

A depository institution's investment and end-user activities involve the use of securities (both available-for-sale and held-to-maturity) and derivative contracts to achieve earnings and risk-management objectives that involve longer time horizons than those typically associated with trading activities.<sup>1</sup> These "nontrading" activities involve the full array of cash securities, money market instruments, and derivative contracts. Cash securities include fixed- and floating-rate notes and bonds, structured notes, mortgage pass-through and other asset-backed securities, and mortgage-derivative products. OBS derivative contracts include swaps, futures, and options.

When institutions acquire and manage securities and derivative instruments, they must ensure that these activities are permissible and appropriate within the established limitations and restrictions on banks' holdings. Institutions must also employ sound risk-management practices consistently across these varying product categories, regardless of their legal characteristics or nomenclature. This section provides examiners with guidance on—

- the permissibility and appropriateness of securities holdings by state member banks;
- sound risk-management practices and internal controls used by banking institutions in their investment and end-user activities;
- interaffiliate derivatives transactions;
- securities and derivatives acquired by the bank's international division and overseas branches for its own account, as well as on the bank's foreign equity investments that are held either directly or through Edge Act corporations; and
- unsuitable investment practices.

## LIMITATIONS AND RESTRICTIONS ON SECURITIES HOLDINGS

Many states extend the same investment authorities available to national banks to their chartered banks—often with direct reference. In turn, the

1. In general terms, derivatives are financial contracts whose value derives from the value of one or more underlying assets, interest rates, exchange rates, commodities, or financial or commodity indexes.

security investments of national banks are governed by the seventh paragraph of 12 USC 24 (section 5136 of the Revised Statutes) and by the investment-securities regulation of the Office of the Comptroller of the Currency (OCC).

Under 12 USC 24, an "investment security" is defined as a debt obligation that is not predominantly speculative. A security is not predominantly speculative if it is rated investment-grade. An "investment-grade security" has been rated in one of the four highest rating categories by two or more nationally recognized statistical rating organizations (one rating may suffice if the security has only been rated by one organization). In the case of split ratings—different ratings from different rating organizations—the lower rating applies.

The OCC's investment-securities regulation, which was revised in 2001, identifies five basic types of investment securities (types I, II, III, IV, and V) and establishes limitations on a bank's investment in these types of securities based on the percentage of capital and surplus that such holdings represent. For calculating concentration limits, the term "capital and surplus" includes the balance of a bank's allowance for loan and lease losses not included in tier 2 capital. Table 1 summarizes bank-eligible securities and their investment limitations.

Type I securities are those debt instruments that national and state member banks can deal in, underwrite, purchase, and sell for their own accounts without limitation. Type I securities are obligations of the U.S. government or its agencies, general obligations of states and political subdivisions, and mortgage-related securities. As a result of the Gramm-Leach-Bliley Act (GLB Act), municipal revenue bonds that are not general obligation bonds are the equivalent of type I investment securities for well-capitalized state member banks. A bank may purchase type I securities for its own account subject to no limitations, other than the exercise of prudent banking judgment (see 12 USC 24 (seventh) and 15 USC 78c(a)(41)).

Type II securities are those debt instruments that national and state member banks may deal in, underwrite, purchase, and sell for their own accounts subject to a 10 percent limitation of a bank's capital and surplus for any one obligor. Type II investments include obligations issued by the International Bank for Reconstruction

and Development; the Inter-American Development Bank; the Asian Development Bank; the Tennessee Valley Authority; the U.S. Postal Service; obligations issued by any state or political subdivision for housing, university, or dormitory purposes; and other issuers specifically identified in 12 USC 24 (seventh).

Type III is a residual securities category consisting of all types of investment securities not specifically designated to another security “type” category. Banks cannot deal in or underwrite type III securities, and their holdings of these instruments are limited to 10 percent of the banks’ capital and surplus for any one obligor.

Type IV securities include the following asset-backed securities (ABS) that are fully secured by interests in pools of loans made to numerous obligors:

- investment-grade residential mortgage-related securities offered or sold pursuant to section 4(5) of the Securities Act of 1933 (15 USC 77d(5))
- residential mortgage-related securities as described in section 3(a)(41) of the Securities Exchange Act of 1934 (15 USC 78c(a)(41)) that are rated in one of the two highest investment-grade rating categories
- investment-grade commercial mortgage securities offered or sold pursuant to section 4(5) of the Securities Act of 1933 (15 USC 77d(5))
- commercial mortgage securities as described in section 3(a)(41) of the Securities Exchange Act of 1934 (15 USC 78c(a)(41)) that are rated in one of the two highest investment-grade rating categories
- investment-grade, small-business-loan securities as described in section 3(a)(53)(A) of the Securities Exchange Act of 1934 (15 USC 78c(a)(53)(A))

For all type IV commercial and residential mortgage securities and for type IV small-business-loan securities rated in the top two categories, there is no limitation on the amount a bank can purchase or sell for its own account. Type IV investment-grade, small-business-loan securities that are not rated in the top two rating categories are subject to a limit of 25 percent of a bank’s capital and surplus for any one issuer. In addition to being able to purchase and sell type IV securities, subject to the above limitation, a bank may deal in those type IV securities that are fully secured by type I securities.

Type V securities consist of all ABS that are not type IV securities. Specifically, they are defined as marketable, investment-grade-rated securities that are not type IV and are “fully secured by interests in a pool of loans to numerous obligors and in which a national bank could invest directly.” They include securities backed by auto loans, credit card loans, home-equity loans, and other assets. Also included are residential and commercial mortgage securities as described in section 3(a)(41) of the Securities Exchange Act of 1934 (15 USC 78c(a)(41)). These securities are not rated in one of the two highest investment-grade-rating categories, but they are still investment grade. A bank may purchase or sell type V securities for its own account provided the aggregate par value of type V securities issued by any one issuer held by the bank does not exceed 25 percent of the bank’s capital and surplus.

As mentioned above, type III securities represent a residual category. The OCC requires a national bank to determine (1) that the type III instrument it plans to purchase is marketable and of sufficiently high investment quality and (2) that the obligor will be able to meet all payments and fulfill all the obligations it has undertaken in connection with the security. For example, junk bonds, which are often issued to finance corporate takeovers, are usually not considered to be of investment quality because they are predominately speculative and have limited marketability.

The purchase of type II and III securities is limited to 10 percent of equity capital and reserves for each obligor when the purchase is based on adequate evidence of the maker’s ability to perform. That limitation is reduced to 5 percent of equity capital and reserves for all obligors in the aggregate when the judgment of the obligor’s ability to perform is based predominantly on “reliable estimates.” The term “reliable estimates” refers to projections of income and debt-service requirements or conditional ratings when factual credit information is not available and when the obligor does not have a record of performance. Securities purchased subject to the 5 percent limitation may, in fact, become eligible for the 10 percent limitation once a satisfactory financial record has been established. Additional limitations on specific securities that have been ruled eligible for investment are detailed in 12 CFR 1.3. The par value, not the book value or purchase price, of the

security is the basis for computing the limitations. However, the limitations do not apply to securities acquired through debts previously contracted.

Table 1—Summary of New Investment-Type Categories

<i>Type Category</i>	<i>Characteristics</i>	<i>Limitations</i>
Type I securities	<ul style="list-style-type: none"> <li>• U.S. government securities</li> <li>• general obligations of a state or political subdivision</li> <li>• obligations backed by the full faith and credit of the U.S. government</li> <li>• FHLB, FNMA, and FHLMC debt</li> <li>• for well-capitalized banks, municipal revenue bonds that are not general obligation bonds</li> </ul>	No limitations on banks' investment, dealing, or underwriting abilities.
Type II securities	<ul style="list-style-type: none"> <li>• state obligations for housing, university, or dormitory purposes that would not qualify as a type I municipal security</li> <li>• obligations of development banks</li> <li>• debt of Tennessee Valley Authority</li> <li>• debt of U.S. Postal Service</li> </ul>	Banks may deal in, underwrite, or invest subject to the limitation that the aggregate par value of the obligation of any one obligor may not exceed 10 percent of a bank's capital and surplus.
Type III securities	<ul style="list-style-type: none"> <li>• an investment security that does not qualify as type I, II, IV, or V</li> <li>• municipal revenue bonds, except those that qualify as a type I municipal security</li> <li>• corporate bonds</li> </ul>	Banks may not deal in or underwrite these securities. The aggregate par value of a bank's purchases and sales of the securities of any one obligor may not exceed 10 percent of a bank's capital and surplus.
Type IV securities	<ul style="list-style-type: none"> <li>• small business-related securities that are rated investment grade or the equivalent and that are fully secured by a loan pool</li> <li>• residential and commercial mortgage-related securities rated AA, Aa, or higher</li> </ul>	<p>For securities rated AA or Aa or higher, no investment limitations. For securities rated A or Baa, the aggregate par value of a bank's purchases and sales of the securities of any one obligor may not exceed 25 percent of a bank's capital and surplus.</p> <p>For mortgage-related securities, no investment limitations.</p> <p>A bank may deal in type IV securities that are fully secured by type I securities, with limitations.</p>

<i>Type Category</i>	<i>Characteristics</i>	<i>Limitations</i>
Type V securities	<ul style="list-style-type: none"> <li>• asset-backed securities (credit card, auto, home equity, student loan, manufactured housing) that are investment grade and marketable</li> <li>• residential and commercial mortgage-related securities not rated AA or Aa or higher but still investment grade</li> </ul>	The aggregate par value of a bank's purchases and sales of the securities of any one obligor may not exceed 25 percent of a bank's capital and surplus.

