Weighted Average Cost of Debt (WACD)

WACD is the weighted average cost of outstanding firm debt, usually expressed as a spread over an index. Some firms' practices apply this rate to the amount of an asset expected to be funded unsecured (repurchase agreement market haircuts may be used to delineate between the amount being funded secured and the amount being funded unsecured). A firm using WACD should analyze whether the methodology misaligns risk-taking incentives and document such analyses in the report on FTP.

Marginal Cost of Funding

Marginal cost of funding sets the FTP costs at the appropriate incremental borrowing rate of a firm. Some firms' practices apply a marginal secured borrowing rate to the amount of an asset expected to be funded secured and a marginal unsecured borrowing rate to the amount of an asset expected to be funded unsecured (repurchase agreement market haircuts may be used to delineate between the amount being funded secured and the amount being funded unsecured). A firm using marginal cost of funding should analyze whether the methodology misaligns risk-taking incentives, considering current market rates compared to historical rates, and document such analyses in the report on FTP.

Contingent Liquidity Risk

A firm may calculate the FTP costs related to contingent liquidity risk from trading exposures by considering the unencumbered liquid assets that are held to cover the potential for widening haircuts of trading exposures that are funded secured. If haircuts used in a firm's FTP framework do not align with haircuts used in its internal stress test for similar types of trading exposures, the firm should document and include in the report on FTP these inconsistencies. Haircuts should be updated at a frequency that is appropriate for a firm's trading activities and market conditions.

A firm may also include the FTP costs related to contingent liquidity risk from potential derivative outflows in stressed market conditions, which may be due to, for example, credit rating downgrades, additional termination rights, or market shocks and volatility.

Examination procedures are available on the Examination Documentation (ED) modules page on the Board's website. See the following ED module for examination procedures on this topic:

- Liquidity

DISCOUNT WINDOW OVERVIEW

Federal Reserve lending to depository institutions (referred to as the "discount window") plays an important role in supporting the liquidity and stability of the U.S. banking system and the effective implementation of monetary policy.[1] By providing ready access to funding, the discount window helps depository institutions manage their liquidity risks efficiently and avoid actions that have negative consequences for their customers, such as withdrawing credit during times of market stress. Thus, the discount window supports the smooth flow of credit to households and businesses. Providing liquidity in this way is one of the original purposes of the Federal Reserve System and other central banks around the world.

The Board's Regulation A (12 CFR pt. 201) governs the discount window. Under Regulation A, three credit programs are available to depository institutions:

1. Primary credit,
2. Secondary credit, and
3. Seasonal credit

Each credit program has its own interest rate ("discount rate"). Rates are established by each Reserve Bank's board of directors, subject to the review and determination of the Board of Governors of the Federal Reserve System. The rates for each of the three lending programs are the same across all Reserve Banks.

Depository institutions must have collateral available to pledge and meet certain eligibility criteria for primary credit at the discount window. The following assets are most commonly pledged to secure discount window advances:

- commercial, industrial, or agricultural loans
- consumer loans
- residential and commercial real estate loans
- corporate bonds and money market instruments
- obligations of U.S. government agencies and government-sponsored enterprises
- asset-backed securities
- collateralized mortgage obligations
- U.S. Treasury obligations
- state or political subdivision obligations

A Reserve Bank is not obligated to extend credit to any depository institution but may lend to a depository institution by making an advance secured by acceptable collateral as described in the Federal Reserve Act. Before lending to a depository institution, a Reserve Bank can require any information it believes is appropriate to ensure that the assets tendered as collateral are acceptable.

To access the discount window, depository institutions must deliver the necessary lending agreements and corporate resolutions under the terms set forth in the Federal Reserve's lending agreement. Operating Circular No. 10, "Lending," issued by each Reserve Bank, establishes the credit and security terms for borrowings from the Federal Reserve.[2]

DISCLOSURES

The Dodd-Frank Wall Street Reform and Consumer Protection Act,[3] which amended the Federal Reserve Act, requires the Federal Reserve to disclose certain discount window lending information. Effective for discount window loans (primary, secondary, and seasonal credit) extended on or after July 21, 2010, the Federal Reserve publicly discloses the following information, generally about two years after a discount window loan is extended to a depository institution:

- the name and identifying details of the depository institution;
- the amount borrowed by the depository institution;
- the interest rate paid by the depository institution; and
- information identifying the types and amounts of collateral pledged in connection with any discount window loan. This disclosure requirement does not apply to collateral pledged by depository institutions that do not borrow.

1. For more information, see the Board's website and the discount window website.

2. For more information on the Federal Reserve's Operating Circulars, see FRBservices.org.

3. Pub. L. No. 111-203.

The purpose of these disclosures is to promote public transparency, accountability, and legitimacy in the discount window process.

PRIMARY CREDIT, SECONDARY CREDIT, AND SEASONAL CREDIT

Primary Credit

The Federal Reserve's primary credit program offers depository institutions an additional source of available funds (at a rate above the target federal funds rate) for managing short-term liquidity risks.[4] Advances under primary credit may be made for a term of up to 90 days. Historically, advances under primary credit have been for very short terms, usually overnight. Primary credit is the principal safety valve for ensuring adequate liquidity in the banking system. There are no restrictions on borrowers' use of primary credit.

Depository institutions that are in "generally sound financial condition in the judgment of the Reserve Bank" are eligible for primary credit.[5] Sound financial condition typically means the depository institution has a CAMELS composite rating of "1," "2," or "3" and is adequately or well capitalized per prompt corrective action statutes (see table 1).

Table 1. General eligibility criteria for primary or secondary credit

Examination Rating (CAMELS or equivalent)	*Capital Designation*	*Generally Eligible For*
1, 2, or 3	Adequately or well capitalized	Primary Credit
4 or 5	Any	Secondary Credit
Any	Less than Adequately Capitalized	Secondary Credit

4. See the Board's Regulation A (12 CFR pt. 201) for additional information on the Federal Reserve's credit programs that are available to qualifying institutions.

5. 12 CFR 201.4(a).

Secondary Credit

Secondary credit is available to institutions that do not qualify for primary credit. Secondary credit is available as a backup source of liquidity on a very short-term basis, if, in the judgment of the Reserve Bank, the loan is consistent with the institution's timely return to a reliance on market sources of funds. If necessary for the orderly resolution of serious financial difficulties of an institution, a Reserve Bank may extend longer-term secondary credit. Any discount window loan, including a longer-term secondary credit loan, would have to comply with requirements for lending to undercapitalized and critically undercapitalized institutions. For more information, see the subsection below titled, "Lending to Undercapitalized and Critically Undercapitalized Depository Institutions." Secondary credit may not be used to fund an expansion of the institution's assets. Compared with the primary credit program, the secondary credit program entails a higher level of Reserve Bank administration and oversight. Reserve Banks will collect information to confirm the borrowing is consistent with the objectives of the program. Secondary credit is available at a rate above the primary credit rate.

Seasonal Credit

Under the seasonal lending program, a depository institution may qualify for funding for up to nine months during the calendar year, to meet seasonal borrowing needs of the communities it serves. The seasonal lending program is for institutions with demonstrated liquidity pressures of a seasonal nature and will not normally be available to institutions with deposits of $500 million or more. Institutions that experience fluctuations in deposits and loans—caused by construction, college, farming, resort, municipal financing, and other seasonal types of business—frequently qualify for the seasonal lending program. The interest rate charged on seasonal credit loans is a floating market rate comprised of the average of the federal funds rate and the rate on three-month certificate of deposits rounded to the nearest five basis points. The rate for seasonal credit can be lower than the rate applied to primary credit. Furthermore, the interest rate is reset every two weeks and applies to all outstanding seasonal credit loans.

LENDING TO UNDER-CAPITALIZED AND CRITICALLY UNDERCAPITALIZED DEPOSITORY INSTITUTIONS

Credit from any Reserve Bank to an "undercapitalized" institution may be extended or outstanding for no more than 60 days during any 120-day period in which the institution is undercapitalized.[6] An institution is considered undercapitalized if it is not critically undercapitalized under section 38 of the Federal Deposit Insurance Act (the FDI Act) but is either deemed undercapitalized under that provision and its implementing regulations or has received a composite CAMELS rating of "5" as of the most recent examination. A Reserve Bank may make or have outstanding advances or discounts to an institution that is deemed "critically undercapitalized" under section 38 of the FDI Act, and its implementing regulations, only during the five-day period beginning on the date the institution became critically undercapitalized or after consultation with the Board.