## UNIFORM AGREEMENT ON THE CLASSIFICATION OF ASSETS AND THE APPRAISAL OF SECURITIES

On June 15, 2004, the agencies<sup>2</sup> issued a joint interagency statement that revised the Uniform Agreement on the Classification of Assets and Appraisal of Securities Held by Banks and Thrifts (the uniform agreement). (See SR-04-9.) The uniform agreement amends the examination procedures that were established in 1938 and then revised and issued on July 15, 1949, and on May 7, 1979. The uniform agreement sets forth the definitions of the classification categories and the specific examination procedures and information for classifying bank assets, including securities. The uniform agreement's classification of loans remains unchanged from the 1979 revision.

The June 15, 2004, agreement changes the classification standards applied to banks' holdings of debt securities by—

- eliminating the automatic classification of sub-investment-grade debt securities when a banking organization has developed an accurate, robust, and documented credit-risk-management framework to analyze its securities holdings;
- conforming the uniform agreement to current generally accepted accounting principles by basing the recognition of depreciation on all available-for-sale securities on the bank's determination as to whether the impairment of

the underlying securities is "temporary" or "other than temporary";

- eliminating the preferential treatment given to defaulted municipal securities;
- clarifying how examiners should address securities that have two or more different ratings, split or partially rated securities, and nonrated debt securities;
- identifying when examiners may diverge from conforming their ratings to those of the rating agencies; and
- addressing the treatment of Interagency Country Exposure Review Committee ratings.

The uniform agreement's classification categories also apply to the classification of assets held by the subsidiaries of banks. *Although the classification categories for bank assets and assets held by bank subsidiaries are the same, the classification standards may be difficult to apply to the classification of subsidiary assets because of differences in the nature and risk characteristics of the assets.* Despite the differences that may exist between assets held directly by a bank and those held by its subsidiary, the standards for classifying investment securities are to be applied directly to securities held by a bank and its subsidiaries.

## Classification of Assets in Examinations

Classification units are designated as Substandard, Doubtful, and Loss. A Substandard asset is inadequately protected by the current sound worth and paying capacity of the obligor or of the collateral pledged, if any. Assets so classified must have a well-defined weakness or weaknesses that jeopardize the liquidation of the debt. They are characterized by the distinct

2. The statement was issued by the Board of Governors of the Federal Reserve System, the Office of the Comptroller of the Currency, the Federal Deposit Insurance Corporation, and the Office of Thrift Supervision (the agencies).

possibility that the institution will sustain some loss if the deficiencies are not corrected. An asset classified Doubtful has all the weaknesses inherent in one classified Substandard, with the added characteristic that the weaknesses make collection or liquidation in full, on the basis of currently existing facts, conditions, and values, highly questionable and improbable. Assets classified Loss are considered uncollectible and of such little value that their continuance as bankable assets is not warranted. This classification does not mean that the asset has absolutely no recovery or salvage value but rather that it is not practical or desirable to defer writing off this basically worthless asset even though partial recovery may be effected in the future. Amounts classified Loss should be promptly charged off.

## Appraisal of Securities in Bank Examinations

In an effort to streamline the examination process and achieve as much consistency as possible, examiners will use the published ratings provided by nationally recognized statistical ratings organizations (NRSROs) as a proxy for the supervisory classification definitions. Examiners may, however, assign a more- or less-severe classification for an individual security, depending on a review of applicable facts and circumstances.

### *Investment-Quality Debt Securities*

Investment-quality debt securities are marketable obligations in which the investment characteristics are not distinctly or predominantly speculative. This group generally includes investment securities in the four highest rating categories provided by NRSROs and includes unrated debt securities of equivalent quality.

Because investment-quality debt securities do not exhibit weaknesses that justify an adverse classification rating, examiners will generally not classify them. However, published credit ratings occasionally lag demonstrated changes in credit quality, and examiners may, in limited cases, classify a security notwithstanding an investment-grade rating. Examiners may use such discretion, when justified by credit information the examiner believes is not reflected in

the rating, to properly reflect the security's credit risk.

### *Sub-Investment-Quality Debt Securities*

Sub-investment-quality debt securities are those in which the investment characteristics are distinctly or predominantly speculative. This group generally includes debt securities, including hybrid equity instruments (for example, trust preferred securities), in grades below the four highest rating categories; unrated debt securities of equivalent quality; and defaulted debt securities.

In order to reflect asset quality properly, an examiner may in limited cases "pass" a debt security that is rated below investment quality. Examiners may use such discretion when, for example, the institution has an accurate and robust credit-risk-management framework and has demonstrated, based on recent, materially positive credit information, that the security is the credit equivalent of investment grade.

### *Rating Differences*

Some debt securities may have investment-quality ratings by one (or more) rating agencies and sub-investment-quality ratings by others. Examiners will generally classify such securities, particularly when the most recently assigned rating is not investment quality. However, an examiner has discretion to "pass" a debt security with both investment-quality and sub-investment-quality ratings. The examiner may use that discretion if, for example, the institution has demonstrated through its documented credit analysis that the security is the credit equivalent of investment grade.

### *Split or Partially Rated Securities*

Some individual debt securities have ratings for principal but not interest. The absence of a rating for interest typically reflects uncertainty regarding the source and amount of interest the investor will receive. Because of the speculative nature of the interest component, examiners will generally classify such securities, regardless of the rating for the principal.

## *Nonrated Debt Securities*

The agencies expect institutions holding individually large nonrated debt security exposures, or having significant aggregate exposures from small individual holdings, to demonstrate that they have made prudent pre-acquisition credit decisions and have effective, risk-based standards for the ongoing assessment of credit risk. Examiners will review the institution's program for monitoring and measuring the credit risk of such holdings and, if the assessment process is considered acceptable, generally will rely upon those assessments during the examination process. If an institution has not established independent risk-based standards and a satisfactory process to assess the quality of such exposures, examiners may classify such securities, including those of a credit quality deemed to be the equivalent of subinvestment grade, as appropriate.

Some nonrated debt securities held in investment portfolios represent small exposures relative to capital, both individually and in aggregate. While institutions generally have the same supervisory requirements (as applicable to large holdings) to show that these holdings are the credit equivalent of investment grade at purchase, comprehensive credit analysis subsequent to purchase may be impractical and not cost effective. For such small individual exposures, institutions should continue to obtain and review available financial information, and assign risk ratings. Examiners may rely upon the bank's internal ratings when evaluating such holdings.

## *Foreign Debt Securities*

The Interagency Country Exposure Review Committee (ICERC) assigns transfer-risk ratings for cross-border exposures. Examiners should use the guidelines in this uniform agreement rather than ICERC transfer-risk ratings in assigning security classifications, except when the ICERC ratings result in a more-severe classification.

## *Treatment of Declines in Fair Value Below Amortized Cost on Debt Securities*

Under generally accepted accounting principles (GAAP), an institution must assess whether a

decline in fair value<sup>3</sup> below the amortized cost of a security is a "temporary" or an "other-than-temporary" impairment. When the decline in fair value on an individual security represents "other-than-temporary" impairment, the cost basis of the security must be written down to fair value, thereby establishing a new cost basis for the security, and the amount of the write-down must be reflected in current-period earnings. If an institution's process for assessing impairment is considered acceptable, examiners may use those assessments in determining the appropriate classification of declines in fair value below amortized cost on individual debt securities.

Any decline in fair value below amortized cost on defaulted debt securities will be classified as indicated in table 2. Apart from classification, for impairment write-downs or charge-offs on adversely classified debt securities, the existence of a payment default will generally be considered a presumptive indicator of "other-than-temporary" impairment.

## **Classification of Other Types of Securities**

Some investments, such as certain equity holdings or securities with equity-like risk and return profiles, have highly speculative performance characteristics. Examiners should generally classify such holdings based on an assessment of the applicable facts and circumstances.

## **Summary Table of Debt Security Classification Guidelines**

Table 2 outlines the uniform classification approach the agencies will generally use when assessing credit quality in debt securities portfolios.

The general debt security classification guidelines do not apply to private debt and equity holdings in a small business investment company or an Edge Act corporation. The uniform agreement does not apply to securities held in trading accounts, provided the institution dem-

3. As currently defined under GAAP, the fair value of an asset is the amount at which that asset could be bought or sold in a current transaction between willing parties, that is, other than in a forced or liquidation sale. Quoted market prices are the best evidence of fair value and must be used as the basis for measuring fair value, if available.



onstrates through its trading activity a short-term holding period or holds the security as a hedge for a customer's valid derivative contract.