CONTINGENCY FUNDING AND THE FEDERAL RESERVE DISCOUNT WINDOW

As described in this manual's section on Liquidity Risk, a contingency funding plan provides a plan for responding to a liquidity crisis; identifies a menu of contingent liquidity sources that the institution can use under adverse liquidity circumstances; and describe steps that should be taken to ensure that the institution's sources of liquidity are sufficient to fund scheduled operating requirements and meet the institution's commitments with minimal costs and disruption. The Federal Reserve and other federal banking agencies encourage depository institutions to incorporate the discount window as part of their contingency funding plans. The following attributes make the primary credit program a viable source of backup or contingency funding at institutions for the short-term:

- Primary credit provides an accessible source of backup, short-term funding.
- Primary credit can enhance diversification in short-term funding sources that are part of contingency funding plans.
- Borrowings can be secured with an array of collateral, including consumer and commercial loans, in addition to many classes of fixed income securities and commercial paper.
- Requests for primary credit advances can be made anytime during the business day.[7]
- There are no restrictions on the borrowers' use of primary credit.

If the discount window is a part of a depository institution's contingency funding plan, the depository institution should establish and maintain operational readiness to borrow from the discount window.[8] Operational readiness includes establishing borrowing arrangements with the Reserve Bank and ensuring collateral is available for borrowing in an amount appropriate for a depository institution's potential contingency funding needs. If an institution incorporates primary credit into its contingency funding plan, management should

- ensure that they are familiar with the pledging process for different collateral types and be aware that pre-pledging collateral can be useful if liquidity needs arise quickly;
- consider regularly testing the institution's ability to borrow at the discount window. The goal of such testing is to ensure that there are no unexpected impediments or complications in the case that such contingency lines need to be used.
  - — Depository institutions should consider conducting small value transactions at regular intervals to ensure familiarity with discount window operations. Examination staff will not criticize institutions for testing discount window access;
- have viable short-term liquidity contingency sources that can replace primary credit at the discount window, if necessary; and

6. Generally, a Reserve Bank also may lend to an undercapitalized institution during 60 calendar days after receipt of a certificate of viability from the Chair of the Board of Governors or after consultation with the Board.

7. Advances generally are booked at the end of the business day.

8. For more information, see the Addendum to the Interagency Policy Statement on Funding and Liquidity Risk Management: Importance of Contingency Funding Plans (July 28, 2023).

- determine the institution's eligibility for primary credit under various stress scenarios, recognizing that if its financial condition were to deteriorate, primary credit may not be available. Under those scenarios, secondary credit may need to be accessed.

INTRODUCTION

Borrowed funds are a common and practical method for banks to manage their liquidity needs and to fund their operations. A bank's borrowings may exist in a number of forms. Sources of bank borrowings can include Federal Home Loan Bank (FHLB) credit lines, federal funds purchased, loans from correspondent banks, repurchase agreements, and the Federal Reserve discount window. Other borrowings include intraday credit from a Federal Reserve Bank, interest-bearing demand notes issued to the U.S. Treasury (the Treasury tax and loan note option account), mortgages payables, duebills, and other types of borrowed securities. Borrowings can also include rediscounted customer paper and assets sold with the bank's endorsement or guarantee. For the purposes of this section, borrowings exclude long-term subordinated debt, such as capital notes and debentures.

Reasons a bank may borrow funds include the following:

- To meet the temporary or seasonal loan demand or deposit withdrawal needs of its customers.
- To meet large and unanticipated deposit withdrawals by its customers that may arise during periods of economic distress.
- To manage liabilities effectively.

For banks using borrowed funds as one of their sources for ongoing or contingent funding, bank management should

- address specific liquidity risks associated with borrowed funds in the bank's contingency funding planning;
- be aware of the operational steps required to obtain funding from contingency funding sources, including potential counterparties, contact details, and availability of collateral;[1]
- as applicable, fully understand the credit policies and standards of the entities lending to the bank; and
- estimate the amount of funding that would be available from funds providers under both normal and stress conditions, including if there are changes in the bank's financial condition.

Some of the more frequently used sources of borrowings are discussed below.

COMMON SOURCES OF BORROWINGS

FHLB Borrowings

The FHLB system was created by the Federal Home Loan Bank Act as a government-sponsored enterprise to support mortgage lending and related community investment. There are 11 regional FHLBs. The FHLB system originally served solely as a source of borrowings to savings and loan companies. With the implementation of the Financial Institutions Reform, Recovery, and Enforcement Act of 1989, the FHLBs were permitted to lend to banks as well.

The FHLBs are a common funding source for many community and regional banks. The FHLBs provide banks short-term and long-term borrowings, with maturities ranging from overnight to 30 years, at generally competitive interest rates. The flexibility of an FHLB facility enables bank management to use this source of funds for the purpose of asset/liability management and contingency funding planning. FHLB facilities may allow bank management to secure a favorable interest rate spread. For example, FHLB borrowings may provide a lower-cost alternative to the conventional deposit, particularly in a highly competitive local market.

Bank management should understand the contracts associated with borrowing from an FHLB, including which assets collateralize the borrowings and the potential risks presented by the contract. For example, the FHLB borrowing agreement may require a bank to pledge all of its assets to the FHLB that have not already been pledged for other purposes (e.g., pledged as collateral to the Reserve Bank to secure discount window borrowings). Furthermore, a bank with negative tangible common equity could lose access to FHLB funding. Regulations governing the FHLBs' extensions of credit provide that an

1. See the July 2023, "Addendum to the Interagency Policy Statement on Funding and Liquidity Risk Management: Importance of Contingency Funding Plans."

FHLB shall not make new advances to a member that does not have positive tangible capital unless that member's appropriate federal banking agency or insurer requests in writing that the FHLB make such advance.[2]

Federal Funds Transactions

Federal funds transactions involve a bank's lending (federal funds sold) or borrowing (federal funds purchased) of immediately available funds under agreements or contracts that have an original maturity of one business day or roll over under a continuing contract. Federal funds may take the form of the following two types of transactions:

1. Unsecured loans (federal funds sold) or borrowings (federal funds purchased). In some market usage, the term "fed funds" or "pure fed funds" is confined to unsecured loans of immediately available balances.
2. Purchases (sales) of financial assets (other than securities) under agreements to resell (repurchase) that have original maturities of one business day (or are under continuing contracts) and are in immediately available funds.

Funds lent or borrowed in the form of securities resale or repurchase agreements, due-bills, borrowings from the discount window, deposits with and advances from a FHLB, and overnight loans for commercial and industrial purposes are excluded from federal funds.

For federal funds transactions, the rate is usually determined by overall money market rates as well as by the available supply and demand for funds. In some instances, when the selling and buying relationship between two banks is continuous, an effective line of credit may be established on a funds-availability basis. While federal funds transactions commonly are unsecured, the selling of funds can also be secured and can be for a longer period of time. Agency-based federal funds transactions are discussed in section 5230.1, "Bank Dealer Activities."

Loans from Correspondent Banks

Small and medium-sized banks often negotiate loans from their principal correspondent banks to meet their funding needs. The loans are usually for a short period of time and may be secured or unsecured. For more information, see section 6006.1, "Regulation F: Correspondent Concentration Risks."

Repurchase Agreements and Associated Risks

A repurchase agreement or repo is a transaction involving the sale of financial assets by one party to another, subject to an agreement by the seller to repurchase the assets at a specified date or under specific circumstances. A reverse repurchase agreement or reverse repo is a transaction involving the purchase of financial assets by one party from another, subject to an agreement by the purchaser to resell the assets at a specified date or under specific circumstances. Such transactions are referred to as a repo when viewed from the perspective of the supplier of the securities, and a reverse repo or matched sale-purchase agreement when described from the point of view of the supplier of funds. For more information on repurchase agreements, see the instructions to the Call Report.