### Credit-Risk-Management Framework for Securities

When an institution has developed an accurate, robust, and documented credit-risk-management framework to analyze its securities holdings, examiners may choose to depart from the general debt security classification guidelines in favor of individual asset review in determining whether to classify those holdings. A robust credit-risk-management framework entails appropriate pre-acquisition credit due diligence by qualified staff that grades a security's credit risk based on an analysis of the repayment capacity of the issuer and the structure and features of the security. It also involves the ongoing monitoring of holdings to ensure that risk ratings are reviewed regularly and updated in a timely fashion when significant new information is received.

The credit analysis of securities should vary based on the structural complexity of the

security, the type of collateral, and external ratings. The credit-risk-management framework should reflect the size, complexity, quality, and risk characteristics of the securities portfolio; the risk appetite and policies of the institution; and the quality of its credit-risk-management staff, and should reflect changes to these factors over time. Policies and procedures should identify the extent of credit analysis and documentation required to satisfy sound credit-risk-management standards.

### Transfers of Low-Quality Securities and Assets

The purchase of low-quality assets by a bank from an affiliated bank or nonbank affiliate is a violation of section 23A of the Federal Reserve Act. The transfer of low-quality securities from one depository institution to another may be done to avoid detection and classification during regulatory examinations; this type of transfer may be accomplished through participations, purchases or sales, and asset swaps with other affiliated or nonaffiliated financial institutions.

Table 2—General Debt Security Classification Guidelines

<i>Type of security</i>	<i>Classification</i>		
	<i>Substandard</i>	<i>Doubtful</i>	<i>Loss</i>
Investment-quality debt securities with "temporary" impairment	—	—	—
Investment-quality debt securities with "other-than-temporary" impairment	—	—	Impairment
Sub-investment-quality debt securities with "temporary" impairment <sup>1</sup>	Amortized cost	—	—
Sub-investment-quality debt securities with "other-than-temporary" impairment, including defaulted debt securities	Fair value	—	Impairment

Note. Impairment is the amount by which amortized cost exceeds fair value.

1. For sub-investment-quality available-for-sale (AFS) debt securities with "temporary" impairment, amortized cost rather than the lower amount at which these securities are carried on the balance sheet, i.e., fair value, is classified Substandard. This classification is consistent with the regulatory capital treatment of AFS debt securities. Under GAAP,

unrealized gains and losses on AFS debt securities are excluded from earnings and reported in a separate component of equity capital. In contrast, these unrealized gains and losses are excluded from regulatory capital. Accordingly, the amount classified Substandard on these AFS debt securities, i.e., amortized cost, also excludes the balance-sheet adjustment for unrealized losses.

Broadly defined, low-quality securities include depreciated or sub-investment-quality securities. Situations in which an institution appears to be concealing low-quality securities to avoid examination scrutiny and possible classification represent an unsafe and unsound activity.

Any situations involving the transfer of low-quality or questionable securities should be brought to the attention of Reserve Bank supervisory personnel who, in turn, should notify the local office of the primary federal regulator of the other depository institution involved in the transaction. For example, if an examiner determines that a state member bank or holding company has transferred or intends to transfer low-quality securities to another depository institution, the Reserve Bank should notify the recipient institution's primary federal regulator of the transfer. The same notification requirement holds true if an examiner determines that a state member bank or holding company has acquired or intends to acquire low

quality securities from another depository institution. This procedure applies to transfers involving savings associations and savings banks, as well as commercial banking organizations.

Situations may arise when transfers of securities are undertaken for legitimate reasons. In these cases, the securities should be properly recorded on the books of the acquiring institution at their fair value on the date of transfer. If the transfer was with the parent holding company or a nonbank affiliate, the records of the affiliate should be reviewed as well.

### Permissible Stock Holdings

The purchase of securities convertible into stock at the option of the issuer is prohibited (12 CFR 1.6). Other than as specified in table 3, banks are prohibited from investing in stock.

Table 3—Permitted Stock Holdings by Member Banks

<i>Type of stock</i>	<i>Authorizing statute and limitation</i>
Federal Reserve Bank	Federal Reserve Act, sections 2 and 9 (12 USC 282 and 321) and Regulation I (12 CFR 209). Subscription must equal 6 percent of the bank's capital and surplus, 3 percent paid in.
Safe deposit corporation	12 USC 24. 15 percent of capital and surplus.
Corporation holding bank premises	Federal Reserve Act, section 24A (12 USC 371(d)). 100 percent of capital stock. Limitation includes total direct and indirect investment in bank premises in any form (such as loans). Maximum limitation may be exceeded with permission of the Federal Reserve Bank for state member banks and the Comptroller of the Currency for national banks.
Small business investment company	Small Business Investment Act of August 21, 1958, section 302(b) (15 USC 682(b)). Banks are prohibited from acquiring shares of such a corporation if, upon making the acquisition, the aggregate amount of shares in small business investment companies then held by the bank would exceed 5 percent of its capital and surplus.
Edge Act and agreement corporations and foreign banks	Federal Reserve Act, sections 25 and 25A (12 USC 601 and 618). The aggregate amount of stock held in all such corporations may not exceed 10 percent of the member bank's capital and surplus. Also, the member bank must possess capital and surplus of \$1 million or more before acquiring investments pursuant to section 25.



<i>Type of stock</i>	<i>Authorizing statute and limitation</i>
Bank service company	Bank Service Corporation Act of 1958, section 2 (12 USC 1861 and 1862). (Redesignated as Bank Service Company Act.) 10 percent of paid in and unimpaired capital and surplus. Limitation includes total direct and indirect investment in any form. No insured banks shall invest more than 5 percent of their total assets.
Federal National Mortgage Corporation	National Housing Mortgage Association Act of 1934, section 303(f) (12 USC 1718(f)). No limit.
Bank's own stock	12 USC 83. Shares of the bank's own stock may not be acquired or taken as security for loans, except as necessary to prevent loss from a debt previously contracted in good faith. Stock so acquired must be disposed of within six months of the date of acquisition.
Corporate stock acquired through debt previously contracted (DPC) transaction	Case law has established that stock of any corporation debt may be acquired to prevent loss from a debt previously contracted in good faith. See <i>Oppenheimer v. Harriman National Bank &amp; Trust Co. of the City of New York</i> , 301 US 206 (1937). However, if the stock is not disposed of within a reasonable time period, it loses its status as a DPC transaction and becomes a prohibited holding under 12 USC 24(7).
Operations subsidiaries	12 CFR 250.141. Permitted if the subsidiary is to perform, at locations at which the bank is authorized to engage in business, functions that the bank is empowered to perform directly.
State housing corporation incorporated in the state in which the bank is located	12 USC 24. 5 percent of its capital stock, paid in and unimpaired, plus 5 percent of its unimpaired surplus fund when considered together with loans and commitments made to the corporation.
Agricultural credit corporation	12 USC 24. 20 percent of capital and surplus unless the bank owns over 80 percent. No limit if the bank owns 80 percent or more.
Government National Mortgage Association	12 USC 24. No limit.
Student Loan Marketing Association	12 USC 24. No limit.
Bankers' banks	12 USC 24. 10 percent of capital stock and paid-in and unimpaired surplus. Bankers' banks must be insured by the FDIC, owned exclusively by depository institutions, and engaged solely in providing banking services to other depository institutions and their officers, directors, or employees. Ownership shall not result in any bank's acquiring more than 5 percent of any class of voting securities of the bankers' bank.
Mutual funds	12 USC 24(7). Banks may invest in mutual funds as long as the underlying securities are permissible investments for a bank.

*Type of stock**Authorizing statute and limitation*

Community development corporation

Federal Reserve Act, section 9, paragraph 23 (12 USC 338a). Up to 10 percent of capital stock and surplus<sup>1</sup> subject to 12 CFR 208.22.

1. Section 208.2(d) of Regulation H defines “capital stock and surplus” to mean tier 1 and tier 2 capital included in a member bank’s risk-based capital and the balance of a member bank’s allowance for loan and lease losses *not included in its tier 2 capital for calculation of risk-based capital*, based on the bank’s most recent consolidated Report of Condition and Income. Section 9 of the Federal Reserve Act (12 USC 338a) provides that the Board has the authority

under this law to approve public-welfare or other such investments, up to the sum of 5 percent of paid-in and unimpaired capital stock and 5 percent of unimpaired surplus, unless the Board determines by order that the higher amount will pose no significant risk to the affected deposit insurance fund, and the bank is adequately capitalized. In no case may the aggregate of such investments exceed 10 percent of the bank’s combined capital stock and surplus.

**LIMITED EQUITY INVESTMENTS**

Investing in the equity of nonfinancial companies and lending to private-equity-financed companies (that is, companies financed by private equity) have emerged as increasingly important sources of earnings and business relationships at a number of banking organizations (BOs). In this guidance, the term *private equity* refers to shared-risk investments outside of publicly quoted securities and also covers activities such as venture capital, leveraged buyouts, mezzanine financing, and holdings of publicly quoted securities obtained through these activities. While private equity securities can contribute substantially to earnings, these activities can give rise to increased volatility of both earnings and capital. The supervisory guidance in SR-00-9 on private equity investments and merchant banking activities is concerned with a BO’s proper risk-focused management of its private equity investment activities so that these investments do not adversely affect the safety and soundness of the affiliated insured depository institutions.

An institution’s board of directors and senior management are responsible for ensuring that the risks associated with private equity activities do not adversely affect the safety and soundness of the banking organization or any other affiliated insured depository institutions. To this end, sound investment and risk-management practices and strong capital positions are critical elements in the prudent conduct of these activities.

**Legal and Regulatory Authority**

Depository institutions are able to make limited

equity investments under the following statutory and regulatory authorities:

- Depository institutions may make equity investments through small business investment corporations (SBICs). Investments made by SBIC subsidiaries are allowed up to a total of 50 percent of a portfolio company’s outstanding shares, but can only be made in companies defined as a small business, according to SBIC rules. A bank’s aggregate investment in the stock of SBICs is limited to 5 percent of the bank’s capital and surplus.
- Under Regulation K, which implements sections 25 and 25A of the Federal Reserve Act (FRA) and section 4(c)(13) of the Bank Holding Company Act of 1956 (BHC Act), a depository institution may make portfolio investments in foreign companies, provided the investments do not in the aggregate exceed 25 percent of the tier 1 capital of the bank holding company. In addition, individual investments must not exceed 19.9 percent of a portfolio company’s voting shares or 40 percent of the portfolio company’s total equity.<sup>4</sup>

Equity investments made under the authorities listed above may be in publicly traded securities or privately held equity interests. The investment may be made as a direct investment in a specific portfolio company, or it may be made indirectly through a pooled investment vehicle, such as a private equity fund.<sup>5</sup> In

4. Shares of a corporation held in trading or dealing accounts or under any other authority are also included in the calculation of a depository institution’s investment. Portfolio investments of \$25 million or less can be made without prior notice to the Board. See Regulation K for more detailed information.

5. For additional stock holdings that state member banks are authorized to hold, see table 3.

general, private equity funds are investment companies, typically organized as limited partnerships, that pool capital from third-party investors to invest in shares, assets, and ownership interests in companies for resale or other disposition. Private-equity-fund investments may provide seed or early-stage investment funds to start-up companies or may finance changes in ownership, middle-market business expansions, and mergers and acquisitions.

## MORTGAGE-DERIVATIVE PRODUCTS

In April 1998, the FFIEC rescinded its Supervisory Policy Statement on Securities Activities, published in February 1992, including the high-risk test for mortgage-derivative products.

## EVALUATING RISK MANAGEMENT AND INTERNAL CONTROLS

Examiners are expected to conduct an adequate evaluation of the risk-management process an institution uses to acquire and manage the securities and derivative contracts used in nontrading activities. In conducting this analysis, examiners should evaluate the following four key elements of a sound risk-management process:

- active board and senior management oversight
- adequate risk-management policies and limits
- appropriate risk-measurement and -reporting systems
- comprehensive internal controls

This section identifies basic factors that examiners should consider in evaluating these elements for investment and end-user activities. It reiterates and supplements existing guidance and directives on the use of these instruments for nontrading purposes as provided in various supervisory letters and examination manuals.<sup>6</sup>

6. Existing policies and examiner guidance on various supervisory topics applicable to securities and off-balance-sheet instruments can be found in this manual, the *Commercial Bank Examination Manual*, the *Bank Holding Company Supervision Manual*, and the *Trust Activities Examination Manual*, as well as in various supervision and regulation (SR) letters, including SR-90-16, "Implementation of Examination

In evaluating an institution's risk-management process, examiners should consider the nature and size of its holdings. Examiner judgment plays a key role in assessing the adequacy of an institution's risk-management process for securities and derivative contracts. Examiners should focus on evaluating an institution's understanding of the risks involved in the instruments it holds. Regardless of any responsibility, legal or otherwise, assumed by a dealer or counterparty for a particular transaction, the acquiring institution is ultimately responsible for understanding and managing the risks of the transactions into which it enters. Failure of an institution to adequately understand, monitor, and evaluate the risks involved in its securities or derivative positions, either through lack of internal expertise or inadequate outside advice, constitutes an unsafe and unsound banking practice.

As with all risk-bearing activities, institutions should fully support the risk exposures of nontrading activities with adequate capital. Banking organizations should ensure that their capital positions are sufficiently strong to support all the risks associated with these activities on a fully consolidated basis and should maintain adequate capital in all affiliated entities engaged in these activities. In evaluating the adequacy of an institution's capital, examiners should consider any unrecognized net depreciation or appreciation in an institution's securities and derivative holdings. Further consideration should also be given to the institution's ability to hold these securities and thereby avoid recognizing losses.

## Board of Directors and Senior Management Oversight

Active oversight by the institution's board of directors and relevant senior management is

Guidelines for the Review of Asset Securitization Activities"; SR-91-4, "Inspections of Investment-Adviser Subsidiaries of Bank Holding Companies"; SR-92-1, "Supervisory Policy Statement on Securities Activities"; SR-93-69, "Risk Management and Internal Controls for Trading Activities"; SR-95-17, "Evaluating the Risk Management and Internal Controls of Securities and Derivative Contracts Used in Nontrading Activities"; and SR-98-12, "FFIEC Policy Statement on Investment Securities and End-User Derivatives Activities." Examiners of U.S. branches and agencies of foreign banks should take the principles included in these guidelines into consideration in accordance with the procedures set forth in the *Examination Manual for Branches and Agencies of Foreign Banking Organizations*.

critical to a sound risk-management process. Examiners should ensure that these individuals are aware of their responsibilities and that they adequately perform their appropriate roles in overseeing and managing the risks associated with nontrading activities involving securities and derivative instruments.

### *Board of Directors*

The board of directors has the ultimate responsibility for the level of risk taken by the institution. Accordingly, the board should approve overall business strategies and significant policies that govern risk-taking, including those involving securities and derivative contracts. In particular, the board should approve policies identifying managerial oversight and articulating risk tolerances and exposure limits for securities and derivative activities. The board should also actively monitor the performance and risk profile of the institution and its various securities and derivative portfolios. Directors should periodically review information that is sufficiently detailed and timely to allow them to understand and assess the credit, market, and liquidity risks facing the institution as a whole and its securities and derivative positions in particular. These reviews should be conducted at least quarterly and more frequently when the institution holds significant positions in complex instruments. In addition, the board should periodically reevaluate the institution's business strategies and significant risk-management policies and procedures, placing special emphasis on the institution's financial objectives and risk tolerances. The minutes of board meetings and accompanying reports and presentation materials should clearly demonstrate the board's fulfillment of these basic responsibilities. The section of this guidance on managing specific risks provides guidance on the types of objectives, risk tolerances, limits, and reports that directors should consider.

The board of directors should also conduct and encourage discussions between its members and senior management, as well as between senior management and others in the institution, regarding the institution's risk-management process and risk exposures. Although it is not essential for board members to have detailed technical knowledge of these activities, if they do not, it is their responsibility to ensure that they have adequate access to independent legal

and professional advice on the institution's securities and derivative holdings and strategies. The familiarity, technical knowledge, and awareness of directors and senior management should be commensurate with the level and nature of an institution's securities and derivative positions. Accordingly, the board should be knowledgeable enough or have access to independent advice to evaluate recommendations presented by management or investment advisers.

### *Senior Management*

Senior management is responsible for ensuring that there are adequate policies and procedures for conducting investment and end-user activities on both a long-range and day-to-day basis. Management should maintain clear lines of authority and responsibility for acquiring instruments and managing risk, setting appropriate limits on risk-taking, establishing adequate systems for measuring risk, setting acceptable standards for valuing positions and measuring performance, establishing effective internal controls, and enacting a comprehensive risk-reporting and risk-management review process. To provide adequate oversight, management should fully understand the institution's risk profile, including that of its securities and derivative activities. Examiners should review the reports to senior management and evaluate whether they provide both good summary information and sufficient detail to enable management to assess the sensitivity of securities and derivative holdings to changes in credit quality, market prices and rates, liquidity conditions, and other important risk factors. As part of its oversight responsibilities, senior management should periodically review the organization's risk-management procedures to ensure that they remain appropriate and sound. Senior management should also encourage and participate in active discussions with members of the board and with risk-management staff regarding risk-measurement, reporting, and management procedures.

Management should ensure that investment and end-user activities are conducted by competent staff whose technical knowledge and experience is consistent with the nature and scope of the institution's activities. There should be sufficient depth in staff resources to manage these activities if key personnel are not available. Management should also ensure that

back-office and financial-control resources are sufficient to manage and control risks effectively.