Both parties in a term repo arrangement are exposed to interest rate risk. To mitigate this risk, a common practice is to have the collateral value of the underlying securities adjusted daily to reflect changes in market prices and to maintain the agreed-on margin. Accordingly, if the market value of the repo securities declines appreciably, the borrower may be asked to provide additional collateral. Conversely, if the market value of the securities rises substantially, the lender may be required to return the excess collateral to the borrower. If the value of the underlying securities exceeds the price at which the repurchase agreement was sold, the bank could be exposed to the risk of loss if the buyer is unable to perform and return the securities. Moreover, if the securities are not returned, the bank could be exposed to the possibility of a significant write-off, to the extent that the book value of the securities exceeds the price at which the securities were originally sold under the repurchase agreement. For this reason, banks should avoid pledging excessive collateral and

2. 12 CFR 1266.4.

obtain sufficient financial information on and analyze the financial condition of those institutions and brokers with whom they engage in repurchase transactions.

Repurchase agreements are in many respects economically equivalent to short-term borrowings at market rates of interest. Therefore, banks engaging in repurchase agreements should carefully evaluate their interest-rate-risk exposure at various maturity levels, formulate policy objectives in light of the institution's entire asset and liability mix, and adopt procedures to control mismatches between assets and liabilities. The degree to which a bank borrows through repurchase agreements also should be analyzed with respect to its liquidity needs, and contingency funding plans should outline alternative funding sources.

Borrowings from the Federal Reserve

Federal Reserve lending to depository institutions (referred to as the "discount window") plays an important role in supporting the liquidity and stability of the banking system and the effective implementation of monetary policy. By providing ready access to funding, the discount window helps depository institutions manage their liquidity risks efficiently and avoid actions that have negative consequences for their customers, such as withdrawing credit during times of market stress. Thus, the discount window supports the smooth flow of credit to households and businesses.

Three types of credit are available from the Federal Reserve Banks: primary credit, secondary credit, and seasonal credit, each with its own interest rate. For more information about the discount widow, see section 3210.1, "The Discount Window and Liquidity Risk Management."

The Federal Reserve also has an important role in providing intraday balances and credit to foster the smooth functioning of the overall payment system. Federal Reserve Banks provide intraday credit (also known as daylight overdrafts) to eligible depository institutions with accounts at a Federal Reserve Bank. A daylight overdraft occurs when an institution's Federal Reserve Bank account is in a negative position at any point during the business day. For more information, see the Federal Reserve Policy on Payment Systems Risk.

SUPERVISORY CONSIDERATIONS WHEN ANALYZING BORROWINGS

Examiners should analyze the purpose, effectiveness, and stability of each bank's borrowings on their own merits. The review of bank borrowings generally contributes to the supervisory assessment of the institution's "Liquidity" rating. The "Liquidity" rating should be based on, among other things, the degree of the bank's reliance on short-term, volatile sources of funds, including borrowings and brokered deposits, that have been used to fund the bank's longer-term assets.

If a bank borrows extensively or in large amounts, examiners should appropriately analyze the bank's borrowing activity by

- reviewing the principal sources of its borrowings, range of amounts, frequency, length of time indebted, borrowing costs, and reasons for the borrowings;
- verifying the actual use of the borrowed funds;
- analyzing changes in a bank's borrowing position for signs of deterioration in its borrowing ability and overall creditworthiness. Possible signs of deterioration in borrowing ability include;
  - The payment of large fees to money brokers to obtain funds because the bank is having difficulty obtaining access to conventional sources of borrowings. For more information about the risks associated with brokered deposits, see section 2330.1, "Deposit Accounts";
  - Requests from the bank's lender for collateral on previously unsecured credit lines or increases in collateral margins;
  - The payment of above-market interest rates; and
  - A shortening of maturities that is inconsistent with management's articulated balance-sheet strategies and funding plans.

If a bank's borrowing position is not properly managed, examiners should include appropriate comments in the report of examination.

Examination procedures are available on the Examination Documentation (ED) modules page on the Board's website. See the following ED module for examination procedures on this topic:

- Liquidity

INTRODUCTION

Market risk reflects the degree to which changes in interest rates, foreign exchange rates, commodity prices, or equity prices can adversely affect a financial institution's earnings or capital. For most community banks, market risk primarily reflects exposure to interest rate risk (IRR). While this risk is a normal part of banking and can be an important source of profitability and shareholder value, excessive levels of IRR can pose a significant threat to an institution's earnings and capital base. Accordingly, effective risk management that maintains IRR at prudent levels is essential to the safety and soundness of institutions.

The Interagency Guidelines Establishing Standards for Safety and Soundness (12 CFR 208, appendix D-1) require an institution to manage IRR in a manner that is appropriate to the size of the institution and the complexity of its assets and liabilities; and provide for periodic reporting to management and the board of directors regarding interest rate risk with adequate information for management and the board of directors to assess the level of risk. As a result, an important element of examinations and the supervisory process is the evaluation of an institution's exposure to changes in interest rates. Examiners evaluate both the adequacy of the management process used to control IRR and the quantitative level of exposure. In addition, examiners should assess the existing and potential future effects of changes in interest rates on an institution's financial condition, including the effect on the institution's capital adequacy, earnings, liquidity, and asset quality.

This section incorporates and builds upon the principles and guidance provided in four Supervision & Regulation (SR) letters:

- SR-93-69, "Examining Risk Management and Internal Controls for Trading Activities of Banking Organizations";
- SR-96-13, "Joint Policy Statement on Interest Rate Risk";[1]
- SR-10-1, "Interagency Advisory on Interest Rate Risk"; and
- SR-12-2, "Questions and Answers on Interagency Advisory on Interest Rate Risk Management."

1. See also 61 Fed. Reg. 33,166 (June 26, 1996).

TYPES AND SOURCES OF MARKET RISK

Market risk can arise from a variety of sources, including

- the overall structure of an institution's balance sheet, especially its loans, investments, and funding structure;
- its use of off-balance-sheet instruments (such as derivatives) for speculation; and
- its trading activities, if any.

While IRR is the most common form of market risk, market risk also arises from exposure to foreign exchange rates, commodity prices, and equity prices.

Foreign exchange risk surfaces when an institution, typically a larger or internationally active institution, performs foreign currency transactions on behalf of its customers, through either wire transfer activity or forward currency contracts. Institutions also may be exposed to currency fluctuations if they have a significant amount of investments denominated in foreign currencies. Institutions can be adversely affected when currencies in which they hold assets weaken or when currencies in which they have obligations strengthen. Foreign exchange risk also arises indirectly when changes in exchange rates affect the competitive position of an institution that operates in different countries.

Commodity price risk is similar to equity risk and encompasses the changes in an institution's earnings and asset values resulting from fluctuations in commodity prices. Some institutions are active in the commodity derivative market, offering derivative contracts linked to commodity prices. In addition, an institution's borrowers can be affected significantly by changes in commodity prices, such as the effect of fluctuating oil prices on airlines or in the realm of agricultural lending.

Equity price risk is the variation in profit or net worth caused by the changes in the prices of individual shares or the level of stock markets as a whole. Equity risk has both direct and indirect results. Fluctuations in stock prices will directly affect the value of shares, portfolios, and equity derivatives held by an institution. There also may be an indirect effect when declining equity prices affect the viability of a company to which

the bank has loaned money. Banks generally do not hold equity investments.

TYPES OF INTEREST RATE RISK

As previously discussed, IRR is the most common form of market risk for banking institutions. IRR can arise from a variety of sources, including repricing risk, yield curve risk, basis risk, options risk, and price risk. Various assets and liabilities may be exposed to more than one type of IRR.

Repricing risk is the primary and most discussed source of IRR and is the risk that the institution's assets, liabilities, and off-balance-sheet (OBS) instruments will reprice at different times or amounts. Repricing mismatches are fundamental to the business of banking and generally occur from either short term liabilities funding longer-term assets or long term liabilities funding shorter-term assets. Institutions whose liabilities reprice faster than their assets reprice are considered to be liability sensitive. The earnings of a liability sensitive institution generally increase when interest rates fall and decrease when rates rise. Conversely, an asset sensitive institution's assets reprice more quickly than their liabilities. These institutions' earnings generally benefit from a rising rate environment and are harmed by a falling rate environment.

Yield curve risk is the relationship between changing rates for the same instrument across a spectrum of maturities. It arises when assets and funding sources are linked to similar indexes with different maturities and the shape or slope of the yield curve changes by flattening, steepening, or inverting. For example, a 30-year Treasury bond's yield may change by 200 basis points; however, the three-year Treasury note's yield only changed by 50 basis points during the same time period.

Basis risk arises from a change in the relationship or spread between different market indexes. It occurs when the market indexes used to price assets and liabilities change by different amounts or at different times. For example, assume an operator uses a Treasury bill (T-bill) to hedge an interest rate risk in Eurodollars. The interest rates for T-bills and Eurodollars do not always move exactly parallel to each other. The risk of this lack of parallel movement is basis risk. The second occurs when the period of time for which a financial risk exists is not identical with the period of time for which the hedge is arranged, for example, when a three-month interest risk in a revolving Eurodollar loan is hedged with a six-month futures contract in Eurodollars. A change in the shape of the yield curve can bring about nonparallel movements in interest rates for the two different maturities.

Options risk is the risk arising from the options in assets, liabilities, and OBS instruments. An option provides the holder with the right, but not the obligation, to buy, sell, or, in some manner, alter the cash flow of an instrument or financial contract. Options may be distinct instruments, such as exchange-traded and over-the-counter contracts, or they may be embedded within the contractual terms of other instruments. Instruments with embedded options include bonds and notes with call or put provisions (e.g., callable U.S. agency notes), loans that give borrowers the right to prepay balances without penalty (e.g., residential mortgage loans), and various types of non-maturity deposit instruments that give depositors the right to withdraw funds at any time without penalty (e.g., demand deposits).

Price risk is the risk that the fair value of financial instruments will change when interest rates change. For example, trading portfolios, held-for-sale loan portfolios, and mortgage servicing assets contain price risk.

EFFECTS OF INTEREST RATE RISK

IRR can expose an institution's earnings and capital to adverse changes in market interest rates.

In assessing the effects of changing rates on earnings, institutions' measurement systems may focus on either net interest income or net income. In general, institutions focus primarily on net interest income—the difference between total interest income and total interest expense. However, interest rates can affect other income components, especially fee-based income. In particular, non-interest income generated by loan servicing and various asset-securitization programs can be highly sensitive to changes in market interest rates. Institutions with significant non-interest income that is sensitive to changing rates should have measurement systems in place that focus on net income.

Market interest rates also affect the value of an institution's assets, liabilities, and OBS instruments and, thus, effect the value of an institution's equity capital. The economic value of an instrument is an assessment of the present value of its expected net future cash flows, discounted to reflect market rates.[2] Interest rate changes can have a material effect on the economic value of an instrument. For example, the economic value of a bond with a fixed coupon rate generally falls in a rising rate environment. By evaluating changes in the institution's economic value for a given change in interest rates, institution management can identify risk arising from long-term repricing or maturity gaps as the interest rate environment may affect the institution's future earnings or capital values.

Historically, banks have managed their IRR exposures adequately and few have failed solely as a result of adverse interest rate movements. Changes in interest rates can have negative effects on profitability and need to be carefully managed, especially given the rapid pace of financial innovation and the heightened level of competition among all types of financial institutions.

ORGANIZATIONAL PROCESSES AND CONTROLS FOR MANAGEMENT OF INTEREST RATE RISK

Risk-Management Framework

As is the case in managing other types of risk, sound IRR management involves effective oversight and a comprehensive risk-management process that includes the following elements:

- effective policies and procedures designed to control the nature and amount of IRR, including clearly defined IRR limits and lines of responsibility and authority;
- appropriate risk-measurement, monitoring, and reporting systems; and
- effective internal controls that include an independent review and/or audit of key elements of the risk-management process.

The formality and sophistication used in managing IRR often varies by size and sophistication of the institution, the nature and complexity of its holdings and activities, and the overall level of its IRR. Less complex practices may be adequate for well-managed institutions with noncomplex activities and holdings that present a low IRR profile.

More complex institutions and those with higher IRR exposures or holdings of complicated instruments likely require sophisticated and formal IRR management systems to address their broader range of financial activities. In addition, formal IRR management systems generally will provide an institution's senior management with the needed information to monitor and direct day-to-day activities. The more complex IRR management processes often employed at these institutions may warrant a more thorough independent review and validation process of the IRR model utilized.

Individuals involved in the risk-management process should be sufficiently independent of business lines to ensure adequate separation of duties and avoid potential conflicts of interest. The degree of autonomy these individuals have may be a function of the size and complexity of the institution. In smaller institutions with limited resources, it may not be possible to completely remove individuals with business-line responsibilities from the risk-management process. In these situations, and assuming the institution engages in less complex activities, the institution's focus should be directed towards ensuring that risk-management functions are conducted appropriately. Larger, more complex institutions should have separate and independent risk-management units.

Board of Directors and Senior Management Oversight

The board of directors and senior management have unique yet complementary responsibilities related to the oversight and management of the institution's IRR risk profile.

2. For some instruments, the economic value of an instrument may be the same or differ from its fair value depending on the facts and circumstances. The fair value is an accounting term and is generally considered to be the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. For more information on fair value and the fair value measurement of derivatives, see ASC Topic 820, "Fair Value Measurement" as well as the Call Report instructions.

Board of Directors

The board of directors is ultimately responsible for establishing the institution's level of IRR. The board of directors or a board committee should oversee the establishment, approval, and periodic review of IRR management strategies, policies, procedures, and limits (or risk tolerances). In addition, the board or a board committee should understand the implications of the IRR strategies that the institution pursues, including their potential impact on market, liquidity, credit, and operational risks. To be appropriately informed about the institution's IRR exposure, the nature of risks in current and proposed new activities, and the adequacy of the institution's risk-management process, the board or its committee should receive reports from senior management that contain sufficient detail to assist in making informed policy decisions. The frequency of board reports depends on the complexity of the institution's holdings and the materiality of changes in its holdings.

Unlike senior management, the members of an institution's board of directors do not necessarily need to have detailed technical knowledge of complex financial instruments, legal issues, or sophisticated risk-management techniques. However, the institution's board of directors should oversee and hold senior management accountable for appropriately measuring, monitoring, and controlling IRR.

Senior Management

Senior management should be responsible for implementing

- adequate systems and standards for measuring risk,
- standards for valuing positions and measuring performance,
- a comprehensive IRR reporting and monitoring process, and
- effective internal controls and review processes.

Senior management should be responsible for implementing board-approved strategies, policies, and procedures as well as managing IRR within the designated lines of authority and responsibility. Senior management should develop and implement policies and procedures that align with the board's goals, objectives, and risk limits. Senior management should be responsible for overseeing institution personnel to confirm that operating standards are being followed. Further, senior management should assure that institution personnel who perform analysis and risk-management activities related to IRR have the technical knowledge, depth, and experience commensurate with the nature and scope of the institution's activities.

Reports to senior management should provide aggregate information as well as sufficient supporting detail, so that management can assess the sensitivity of the institution to changes in market conditions and other important risk factors. Effective IRR reports generally include measurement of IRR exposures relative to limits and disclosure of key assumptions. Senior management should also periodically review the institution's IRR management policies and procedures to assess the appropriateness of its risk management. Senior management should also discuss risk-measurement, reporting, and management procedures with risk-management staff. These discussions will assist senior management in developing and providing IRR reports to the board of directors that contain sufficient detail to assist in making informed policy decisions for the institution.

Policies, Procedures, and Limits

Institutions should have clear policies and procedures for limiting and controlling IRR. In general, these policies and procedures should

- delineate lines of responsibility and accountability over IRR management decisions,
- clearly define authorized instruments and permissible hedging and position-taking strategies,
- identify the frequency and method for measuring and monitoring IRR, and
- specify quantitative limits that define the acceptable level of risk for the institution.

In addition, management should define the specific procedures and approvals necessary for exceptions to policies, limits, and authorizations. All IRR risk policies should be reviewed by management and approved by the board of directors at least annually and revised as needed.