*Independence in managing risks.* The process of measuring, monitoring, and controlling risks within an institution should be managed as independently as possible from those individuals who have the authority to initiate transactions. Otherwise, conflicts of interest could develop. The nature and extent of this independence should be commensurate with the size and complexity of an institution's securities and derivative activities. Institutions with large and complex balance sheets or with significant holdings of complex instruments would be expected to have risk managers or risk-management functions fully independent of the individuals who have the authority to conduct transactions. Institutions with less complex holdings should ensure they have some mechanism for independently reviewing both the level of risk exposures created by securities and derivative holdings and the adequacy of the process used in managing those exposures. Depending on the size and nature of the institution, this review function may be carried out by either management or a board committee. Regardless of size and sophistication, institutions should ensure that back-office, settlement, and transaction-reconciliation responsibilities are conducted and managed by personnel who are independent of those initiating risk-taking positions.

## Policies, Procedures, and Limits

Institutions should maintain written policies and procedures that clearly outline their approach for managing securities and derivative instruments. These policies should be consistent with the organization's broader business strategies, capital adequacy, technical expertise, and general willingness to take risks. They should identify relevant objectives, constraints, and guidelines for both acquiring instruments and managing portfolios. In doing so, policies should establish a logical framework for limiting the various risks involved in an institution's securities and derivative holdings. Policies should clearly delineate lines of responsibility and authority over securities and derivative activities. They should also provide for the systematic review of products new to the firm, specify accounting

guidelines, and ensure the independence of the risk-management process. Written policies and procedures governing municipal securities underwriting, dealing, and investment should be maintained by banks engaged in these activities. The types of policies and procedures that are appropriate are described in SR-01-13 (May 14, 2001). Examiners should evaluate the adequacy of an institution's risk-management policies and procedures in relation to its size, its sophistication, and the scope of its activities.

## *Specifying Objectives*

Institutions can use securities and derivative instruments for several primary and complementary purposes.<sup>7</sup> Banking organizations should articulate these objectives clearly and identify the types of securities and derivative contracts to be used for achieving them. Objectives should also be identified at the appropriate portfolio and institutional levels. These objectives should guide the acquisition of individual instruments and provide benchmarks for periodically evaluating the performance and effectiveness of an institution's holdings, strategies, and programs. Whenever multiple objectives are involved, management should identify the hierarchy of potentially conflicting objectives.

## *Identifying Constraints, Guidelines, and Limits*

An institution's policies should clearly articulate the organization's risk tolerance by identifying its willingness to take the credit, market, and liquidity risks involved in holding securities and derivative contracts. A statement of authorized instruments and activities is an important vehicle for communicating these risk tolerances. This statement should clearly identify permissible instruments or instrument types and the purposes or objectives for which the institution may use them. The statement also should identify permissible credit-quality, market-risk-sensitivity, and liquidity characteristics of the instruments and portfolios used in nontrading activities. For example, in the case of market

7. Such purposes include, but are not limited to, generating earnings, creating funding opportunities, providing liquidity, hedging risk exposures, taking risk positions, modifying and managing risk profiles, managing tax liabilities, and meeting pledging requirements.

risk, policies should address the permissible degree of price sensitivity or effective maturity volatility, taking into account an instrument's or portfolio's option and leverage characteristics. Specifications of permissible risk characteristics should be consistent with the institution's overall credit-, market-, and liquidity-risk limits and constraints and should help delineate a clear set of institutional limits for use in acquiring specific instruments and managing portfolios. Limits can be specified either as guidelines within the overall policies or as management operating procedures. Further guidance on managing specific risks and on the types of constraints and limits an institution might use in managing the credit, market, and liquidity risk of securities and derivative contracts is provided later in this section.

Limits should be set to guide acquisition and ongoing management decisions, control exposures, and initiate discussion within the organization about apparent opportunities and risks. Although procedures for establishing limits and operating within them may vary among institutions, examiners should determine whether the organization enforces its policies and procedures through a clearly identified system of risk limits. The organization's policies should also include specific guidance on the resolution of limit excesses. Positions that exceed established limits should receive the prompt attention of appropriate management and should be resolved according to approved policies.

Limits should implement the overall risk tolerances and constraints articulated in general policy statements. Depending on the nature of an institution's holdings and its general sophistication, limits can be identified for individual business units, portfolios, instrument types, or specific instruments. The level of detail in risk limits should reflect the characteristics of the institution's holdings, including the types of risk to which the institution is exposed. Regardless of their specific form or level of aggregation, limits should be consistent with the institution's overall approach to managing various types of risks. Limits should also be integrated to the fullest extent possible with institution-wide limits on the same risks as they arise in other activities of the firm. Later in this section, specific examiner considerations for evaluating the policies and limits used in managing each of the various types of risks involved in nontrading securities and derivative activities are addressed.

### *New-Product Review*

An institution's policies should also provide for effective review of any products being considered that would be new to the firm. An institution should not acquire a meaningful position in a new instrument until senior management and all relevant personnel (including those in internal-control, legal, accounting, and auditing functions) understand the product and can integrate it into the institution's risk-measurement and control systems. An institution's policies should define the terms "new product" and "meaningful position" consistent with its size, complexity, and sophistication. Institutions should not be hesitant to define an instrument as a new product. Small changes in the payment formulas or other terms of relatively simple and standard products can greatly alter their risk profiles and justify designation as a new product. New-product reviews should analyze all of the relevant risks involved in an instrument and assess how well the product or activity achieves specified objectives. New-product reviews should also include a description of the relevant accounting guidelines and identify the procedures for measuring, monitoring, and controlling the risks involved.

### *Accounting Guidelines*

The accounting systems and procedures used for general-purpose financial statements and regulatory reporting purposes are critically important to enhancing the transparency of an institution's risk profile. Accordingly, an institution's policies should provide clear guidelines on accounting for all securities and derivative holdings. Accounting treatment should be consistent with specified objectives and with the institution's regulatory requirements. Furthermore, institutions should ensure that they designate each cash or derivative contract for accounting purposes consistent with appropriate accounting policies and requirements. Accounting for nontrading securities and derivative contracts should reflect the economic substance of the transactions. When instruments are used for hedging purposes, the hedging rationale and performance criteria should be well documented. Management should reassess these designations periodically to ensure that they remain appropriate.



## Risk-Measurement and Risk-Reporting Systems

Clear procedures for measuring and monitoring risks are the foundation of a sound risk-management process. Examiners should ensure that an institution sufficiently integrates these functions into its ongoing management process and that relevant personnel recognize their role and understand the instruments held.

### *Risk Measurement*

An institution's system for measuring the credit, market, liquidity, and other risks involved in cash and derivative contracts should be as comprehensive and accurate as practicable. The degree of comprehensiveness should be commensurate with the nature of the institution's holdings and risk exposures. Exposures to each type of risk (that is, credit, market, liquidity) should be aggregated across securities and derivative contracts and integrated with similar exposures arising from lending and other business activities to obtain the institution's overall risk profile.

Examiners should evaluate whether the risk measures and the risk-measurement process are sufficient to accurately reflect the different types of risks facing the institution. Institutions should establish clear risk-measurement standards for both the acquisition and ongoing management of securities and derivative positions. Risk-measurement standards should provide a common framework for limiting and monitoring risks and should be understood by relevant personnel at all levels of the institution—from individual managers to the board of directors.

*Acquisition standards.* Institutions conducting securities and derivative activities should have the capacity to evaluate the risks of instruments before acquiring them. Before executing any transaction, an institution should evaluate the instrument to ensure that it meets the various objectives, risk tolerances, and guidelines identified by the institution's policies. Evaluations of the credit-, market-, and liquidity-risk exposures should be clearly and adequately documented for each acquisition. Documentation should be appropriate for the nature and type of instrument; relatively simple instruments would probably require less documentation than instru-

ments with significant leverage or option characteristics.

Institutions with significant securities and derivative activities are expected either to conduct in-house preacquisition analyses or use specific third-party analyses that are independent of the seller or counterparty. Analyses provided by the originating dealer or counterparty should be used only when a clearly defined investment advisory relationship exists. Less active institutions with relatively uncomplicated holdings may use risk analyses provided by the dealer only if the analyses are derived using standard industry calculators and market conventions. Such analyses must comprehensively depict the potential risks involved in the acquisition, and they should be accompanied by documentation that sufficiently demonstrates that the acquirer understands fully both the analyses and the nature of the institution's relationship with the provider of the analyses. Notwithstanding information and analyses obtained from outside sources, management is ultimately responsible for understanding the nature and risk profiles of the institution's securities and derivative holdings.

It is a prudent practice for institutions to obtain and compare price quotes and risk analyses from more than one dealer before acquisition. Institutions should ensure that they clearly understand the responsibilities of any outside parties that provide analyses and price quotes. If analyses and price quotes provided by dealers are used, institutions should assume that each party deals at arm's length for its own account unless a written agreement states otherwise. Institutions should exercise caution when dealers limit the institution's ability to show securities or derivative contract proposals to other dealers to receive comparative price quotes or risk analyses. As a general sound practice, unless the dealer or counterparty is also acting under a specific investment advisory relationship, an investor or end-user should not acquire an instrument or enter into a transaction if its fair value or the analyses required to assess its risk cannot be determined through a means that is independent of the originating dealer or counterparty.