Clear Lines of Authority

Whether through formal written policies or operating procedures, management should define the structure of managerial responsibilities, oversight, and lines of authority in the following areas:

- developing and implementing strategies and tactics used in managing IRR
- establishing and maintaining an IRR measurement and monitoring system that is commensurate with the institution's size and complexity
- identifying potential IRR and related issues arising from the use of new products
- developing IRR management policies, procedures and limits, and authorizing exceptions to policies and limits

Individuals and management committees responsible for making decisions about IRR management should be clearly identified. Most institutions delegate IRR management responsibilities to a committee of senior managers, sometimes called an asset/liability committee (ALCO). At these institutions, policies identify the ALCO membership, the committee's duties and responsibilities, the extent of its decisionmaking authority, and the form and frequency of its reports to senior management and the board of directors. An ALCO should have sufficiently broad participation across major banking functions (for example, lending, investment, deposits, and funding) so that its decisions can be executed effectively throughout the institution. In many large institutions, the ALCO delegates day-to-day responsibilities for IRR management to an independent risk-management department or function.

Individuals involved in the IRR management process (including separate risk-management units, if present) should be sufficiently independent from the business lines, including through the reporting structure, to provide for adequate separation of duties and avoid potential conflicts of interest. Also, personnel charged with measuring and monitoring IRR should have a well-founded understanding of the institution's IRR profile. Compensation policies for these individuals should be adequate enough to attract and retain personnel who are well qualified to assess the risks of the institution's activities, and are compatible with effective controls and risk management.

Authorized Activities

Institutions should clearly identify the types of financial instruments that are permissible for managing IRR, either specifically or by their characteristics. As appropriate to its size and complexity, the institution should delineate procedures for acquiring specific instruments, managing individual portfolios, and controlling the institution's aggregate IRR exposure. Major hedging or risk-management initiatives should be approved by the board or board committee before being implemented.

Before introducing new products, hedging, or position-taking initiatives, management should also determine whether there are adequate operational procedures and risk-control systems in place and whether procedures need to be revised.

Risk Limits

The goal of IRR management is to maintain an institution's IRR exposure within self-imposed parameters over a range of possible changes in interest rates. A system of IRR limits and risk-taking guidelines assists an institution in achieving that goal. Such a system should set limits for the institution's level of IRR and, where appropriate, provide the capability to allocate these limits to individual portfolios or activities. Systems should also identify for management when a limit is violated to allow for prompt management attention. Further, in the event of a limit violation, an institution's processes should address specific escalation procedures outlining designated responsible personnel and risk mitigation procedures.

Risk limits should be appropriate to the size, complexity, and financial condition of the institution. Depending on the nature of an institution's holdings and general sophistication, limits can be identified for individual business units, portfolios, instrument types, or specific instruments.[3] The level of detail of risk limits should reflect the characteristics of the institution's holdings, including the various sources of IRR to which the institution is exposed. Limits applied to portfolio categories and individual instruments should be consistent with and

3. This manual's section on "Investment Securities and End-User Activities" discusses issues in setting price volatility limits in the acquisition of securities and derivatives.

complementary to consolidated limits. For example, an institution should consider whether

- IRR limits are consistent with the institution's overall approach to measuring and managing IRR and address the potential impact of changes in market interest rates on both reported earnings and the institution's economic value of equity (EVE);
- limits are consistent with the risk tolerance of the board of directors;
- IRR tolerances address the potential impact of changing interest rates on capital and earnings from a short-term and a long-term perspective;
- limits on the IRR exposure of earnings, which primarily address short term exposure, are broadly consistent with those used to control the exposure of an institution's economic value, which reflects long term exposure;
- IRR limits and risk tolerances consider specific scenarios of market interest rate movements, such as an increase or decrease of a particular magnitude; and
- the rate movements used in developing these limits represent meaningful stress situations, taking into account historic rate volatility and the time required for management to address exposures.

Interest Rate Risk Monitoring and Reporting

An effective process of measuring, monitoring, and reporting exposures is essential for adequately managing IRR. The sophistication and complexity of this process should be appropriate to the size, complexity, nature, and mix of an institution's business lines and its IRR characteristics.

Effective IRR measurement systems monitor the effect of rate changes on both earnings and economic value. The latter is particularly important for institutions with significant holdings of intermediate and long-term instruments or instruments with embedded options because their market values can be particularly sensitive to changes in market interest rates.

IRR measurement systems should

- assess material IRR associated with an institution's assets, liabilities, and OBS positions;
- use generally accepted financial concepts and risk-measurement techniques; and
- have well-supported assumptions and parameters.

In many cases, the interest rate characteristics of an institution's largest holdings will dominate its aggregate risk profile. While all of an institution's holdings should receive appropriate treatment, measurement systems should provide more detailed information on the major holdings and instruments whose values are especially sensitive to rate changes. The IRR measurement system should have sufficient functionality and sophistication to properly identify and value instruments with significant embedded or explicit option characteristics.

An accurate, informative, and timely management information system is essential for managing IRR exposure, and ensuring risks and activities align with the institution's policies and risk tolerance. Reporting of risk measures should be regular and clearly compare current exposure with the institution's internal risk limits. In general, senior management should receive quarterly reports on the institution's IRR profile. The reports should utilize current and accurate data. More frequent reporting may be appropriate depending on the institution's exposure to IRR and the potential for significant changes to the institution's capital and earnings. In addition, past forecasts or risk estimates should be compared with actual results as one tool to identify any potential shortcomings in modeling techniques.[4]

The types of reports prepared for the board and for various levels of management will vary based on the institution's IRR profile. Effective IRR reports enable senior management to

- evaluate the level of and trends in the institution's aggregate IRR exposure;
- demonstrate and verify compliance with the institution's policies and limits;
- evaluate the sensitivity and reasonableness of key assumptions;
- assess the results and future implications of major hedging or position-taking initiatives that have been taken or are being actively considered;

4. For more information, see SR-11-7, "Guidance on Model Risk Management."

- understand the implications of various stress scenarios, including those involving breakdowns of key assumptions and parameters;
- review IRR policies, procedures, and the adequacy of the IRR measurement systems; and
- determine whether the institution holds sufficient capital for the level of risk being taken.

IRR Measurement Methods

There are a number of techniques to measure the IRR exposure of both earnings and economic value. Their complexity ranges from simple calculations and static simulations using current holdings to highly sophisticated dynamic modeling techniques that reflect potential future business and business decisions. Regardless of the methods used, an institution's IRR measurement system should be sufficiently robust to capture material on and off-balance-sheet positions and incorporate a stress-testing process to identify and quantify the institution's IRR exposure and potential problem areas.

The most common types of IRR measurement systems are

- Gap Analysis
- Earnings Simulation Analysis
- Economic Value of Equity (EVE)

Each risk-measurement system has limitations and vary in the degree of its ability to capture various components of IRR. The following exhibit demonstrates the types of interest rate exposures that each measurement system generally addresses. While different methodologies capture different risk exposures, outputs from all models should generally provide a consistent view of IRR trends. If divergent outcomes occur, they are typically due to the structure of the balance sheet, the interest rate environment, the timing of asset/liability mismatches, the sensitivity of funding sources to interest rate changes, or the volume of fixed or floating rate assets. Institution management should understand the nature and underlying reasons for material differences in outputs.

Gap analysis is a basic IRR measurement technique utilizing a maturity/repricing schedule, which distributes assets, liabilities, and OBS holdings into time bands according to their final maturity (if fixed rate) or time remaining to their next repricing (if floating). The choice of time bands may vary from institution to institution. Those assets and liabilities lacking contractual repricing intervals or maturities are assigned to repricing time bands according to the judgment and analysis of the institution.

Table 1—Interest Rate Exposures by Measurement Systems

	Gap Analysis	Earnings Simulation Analysis	Economic Value of Equity
Short-term earnings exposure	Yes	Yes	Limited*
Long-term exposure	Yes	Limited*	Yes
Repricing risk	Yes	Yes	Yes
Yield curve risk	Limited*	Yes	Yes
Basis risk	Limited*	Yes	Limited*
Option risk	Limited*	Limited*	Yes
Price risk	Limited*	Limited*	Yes

*Depending on the sophistication of the model and the manner in which it is used

Gap analysis can be used to generate rough indicators of the IRR sensitivity of both earnings and economic values to changing interest rates. To evaluate earnings exposures, liabilities arrayed in each time band can be subtracted from the assets arrayed in the same time band to yield a dollar amount of maturity/repricing mismatch or gap in each time band. The direction and magnitude of the gaps in various time bands can demonstrate potential earnings volatility arising from changes in market interest rates. A maturity/repricing schedule also can evaluate the effects of changing rates on an institution's economic value.

Typically, gap analysis includes ratios of rate-sensitive assets to rate-sensitive liabilities in given time periods. Within a given time band, an institution may have a positive, negative, or neutral gap. An institution with a positive gap is "asset sensitive" for the given time band because more assets than liabilities are subject to repricing. An institution with a negative gap is "liability sensitive" for the given time band because more liabilities than assets are subject to repricing. An institution with a neutral gap (a ratio of

rate-sensitive assets to rate-sensitive liabilities equal to one) is neither asset nor liability sensitive for the given time band.

At the most basic level, mismatches or gaps in long-dated time bands can provide insights into the potential vulnerability of the economic value of relatively noncomplex institutions. However, gap analysis alone is generally not suitable for adequately assessing the institution's risk profile for the large majority of institutions. Long-term gap calculations, along with simple maturity distributions of holdings, may be sufficient for relatively noncomplex institutions with basic balance sheets, minimal optionality, and mainly repricing risk.

Earnings simulation analysis estimates cash flows and resulting earnings streams over a specific time period under various interest rate scenarios to estimate the effect of interest rate changes on net interest income or net income. For assessing the exposure of earnings, simulations estimating cash flows and resulting earnings streams over a specific period are conducted based on existing holdings and assumed interest rate scenarios. A simulation model's accuracy depends on the use of accurate assumptions and data.

A key aspect of IRR simulation involves the selection of an appropriate time horizon(s) over which to assess IRR exposures. Simulations can be performed over any time horizon and often are used to analyze multiple horizons identifying short-term, intermediate-term, and long-term risk. Utilizing a two-year time period generally is effective when using earnings simulation models. A two-year time frame effectively captures an institution's important transactions, tactics, and strategies to increase revenues, which can be hidden by viewing projected results within shorter time horizons. However, to assess the effects of certain products with embedded options, IRR simulations over longer time horizons (five-to-seven years) are typically needed.

Income simulations are static or dynamic. Static simulations are based on current holdings and assume a constant balance sheet with no new growth. Dynamic simulations include assumptions of asset growth, changes in existing business lines, new business, or changes in management or customer behaviors. Dynamic earnings simulation models can be useful for business planning and budgeting purposes. However, dynamic simulations are highly dependent on key variables and assumptions and can be inaccurate over an extended period. Furthermore, model assumptions, such as growth, can potentially hide underlying risk exposures. Therefore, static and dynamic simulations, in tandem, should be used to provide a more complete description of the institution's IRR exposure.

Economic value of equity (EVE) models consider the present value of expected cash flow over the entire expected life of the institution's holdings. EVE models simulate various interest rate scenarios to estimate the changes in an institution's economic value of capital as a result of changes in interest rates. This approach focuses on a longer-term time horizon, captures future cash flows expected from existing assets and liabilities, and is effective in considering embedded options in a typical institution's portfolio.

Most EVE models use a static approach by providing a snapshot in time of the risk inherent in the portfolio or balance sheet. However, some institutions incorporate dynamic modeling techniques that provide forward-looking estimates of economic value.

When utilizing EVE methods, institution management should establish appropriate EVE risk limits. Appropriate limits generally are based on the change of economic capital rather than absolute levels of economic capital. The accuracy of the assumptions in the model are critically important in the EVE model's ability to calculate the future cash flows of the institution's instruments. Unreasonable assumptions can lead to pronounced output errors in EVE models. As such, institution management should understand the significance and accuracy of assumptions by conducting sensitivity testing.

IRR Scenarios

IRR exposure estimates, whether linked to earnings or economic value, use some form of forecasts or scenarios of possible changes in market interest rates. Institution management should measure IRR exposure estimates over a probable range of potential interest rate scenarios, including meaningful stress situations. The scenarios should adequately cover the institution's meaningful sources of IRR associated with its holdings. In developing appropriate scenarios, institution management should consider the current level and term structure of rates and possible changes to that environment, given

the historical and expected future volatility of market rates.

There are various common rate scenarios, including rate shock, rate ramp, stair step, and non-parallel yield curve shifts. A rate-shock scenario is the most commonly used. In this scenario, rate changes are instantaneous and sustained. For instance, a plus 300 basis-point, rate-shock scenario would consist of the full 300 basis-point interest rate increase occurring in the first period measured and remain in effect for all measured periods. A rate ramp scenario consists of rate changes applied gradually over a measured period, such as a 300 basis-point rate increase during a 12-month period with rates rising 25 basis points each month. A stair-step scenario also consists of rate changes applied gradually; however, the changes are administered at less frequent intervals. For example, a 300 basis-point increase might be measured over a two-year period with rates increasing 50 basis points per quarter the first year and 25 basis points per quarter the second year. Nonparallel yield curve shifts are scenarios in which the yields do not change by the same number of basis points for every maturity, such as flattening, steepening, or inversion of the yield curve.

Effective scenarios conducted by institution management typically include an instantaneous plus or minus 200 basis-point parallel shift in market rates (rate shock). However, those scenarios alone may not adequately assess an institution's IRR exposure. As such, institutions should also consider utilizing changes in rates of greater magnitude, such as plus or minus 300 and 400 basis-point shocks. More sophisticated analyses involve the use of multiple scenarios, including the potential effects of changes in the relationships among interest rates (option risk and basis risk) and changes in the general level of interest rates and changes in the shape of the yield curve.

Data Integrity

In addition to validity of the underlying assumptions, and IRR scenarios used to model IRR exposures, the usefulness of IRR measurements depends on the integrity of the data on current holdings. Simulation techniques that rely heavily on specific assumptions should be used carefully because they rely on specific assumptions and parameters, which can lead to inaccurate reports if the underlying data is inaccurate.

The integrity of data on current positions is an important component of the risk-measurement process. Management should ensure that all material positions are represented in IRR measures, and that the data used are accurate and meaningful. IRR measurement techniques should reflect relevant repricing and maturity characteristics on key holdings. When applicable, data should include information on the contractual coupon rates and cash flows of associated instruments and contracts. Manual adjustments to underlying data should be supported and controlled.

Account Aggregation

Account aggregation is the process of grouping and measuring accounts of similar types and cash flow characteristics. The account aggregation process should be supported and periodically reviewed. The level of account aggregation from transaction systems into the IRR model will vary from one institution to another based the complexity of the accounts and the sophistication of the IRR model. Institutions should appropriately aggregate current account positions by meaningful characteristics (for example, by instrument type, coupon rate, or repricing characteristic). This allows the institution to appropriately measure material types and sources of IRR, including those arising from explicit or embedded options. Both contractual and behavioral characteristics should be considered when determining the cash flow patterns of accounts to aggregate.

Assumptions

Assumptions should be documented and their effects should be well understood by management. Management should review the assumptions used in assessing the interest rate sensitivity of complex instruments, such as those with embedded options, and instruments with uncertain maturities. Management should assess the consistent replacement growth rate assumptions if the ban uses dynamic simulations of future growth and business assumptions. Assumptions about customer behavior and new business should consider historical patterns and be consistent with the interest rate scenarios used. Institutions should review the reasonableness of

assumptions covering asset prepayments, non-maturity deposit price sensitivity and decay rates, and key rate drivers for each interest rate shock scenario.[5]

The following discussion provides background information on the types of assumptions used in IRR models.

Driver rates and betas. Driver rates are utilized in most earnings simulations and economic value models and represent the rate or rates which drive the re-pricing characteristics of assets and liabilities. Examples of driver rates include the fed funds rate, U.S. Treasury yields, and the Wall Street Journal Prime rate. Depending on the sophistication of the model, a variety of driver rates may be tailored to the different products the institution offers. While institution rates generally move in relation to a driver rate, the movement may be less or more than the movement in the driver rate depending on management's pricing strategies. Most models utilize a beta factor to serve as a proxy for management's reaction to market changes. A beta factor represents the magnitude of the changes in the rates of bank products compared to the changes in the driver rates. For example, management may be expected to only increase deposit rates by 40 basis points for every 100 basis points move in the fed funds rate, resulting in a beta factor of 40 percent. Beta factors should be based on an analysis of the relationship between the product and the driver rate. To help determine the beta, management can perform correlation or regression analysis to quantify the historical relationship between the product and the drivers.