*Portfolio-management standards.* Institutions should periodically review the performance and effectiveness of instruments, portfolios, and institutional programs and strategies. This review should be conducted at least quarterly

and should evaluate the extent to which the institution's securities and derivative holdings meet the various objectives, risk tolerances, and guidelines established by its policies.<sup>8</sup> Institutions with large or highly complex holdings should conduct reviews more frequently.

For internal measurements of risk, effective measurement of the credit, market, and liquidity risks of many securities and derivative contracts requires mark-to-market valuations. Accordingly, the periodic revaluation of securities and derivative holdings is an integral part of an effective risk-measurement system. Periodic revaluations should be fully documented. When available, actual market prices should be used. For less liquid or complex instruments, institutions with only limited holdings may use properly documented periodic prices and analyses provided by dealers or counterparties. More active institutions should conduct periodic revaluations and portfolio analyses using either in-house capabilities or outside-party analytical systems that are independent of sellers or counterparties. Institutions should recognize that indicative price quotes and model revaluations may differ from the values at which transactions can be executed.

*Stress testing.* Analyzing the credit, market, and liquidity risk of individual instruments, portfolios, and the entire institution under a variety of unusual and stressful conditions is an important aspect of the risk-measurement process. Management should seek to identify the types of situations or the combinations of credit and market events that could produce substantial losses or liquidity problems. Typically, securities and derivative contracts are managed on the basis of an institution's consolidated exposures, and stress testing should be conducted on the same basis. Stress tests should evaluate changes in market conditions, including alternatives in the underlying assumptions used to value instruments. All major assumptions used in stress tests should be identified.

Stress tests should not be limited to quantitative exercises that compute potential losses or gains, but should include qualitative analyses of the tools available to management to deal with

various scenarios. Contingency plans outlining operating procedures and lines of communication, both formal and informal, are important products of such qualitative analyses.

The appropriate extent and sophistication of an institution's stress testing depend heavily on the scope and nature of its securities and derivative holdings and on its ability to limit the effect of adverse events. Institutions holding securities or derivative contracts with complex credit, market, or liquidity risk profiles should have an established regime of stress testing. Examiners should consider the circumstances at each institution when evaluating the adequacy or need for stress-testing procedures.

### *Risk Reporting*

An accurate, informative, and timely management information system is essential. Examiners should evaluate the adequacy of an institution's monitoring and reporting of the risks, returns, and overall performance of security and derivative activities to senior management and the board of directors. Management reports should be frequent enough to provide the responsible individuals with adequate information to judge the changing nature of the institution's risk profile and to evaluate compliance with stated policy objectives and constraints.

Management reports should translate measured risks from technical and quantitative formats to formats that can be easily read and understood by senior managers and directors, who may not have specialized and technical knowledge of all financial instruments used by the institution. Institutions should ensure that they use a common conceptual framework for measuring and limiting risks in reports to senior managers and directors. These reports should include the periodic assessment of the performance of appropriate instruments or portfolios in meeting their stated objective, subject to the relevant constraints and risk tolerances.

*Management evaluation and review.* Management should regularly review the institution's approach and process for managing risks. This includes regularly assessing the methodologies, models, and assumptions used to measure risks and limit exposures. Proper documentation of the elements used in measuring risks is essential for conducting meaningful reviews. Limits should be compared to actual exposures. Reviews

8. For example, the performance of instruments and portfolios used to meet objectives for tax-advantaged earnings should be evaluated to ensure that they meet the necessary credit-rating, market-sensitivity, and liquidity characteristics established for this objective.

should also consider whether existing measures of exposure and limits are appropriate in view of the institution's holdings, past performance, and current capital position.

The frequency of the reviews should reflect the nature of an institution's holdings and the pace of market innovations in measuring and managing risks. At a minimum, institutions with significant activities in complex cash or derivative contracts should review the underlying methodologies of the models they use at least annually—and more often as market conditions dictate—to ensure that they are appropriate and consistent. Reviews by external auditors or other qualified outside parties, such as consultants with expertise in highly technical models and risk-management techniques, may often supplement these internal evaluations. Institutions depending on outside parties to provide various risk-measurement capabilities should ensure that the outside institution has personnel with the necessary expertise to identify and evaluate the important assumptions incorporated in the risk-measurement methodologies it uses.

## Comprehensive Internal Controls and Audit Procedures

Institutions should have adequate internal controls to ensure the integrity of the management process used in investment and end-user activities. Internal controls consist of procedures, approval processes, reconciliations, reviews, and other mechanisms designed to provide a reasonable assurance that the institution's risk-management objectives for these activities are achieved. Appropriate internal controls should address all of the various elements of the risk-management process, including adherence to policies and procedures and the adequacy of risk identification, risk measurement, and reporting.

An important element of a bank's internal controls for investment and end-user activities is comprehensive evaluation and review by management. Management should ensure that the various components of the bank's risk-management process are regularly reviewed and evaluated by individuals who are independent of the function they are assigned to review. Although procedures for establishing limits and for operating within them may vary among

banks, periodic management reviews should be conducted to determine whether the organization complies with its investment and end-user risk-management policies and procedures. Any positions that exceed established limits should receive the prompt attention of appropriate management and should be resolved according to the process described in approved policies. Periodic reviews of the risk-management process should also address any significant changes in the nature of instruments acquired, limits, and internal controls that have occurred since the last review.

Examiners should also review the internal controls of all key activities involving securities and derivative contracts. For example, examiners should evaluate and assess adherence to the written policies and procedures for transaction recording and processing. They should analyze the transaction-processing cycle to ensure the integrity and accuracy of the institution's records and management reports. Examiners should review all significant internal controls associated with management of the credit, market, liquidity, operational, and legal risks involved in securities and derivative holdings.

The examiner should review the frequency, scope, and findings of any independent internal and external auditors relative to the institution's securities and derivative activities. When applicable, internal auditors should audit and test the risk-management process and internal controls periodically. Internal auditors are expected to have a strong understanding of the specific products and risks faced by the organization. In addition, they should have sufficient expertise to evaluate the risks and controls of the institution. The depth and frequency of internal audits should increase if weaknesses and significant issues exist or if portfolio structures, modeling methodologies, or the overall risk profile of the institution has changed.

In reviewing risk management of nontrading securities and derivative activities, internal auditors should thoroughly evaluate the effectiveness of the internal controls used for measuring, reporting, and limiting risks. Internal auditors should also evaluate compliance with risk limits and the reliability and timeliness of information reported to the institution's senior management and board of directors, as well as the independence and overall effectiveness of the institution's risk-management process. The level of confidence that examiners place in an institution's audit programs, the nature of the

internal and external audit findings, and management's response to those findings will influence the scope of the current examination of securities and derivative activities.

Examiners should pay special attention to significant changes in the nature of instruments acquired, risk-measurement methodologies, limits, and internal controls that have occurred since the last examination. Significant changes in earnings from securities and derivative contracts, in the size of positions, or in the value-at-risk associated with these activities should also receive attention during the examination.

## EVALUATING MANAGEMENT OF SPECIFIC RISKS

Specific considerations in evaluating the key elements of sound risk-management systems as they relate to the credit, market, liquidity, operating, and legal risks involved in securities and derivative contracts for nontrading activities are described below.

### Credit Risk

Broadly defined, credit risk is the risk that an issuer or counterparty will fail to perform on an obligation to the institution. The policies of an institution should recognize credit risk as a significant risk posed by the institution's securities and derivative activities. Accordingly, policies should identify credit-risk constraints, risk tolerances, and limits at the appropriate instrument, portfolio, and institutional levels. In doing so, institutions should ensure that credit-risk constraints are clearly associated with specified objectives. For example, credit-risk constraints and guidelines should be defined for instruments used to meet pledging requirements, generate tax-advantaged income, hedge positions, generate temporary income, or meet any other specifically defined objective.

As a matter of general policy, an institution should not acquire securities or derivative contracts until it has assessed the creditworthiness of the issuer or counterparty and determined that the risk exposure conforms with its policies. The credit risk arising from these positions should be incorporated into the overall credit-risk profile of the institution to the fullest

extent possible. Given the interconnectedness of the various risks facing the institution, organizations should also evaluate the effect of changes in issuer or counterparty credit standing on an instrument's market and liquidity risk. The board of directors and responsible senior management should be informed of the institution's total credit-risk exposures at least quarterly.