Non-maturity deposits. Assumptions about non-maturity deposits are critical as non-maturity deposits represent a large portion of the industry's funding base. An institution's IRR measurement system should consider the sensitivity of non-maturity deposits, including demand deposits, negotiable order of withdrawal accounts, savings deposits, and money market deposit accounts. There are a variety of techniques used to analyze IRR characteristics, and each institution should use a technique that is commensurate to the size, sophistication, and complexity of the institution. In general, treatment of non-maturity deposits should consider the historical behavior of the institution's deposits; general conditions in the institution's markets, including the degree of competition it faces or likely to face; and anticipated pricing behavior under the scenario investigated.

As non-maturity deposits have no contractual maturity date, institutions should utilize assumptions that determine the maturity of the accounts. The most common assumption utilized is a decay rate. Also, institutions experiencing or projecting capital levels that trigger brokered and high interest rate deposit restrictions should adjust deposit assumptions accordingly.[6]

Assumptions, including deposit betas and decay rates, should be supported to the fullest extent practicable. Treatment of non-maturity deposits within the measurement system may, of course, change from time-to-time based on market and economic conditions. Such changes should be well founded and documented. Treatments used in constructing earnings simulation assessments should be conceptually and empirically consistent with those used in developing EVE assessments of IRR.

Asset prepayment. Prepayment assumptions reflect the optionality and prepayment risk associated with loans and mortgage-related securities and are critical as cash flows may be received more quickly or more slowly than anticipated. Prepayments are highly influenced by the direction of interest rates as loan prepayments generally slow during periods of rising rates. Prepayment assumptions should take into consideration various factors, such as aging, geographic location, loan size, and fixed versus variable rates.

Stress Testing

Stress testing, which includes both scenario and sensitivity analysis, is an important part of IRR management. An institution's risk-measurement system for IRR should contain a meaningful evaluation of the effect of stressful market conditions on the institution. Stress scenarios should be designed to provide informa-

5. A decay rate estimates the amount of existing non-maturity deposit that will run off over a given time period. Generally, rate-sensitive and higher-cost deposits, such as brokered and Internet deposits, should reflect higher decay rates than other types of deposits.

6. Section 38 of the FDI Act (12 U.S.C. 1831o) requires insured depository institutions that are undercapitalized to receive approval before engaging in certain activities, and further restricts interest rates paid on deposits by institutions that are not well capitalized. Section 38 restricts or prohibits certain activities and requires an insured depository institution to submit a capital restoration plan when it becomes undercapitalized.

tion on the kinds of conditions under which the institution's strategies or positions would be most vulnerable; thus, testing may be tailored to the risk characteristics of the institution. Possible stress scenarios might include more severe changes in the term structure of interest rates, substantial rate changes over time, relationships among key market rates (basis risk), or volatility of market rates. The stress testing of assumptions used for illiquid instruments and instruments with uncertain contractual maturities, such as core deposits, is particularly critical to achieving an understanding of the institution's risk profile. Therefore, stress scenarios may include extremes of observed market conditions and plausible worst-case scenarios.

Management should conduct sensitivity analysis of the assumptions having the largest influence on an institution's model output under stressful situations. This sensitivity analysis may consist of testing key assumptions or variables by changing the variable in question while keeping all other variables constant and comparing the results to the base-case scenario. Based on the results of sensitivity analysis, management should be able to identify the assumptions which have the most impact on model output. This enables management to focus their efforts in verifying the most salient assumptions. Additionally, sensitivity analysis can be used to determine the conditions under which key business assumptions and model parameters or when IRR may be exacerbated by other risks or earnings pressures.

Internal Controls

An important element of an institution's internal controls for IRR is senior management's comprehensive evaluation and review of the various components of the IRR management process. Although procedures for establishing limits and adhering to them may vary among institutions, periodic control reviews should be conducted to determine whether the organization enforces its IRR policies and procedures. Senior management should promptly address situations where interest rate positions exceed established internal risk limits. Issues should be resolved based on processes described in approved policies. The institution should conduct periodic reviews of IRR management process. Reviews should also be conducted in light of significant changes since the last review, such as the nature of instruments acquired, as well as modifications to risk-measurement methodologies, limits, and internal controls.

Validating IRR models is a fundamental part of any institution's system of internal controls. An important element of model validation is independent review of the model's logical and conceptual soundness. The scope of the independent review should assess the institution's measurement of IRR, including the reasonableness of assumptions, the process used in determining assumptions, and the back testing of assumptions and results. Management also should implement adequate follow-up procedures to monitor the institution's corrective actions. The results of these reviews should be available for the relevant supervisory authorities.

Smaller institutions that do not have the resources to staff an independent review function should have processes in place to ensure the integrity of the various elements of their IRR management processes. Often, smaller institutions will use an internal party that is sufficiently removed from the primary IRR functions or an external auditor to independently verify the integrity of the IRR models used. More robust model validations processes for measurement systems are appropriate for institutions with complex risk exposures. These processes should include review by external auditors or other knowledgeable outside parties to ensure the IRR models' adequacy and integrity. Since measurement systems may incorporate one or more subsidiary systems or processes, institutions should ensure that multiple component systems are well integrated and consistent in all critical respects.

The frequency and extent to which an institution should reevaluate its risk-measurement methodologies and models depends, in part, on the specific IRR exposures created by their holdings and activities, the pace and nature of changes in market interest rates, and the extent to which there are new developments in measuring and managing IRR. In general, an institution should review its underlying IRR measurement methodologies and IRR management process annually, and more frequently as institution behaviors and market conditions dictate.

SUPERVISORY CONSIDERATIONS IN ASSESSING IRR SENSITIVITY TO MARKET RISK

Quantitative Level of IRR Exposure and Effect on Earnings and Capital

Examiners evaluating the quantitative level of IRR should review and assess the effects of past and potential changes in interest rates on an institution's financial condition, particularly its earnings, capital, liquidity, and, in some cases, asset quality. This assessment involves a broad analysis of an institution's business mix, balance-sheet composition, OBS holdings, and holdings of interest rate-sensitive instruments. Examiners should understand the institution's material holdings, and assess how changes in interest rates might affect the institution's financial performance. While the scope of the assessment should reflect the size, sophistication, and nature of the institution's holdings, primary areas of review include

- major on- and off-balance-sheet positions,
- concentrations in interest-sensitive instruments,
- the existence of highly volatile instruments, and
- significant sources of noninterest income that may be sensitive to changes in interest rates.

IRR Exposure to Earnings and Capital

An institution's IRR exposure should be assessed in terms of the potential effects on the institution's earnings and capital. When evaluating the potential effects of changing rates on an institution's earnings, examiners will assess the key determinants of the net interest margin, the effect that fluctuations in net interest margins can have on overall net income, and the rate sensitivity of non-interest income and expense. Analyzing the historical behavior of the net interest margin, including the yields on major assets, liabilities, and off-balance-sheet positions that make up that margin, can provide useful insights into the relative stability of an institution's earnings. Examiners should evaluate the exposure of earnings to changes in interest rates relative to the institution's overall level of earnings and the potential length of time such exposure might persist.

Exposures that would result in a significant decline in net interest margins or net income should prompt further investigation of the adequacy and stability of earnings and the adequacy of the institution's risk-management process. Specifically, in institutions exhibiting significant earnings exposures, examiners should emphasize the results of the institution's stress tests to determine the extent to which more significant and stressful rate moves might magnify the erosion in earnings identified in the more modest rate scenario.

When determining the amount of IRR exposure in context of capital, examiners will consider the effect of changes in market interest rates on the economic value of equity, level of embedded losses in the bank's financial structure, and impact of potential rate changes on the institution's earnings.

Examiners should take into account the absolute level of an institution's earnings or capital both before and after the estimated IRR shock. Institutions with strong earnings and capital can withstand greater shocks, whereas institutions with already less than satisfactory earnings or capital may warrant greater supervisory concern at relatively small IRR shocks.

Qualitative Assessment of Interest Rate Risk Management

When evaluating interest rate risk management at an institution, examiners should place primary consideration on the following elements of a sound risk-management system:

- board of directors and senior management oversight;
- policies, procedures, and limits;
- risk monitoring and management information systems; and
- internal controls.[7]

Through discussions with appropriate institution personnel, examiners should determine whether the institution has established appropriate corporate governance processes (internal

7. These elements are consistent with the guidance provided in SR-16-11, "Supervisory Guidance for Assessing Risk Management at Supervised Institutions with Total Consolidated Assets Less than $50 Billion."

policies, procedures, risk limits, and strategies), and whether the board of directors, or a committee thereof, is regularly informed about the level and trend of IRR, and reviews conformance with internal IRR policy limits and risk tolerances. If inadequacies are noted, examiners should communicate these findings to the institution and discuss strategies to improve the institution's corporate governance processes.

Examiners should determine whether internal measurement processes and systems are adequate. In particular, examiners should review the institution's input process by focusing on the procedures for entering and reconciling system data, categorizing and aggregating account data, ensuring the completeness of account data, and assessing the effectiveness of internal controls. In addition, examiners should review the results of the audit or independent reviews, and determine whether the results were appropriately reported to the board of directors, or a committee thereof, and whether the results revealed significant deficiencies.

EXAMINATION PROCESS

Examiners should assess and assign a rating to the sensitivity to market risk component, or "S" component, of the CAMELS rating system, at each full-scope examination.[8] To meet examination objectives efficiently and effectively while remaining sensitive to potential burdens imposed on institutions, the examination of sensitivity to market risk should follow a structured, risk-focused approach. A fundamental tenet of this approach is that supervisory resources are targeted at functions, activities, and holdings that pose the most risk to the safety and soundness of an institution. Accordingly, institutions with low levels of IRR would be expected to receive relatively less supervisory attention than those with more severe IRR exposures.

Many institutions have become especially skilled in managing and limiting the exposure of their earnings to changes in interest rates. Accordingly, for most banks and especially for smaller institutions with less complex holdings, the IRR element of the examination may be relatively simple and straightforward. On the other hand, some banks consider IRR an intended consequence of their business strategies and choose to take and manage that risk explicitly—often with complex financial instruments. These banks, along with banks that have a wide array of activities or complex holdings, generally should receive greater supervisory attention.

Examination Scope and Off-Site Analysis

During the examination scoping process prior to the on-site examination, examiners should use surveillance metrics and supervisory judgment, to determine bank's risk tier (low, moderate, or high). The scope of the examination work program should align with the bank's risk classification. More information on the use of surveillance metrics during the examination scoping process is discussed in this manual's section entitled, "Community Bank Supervision Process."

Additionally, examiners should assess the level of IRR exposure and the quality of IRR management to the fullest extent possible during the scoping process by reviewing the following:

- organizational charts and policies identifying authorities and responsibilities for managing IRR;
- IRR policies, procedures, and limits;
- ALCO committee minutes and reports (from 6 to 12 months before the scope visit);
- board of director reports on IRR exposures;
- audit reports (both internal and external);
- most recent IRR report, including assumptions used in the model; and
- Federal Reserve surveillance reports and supervisory screens.

If the examiners' assessment of the risk tier differs from the initial quantitative risk tier, examiners should adjust the risk tier. Adjustments to the risk tier during the scoping process based on examiner judgement should be rationalized and documented in the appropriate work papers.

During the Examination

Examiners should complete the appropriate examination procedures based on the bank's assigned risk tier. During the examination, the

8. There may be instances where the assessment of sensitivity to market risk is a topic of a targeted examination.

examiner-in-charger and the examiner working the IRR portion of the examination should confirm the risk classifications on which planned work programs were based and, if needed, adjust or expand the work programs. If initial discussions with management or additional information obtained during the examination indicates significant weakness in the bank's risk management or higher-than-anticipated risk, examiners should modify the examination's scope and work programs accordingly. All examination work programs are to include the review and verification of corrective action taken to address any outstanding Matters Requiring Immediate Attention (MRIAs) or Matters Requiring Attention (MRAs).

Material weakness in risk management or high levels of IRR exposure relative to earnings and capital may require corrective action. If an examiner determines that an IRR weakness warrants corrective action based on safety and soundness, the examiner, in consultation with the examiner-in-charge, should outline any MRIAs or MRAs.

When issuing a supervisory finding (including through the issuance of an MRIA or MRA), examiners will not criticize an institution for a "violation" of supervisory guidance (as supervisory guidance is not legally binding). When appropriate, examiners may reference (including in writing) supervisory guidance (such as interagency statements, advisories, bulletins, and policy statements) to provide examples of safe-and-sound conduct, appropriate risk-management practices, and other approaches to addressing compliance with laws or regulations.[9]

Assessing CAMELS Ratings

For most banks, IRR is the primary market risk exposure. Accordingly, the CAMELS market-risk sensitivity or "S" rating for most banks should be based on assessments of the adequacy of IRR management practices and the quantitative level of IRR exposure.[10] In particular, the "S" rating for most banks where IRR is the primary market risk exposure should be based on an assessment of the following evaluation factors:

- the sensitivity of the bank's earnings or the economic value of its capital to adverse changes in interest rates;
- the ability of management to identify, measure, monitor, and control exposure to interest rate risk given the bank's size, complexity, and risk profile;
- the nature and complexity of interest rate risk exposure arising from non-trading positions; and
- where appropriate, the nature and complexity of market-risk exposure arising from trading and foreign operations.

In addition to these listed factors, there may be additional factors that may be appropriate for the examiner to evaluate as part of determining the "S" rating for a bank.

The "S" component rating definitions of the CAMELS rating system are as follows:

1. A rating of "1" indicates that interest rate risk sensitivity is well controlled and that there is minimal potential that the earnings performance or capital position will be adversely affected. Risk-management practices are strong for the size, sophistication, and market risk accepted by the institution. The level of earnings and capital provide substantial support for the degree of interest rate risk taken by the institution.
2. A rating of "2" indicates that interest rate risk sensitivity is adequately controlled and that there is only moderate potential that the earnings performance or capital position will be adversely affected. Risk-management practices are satisfactory for the size, sophistication, and interest rate risk accepted by the institution. The level of earnings and capital provide adequate support for the degree of interest rate risk taken by the institution.
3. A rating of "3" indicates that control of interest rate risk sensitivity needs improvement or that there is significant potential that the earnings performance or capital position will be adversely affected. Risk-management practices need to be improved given the size, sophistication, and level of risk accepted by the institution. The level of earnings and capital may not adequately support the degree of interest rate risk taken by the institution.

9. SR-18-5/CA-18-7, "Interagency Statement Clarifying the Role of Supervisory Guidance."

10. "Overall Conclusions Regarding Condition of the Bank: Uniform Financial Institutions Rating System," provides guidance on the market-risk sensitivity component of the CAMELS rating system.

4. A rating of "4" indicates that control of interest rate risk sensitivity is unacceptable or that there is high potential that the earnings performance or capital position will be adversely affected. Risk-management practices are deficient for the size, sophistication, and level of risk accepted by the institution. The level of earnings and capital provide inadequate support for the degree of interest rate risk taken by the institution.
5. A rating of "5" indicates that control of interest rate risk sensitivity is unacceptable or that the level of risk taken by the institution is an imminent threat to its viability. Risk-management practices are wholly inadequate for the size, sophistication, and level of interest rate risk accepted by the institution.

The adequacy of a bank's IRR management is a leading indicator of its potential IRR exposure. Therefore, assessment of IRR management practices should be the basis for the overall assessment of a bank's IRR. Unsafe exposures and management weaknesses should be fully reflected in "S" ratings. Unsafe exposures and unsound management practices that are not resolved during the on-site examination should be addressed through subsequent follow-up actions by the examiner and other supervisory personnel.

Examination procedures are available on the Examination Documentation (ED) modules page on the Board's website. See the following ED module for examination procedures on this topic:

- Rate Sensitivity