### *Selection of Securities Dealers*

In managing their credit risk, institutions also should consider settlement and presettlement credit risk. The selection of dealers, investment bankers, and brokers is particularly important in managing these risks effectively. An institution's policies should identify criteria for selecting these organizations and list all approved firms. The management of a depository institution must have sufficient knowledge about the securities firms and personnel with whom they are doing business. A depository institution should not engage in securities transactions with any securities firm that is unwilling to provide complete and timely disclosure of its financial condition. Management should review the securities firm's financial statements and evaluate the firm's ability to honor its commitments both before entering into transactions with the firm and periodically thereafter. An inquiry into the general reputation of the dealer is also necessary. The board of directors or an appropriate committee of the board should periodically review and approve a list of securities firms with whom management is authorized to do business. The board or an appropriate committee thereof should also periodically review and approve limits on the amounts and types of transactions to be executed with each authorized securities firm. Limits to be considered should include dollar amounts of unsettled trades, safekeeping arrangements, repurchase transactions, securities lending and borrowing, other transactions with credit risk, and total credit risk with an individual dealer.

At a minimum, depository institutions should consider the following when selecting and retaining a securities firm:

- the ability of the securities dealer and its subsidiaries or affiliates to fulfill commitments as evidenced by their capital strength, liquidity, and operating results (this evidence should

- be gathered from current financial data, annual reports, credit reports, and other sources of financial information)
- the dealer's general reputation or financial stability and its fair and honest dealings with customers (other depository institutions that have been or are currently customers of the dealer should be contacted)
  - information available from state or federal securities regulators and securities industry self-regulatory organizations, such as the National Association of Securities Dealers, concerning any formal enforcement actions against the dealer, its affiliates, or associated personnel
  - when the institution relies on the advice of a dealer's sales representative, the experience and expertise of the sales representative with whom business will be conducted

In addition, the board of directors (or an appropriate committee of the board) must ensure that the depository institution's management has established appropriate procedures to obtain and maintain possession or control of securities purchased. In this regard, purchased securities and repurchase-agreement collateral should only be left in safekeeping with selling dealers when (1) the board of directors or an appropriate committee thereof is completely satisfied as to the creditworthiness of the securities dealer and (2) the aggregate market value of securities held in safekeeping is within credit limitations that have been approved by the board of directors (or an appropriate committee of the board) for unsecured transactions (see the October 1985 FFIEC policy statement "Repurchase Agreements of Depository Institutions with Securities Dealers and Others").

State lending limits generally do not extend to the safekeeping arrangements described above. Notwithstanding this general principle, a bank's board of directors should establish prudent limits for safekeeping arrangements. These prudential limits generally involve a fiduciary relationship, which presents operational rather than credit risks.

To avoid concentrations of assets or other types of risk, banking organizations should, to the extent possible, try to diversify the firms they use for safekeeping arrangements. Further, while certain transactions with securities dealers and safekeeping custodians may entail only operational risks, other transactions with these parties may involve credit risk that could

be subject to statutory lending limits, depending on applicable state laws. If certain transactions are deemed subject to a state's legal lending limit statute because of a particular safekeeping arrangement, the provisions of the state's statutes would, of course, control the extent to which the safekeeping arrangement complies with an individual state's legal lending limit.

### *Limits*

An institution's credit policies should also include guidelines on the quality and quantity of each type of security that may be held. Policies should provide credit-risk diversification and concentration limits, which may define concentrations to a single or related issuer or counterparty, in a geographical area, or in obligations with similar characteristics. Policies should also include procedures, such as increased monitoring and stop-loss limits, for addressing deterioration in credit quality.

Sound credit-risk management requires that credit limits be developed by personnel who are independent of the acquisition function. In authorizing issuer and counterparty credit lines, these personnel should use standards that are consistent with those used for other activities conducted within the institution and with the organization's overall policies and consolidated exposures. To assess the creditworthiness of other organizations, institutions should not rely solely on outside sources, such as standardized ratings provided by independent rating agencies, but should perform their own analysis of a counterparty's or issuer's financial strength. In addition, examiners should review the credit-approval process to ensure that the credit risks of specific products are adequately identified and that credit-approval procedures are followed for all transactions.

For most cash instruments, credit exposure is measured as the current carrying value. In the case of many derivative contracts, especially those traded in OTC markets, credit exposure is measured as the replacement cost of the position, plus an estimate of the institution's potential future exposure to changes in the replacement value of that position in response to market price changes. Replacement costs of derivative contracts should be determined using current market prices or generally accepted approaches for estimating the present value of



future payments required under each contract, at current market rates.

The measurement of potential future credit-risk exposure for derivative contracts is more subjective than the measurement of current exposure and is primarily a function of the time remaining to maturity; the number of exchanges of principal; and the expected volatility of the price, rate, or index underlying the contract. Potential future exposure can be measured using an institution's own simulations or, more simply, by using add-ons such as those included in the Federal Reserve's risk-based capital guidelines. Regardless of the method an institution uses, examiners should evaluate the reasonableness of the assumptions underlying the institution's risk measure.

For derivative contracts and certain types of cash transactions, master agreements (including netting agreements) and various credit enhancements (such as collateral or third-party guarantees) can reduce settlement, issuer, and counterparty credit risk. In such cases, an institution's credit exposures should reflect these risk-reducing features only to the extent that the agreements and recourse provisions are legally enforceable in all relevant jurisdictions. This legal enforceability should extend to any insolvency proceedings of the counterparty. Institutions should be prepared to demonstrate sufficient due diligence in evaluating the enforceability of these contracts.

In reviewing credit exposures, examiners should consider the extent to which positions exceed credit limits and whether exceptions are resolved according to the institution's adopted policies and procedures. Examiners should also evaluate whether the institution's reports adequately provide all personnel involved in the acquisition and management of financial instruments with relevant, accurate, and timely information about the credit exposures and approved credit lines.

## Market Risk

Market risk is the exposure of an institution's financial condition to adverse movements in the market rates or prices of its holdings before such holdings can be liquidated or expeditiously offset. It is measured by assessing the effect of changing rates or prices on the earnings or economic value of an individual instrument, a

portfolio, or the entire institution. Although many banking institutions focus on carrying values and reported earnings when assessing market risk at the institutional level, other measures focusing on total returns and changes in economic or fair values better reflect the potential market-risk exposure of institutions, portfolios, and individual instruments. Changes in fair values and total returns directly measure the effect of market movements on the economic value of an institution's capital and provide significant insights into their ultimate effects on the institution's long-term earnings. Institutions should manage and control their market risks using both an earnings and an economic-value approach, and at least on an economic or fair-value basis.

When evaluating capital adequacy, examiners should consider the effect of changes in market rates and prices on the economic value of the institution by evaluating any unrealized losses in an institution's securities or derivative positions. This evaluation should assess the ability of the institution to hold its positions and function as a going concern if recognition of unrealized losses would significantly affect the institution's capital ratios. Examiners should also consider the impact that liquidating positions with unrealized losses may have on the institution's prompt-corrective-action capital category.

Market-risk limits should be established for both the acquisition and ongoing management of an institution's securities and derivative holdings and, as appropriate, should address exposures for individual instruments, instrument types, and portfolios. These limits should be integrated fully with limits established for the entire institution. At the institutional level, the board of directors should approve market-risk exposure limits. Such limits may be expressed as specific percentage changes in the economic value of capital and, when applicable, in the projected earnings of the institution under various market scenarios. Similar and complementary limits on the volatility of prices or fair value should be established at the appropriate instrument, product-type, and portfolio levels, based on the institution's willingness to accept market risk. Limits on the variability of effective maturities may also be desirable for certain types of instruments or portfolios.

The scenarios an institution specifies for assessing the market risk of its securities and derivative products should be sufficiently rigorous to capture all meaningful effects of any



options. For example, in assessing interest-rate risk, scenarios such as 100-, 200-, and 300-basis-point parallel shifts in yield curves should be considered as well as appropriate nonparallel shifts in structure to evaluate potential basis, volatility, and yield curve risks.

Accurately measuring an institution's market risk requires timely information about the current carrying and market values of its securities and derivative holdings. Accordingly, institutions should have market-risk measurement systems commensurate with the size and nature of their holdings. Institutions with significant holdings of highly complex instruments should ensure that they have independent means to value their positions. Institutions using internal models to measure risk should have adequate procedures to validate the models and periodically review all elements of the modeling process, including its assumptions and risk-measurement techniques. Institutions relying on third parties for market-risk-measurement systems and analyses should fully understand the assumptions and techniques used by the third party.

Institutions should evaluate the market-risk exposures of their securities and derivative positions and report this information to their boards of directors regularly, not less frequently than each quarter. These evaluations should assess trends in aggregate market-risk exposure and the performance of portfolios relative to their established objectives and risk constraints. They should also identify compliance with board-approved limits and identify any exceptions to established standards. Examiners should ensure that institutions have mechanisms to detect and adequately address exceptions to limits and guidelines. Examiners should also determine that management reporting on market risk appropriately addresses potential exposures to basis risk, yield curve changes, and other factors pertinent to the institution's holdings. In this connection, examiners should assess an institution's compliance with broader guidance for managing interest-rate risk in a consolidated organization.

Complex and illiquid instruments often involve greater market risk than broadly traded, more liquid securities. Frequently, the higher potential market risk arising from this illiquidity is not captured by standardized financial-modeling techniques. This type of risk is particularly acute for instruments that are highly leveraged or that are designed to benefit from

specific, narrowly defined market shifts. If market prices or rates do not move as expected, the demand for these instruments can evaporate. When examiners encounter such instruments, they should review how adequately the institution has assessed its potential market risks. If the risks from these instruments are material, the institution should have a well-documented process for stress testing their value and liquidity assumptions under a variety of market scenarios.

## Liquidity Risk

Banks face two types of liquidity risk in their securities and derivative activities: risks related to specific products or markets and risks related to the general funding of their activities. The former, market-liquidity risk, is the risk that an institution cannot easily unwind, or offset, a particular position at or near the previous market price because of inadequate market depth or disruptions in the marketplace. The second, funding-liquidity risk, is the risk that the bank will be unable to meet its payment obligations on settlement dates. Since neither type of liquidity risk is unique to securities and derivative activities, management should evaluate these risks in the broader context of the institution's overall liquidity.

When specifying permissible securities and derivative instruments to accomplish established objectives, institutions should take into account the size, depth, and liquidity of the markets for specific instruments, and the effect these characteristics may have on achieving an objective. The market liquidity of certain types of instruments may make them entirely inappropriate for achieving certain objectives. Moreover, institutions should consider the effects that market risk can have on the liquidity of different types of instruments. For example, some government agency securities may have embedded options that make them highly illiquid during periods of market volatility and stress, despite their high credit rating. Accordingly, institutions should clearly articulate the market-liquidity characteristics of instruments to be used in accomplishing institutional objectives.

The funding risk of an institution becomes a more important consideration when its unrealized losses are material; therefore, this risk should be a factor in evaluating capital adequacy. Institutions with weak liquidity positions

are more likely to be forced to recognize these losses and suffer declines in their accounting and regulatory capital. In extreme cases, these effects could force supervisors to take prompt corrective actions.

Examiners should assess whether the institution adequately considers the potential liquidity risks associated with the liquidation of securities or the early termination of derivative contracts. Many forms of standardized contracts for derivative transactions allow counterparties to request collateral or terminate their contracts early if the institution experiences an adverse credit event or a deterioration in its financial condition. In addition, under situations of market stress, customers may ask for the early termination of some contracts within the context of the dealer's market-making activities. In these circumstances, an institution that owes money on derivative transactions may be required to deliver collateral or settle a contract early, possibly at a time when the institution may face other funding and liquidity pressures. Early terminations may also open additional, unintended market positions. Management and directors should be aware of these potential liquidity risks and address them in the institution's liquidity plan and in the broader context of the institution's liquidity-management process. In their reviews, examiners should consider the extent to which such potential obligations could present liquidity risks to the institution.

## Operating and Legal Risks

Operating risk is the risk that deficiencies in information systems or internal controls will result in unexpected loss. Some specific sources of operating risk include inadequate procedures, human error, system failure, or fraud. Inaccurately assessing or controlling operating risks is one of the more likely sources of problems facing institutions involved in securities and derivative activities.

Adequate internal controls are the first line of defense in controlling the operating risks involved in an institution's securities and derivative activities. Of particular importance are internal controls to ensure that persons executing transactions are separated from those individuals responsible for processing contracts, confirming transactions, controlling various clearing accounts, approving the accounting

methodology or entries, and performing revaluations.

Institutions should have approved policies, consistent with legal requirements and internal policies, that specify documentation requirements for transactions and formal procedures for saving and safeguarding important documents. Relevant personnel should fully understand these requirements. Examiners should also consider the extent to which institutions evaluate and control operating risks through internal audits, stress testing, contingency planning, and other managerial and analytical techniques.

An institution's operating policies should establish appropriate procedures to obtain and maintain possession or control of instruments purchased. Institutions should ensure that transactions consummated orally are confirmed as soon as possible. As noted earlier in this section, banking organizations should, to the extent possible, seek to diversify the firms they use for their safekeeping arrangements to avoid concentrations of assets or other types of risk.

Legal risk is the risk that the contracts an institution enters into are not legally enforceable or documented correctly. This risk should be limited and managed through policies developed by the institution's legal counsel. At a minimum, guidelines and processes should be in place to ensure the enforceability of counterparty agreements. Examiners should determine whether an institution is adequately evaluating the enforceability of its agreements before individual transactions are consummated. Institutions should also ensure that a counterparty has sufficient authority to enter into the proposed transaction and that the terms of the agreement are legally sound. Institutions should further ascertain that their netting agreements are adequately documented, have been executed properly, and are enforceable in all relevant jurisdictions. Institutions should know about relevant tax laws and interpretations governing the use of netting instruments.

An institution's policies should also provide conflict-of-interest guidelines for employees who are directly involved in purchasing securities from and selling securities to securities dealers on behalf of their institution. These guidelines should ensure that all directors, officers, and employees act in the best interest of the institution. The board of directors may wish to adopt policies prohibiting these employees from engaging in personal securities transac-

tions with these same securities firms without the specific prior approval of the board. The board of directors may also wish to adopt a policy applicable to directors, officers, and employees that restricts or prohibits them from receiving gifts, gratuities, or travel expenses from approved securities dealer firms and their personnel.

## FEDERAL RESERVE ACT SECTIONS 23A AND 23B

In May 2001, the Board published the following rules interpreting sections 23A and 23B of the Federal Reserve Act (FRA):

- a final rule, effective June 11, 2001, that adopts an interpretation and exemptions from the quantitative limits and collateral requirements of section 23A for certain loans to third parties that are used to purchase securities or other assets through an affiliate of the depository institution
- a final rule, effective June 11, 2001, that adopts an interpretation that expands the types of asset purchases that are eligible for the exemption for purchases from a broker-dealer affiliate of assets with a readily identifiable and publicly available market quotation
- an interim rule, effective January 1, 2002, addressing the treatment under section 23B of derivative transactions between an insured depository institution and its affiliates (interaffiliate derivative transactions) and intraday extensions of credit by an insured depository institution to its affiliates

### Loans to Third Parties to Purchase Securities or Assets from an Affiliate

The final rule provides three exemptions from section 23A. First, an exemption is provided for extensions of credit by an insured depository institution to customers that use the loan proceeds to purchase a security or other asset through an affiliate of the depository institution, provided that the affiliate is acting exclusively as a broker in the transaction and retains no portion of the loan proceeds in excess of a market-rate brokerage commission or agency fee. To take advantage of this exemption, the security or other asset cannot be issued, underwritten by, or sold from the

inventory of an affiliate of the depository institution.

Second, the rule adopts an exemption from section 23A for extensions of credit by an insured depository institution to customers that use the proceeds to purchase a security issued by a third party through an SEC-registered broker-dealer affiliate of the institution that is acting as riskless principal in the securities transaction, provided that the markup for executing the trade is on or below market terms. The security cannot be issued, underwritten by, or sold from the inventory of an affiliate. This limitation does not preclude a broker-dealer affiliate from selling to the customer a security it purchased immediately before the sale to effect the riskless-principal transaction initiated by the customer. However, the broker-dealer affiliate should not have purchased the security from another affiliate of the insured depository institution.

Finally, the rule provides an exemption for extensions of credit by an insured depository institution to customers that use the proceeds to purchase securities from a broker-dealer affiliate of the institution when the extension of credit is made pursuant to a preexisting line of credit not entered into in contemplation of the purchase of securities from the affiliate. The extension of credit should be consistent with any restrictions imposed by the line of credit. In determining whether this exemption is being used in good faith, examiners should consider the timing of the line of credit, the conditions imposed on the line, and whether the line of credit has been used for purposes other than the purchase of securities from an affiliate. The fact that a line of credit has been preapproved does not necessarily lead to a conclusion that the line is preexisting. Rather, the line should be actively used by the customer.

### Purchases of Assets with a Readily Identifiable and Publicly Available Market Quotation

The rule exempts from section 23A the purchase of a security by an insured depository institution from an affiliated SEC-registered broker-dealer if the following conditions are met:

- the security has a ready market, as defined by the SEC<sup>9</sup>

9. The SEC defines a “ready market” as including a

- the security is eligible for purchase directly by a state member bank, and the transaction is recorded as a purchase of securities on the institution's call report
- the security is not a low-quality asset
- if an affiliate is the underwriter of the security, the security is not purchased during or within 30 days of an underwriting; however, this restriction does not apply to the purchase of obligations of, or fully guaranteed as to principal and interest by, the United States or its agencies
- the security's price is quoted routinely on an unaffiliated electronic service that provides real-time financial data, provided that—
  - the price paid by the depository institution is at or below the current market quotation for the security, and
  - the size of the transaction does not cast doubt on the appropriateness of relying on the current market quotation
- the security is not issued by an affiliate

Any such purchases remain subject to the provisions of section 23B that require the transaction to be on market terms and consistent with safe and sound banking practices. Records relating to such purchases must be maintained by the depository institution for a period of two years after the purchase.

### Derivative Transactions with Affiliates and Intraday Extensions of Credit to Affiliates

The interim rule confirms that interaffiliate derivative transactions (IDTs) and intraday extensions of credit by an insured depository institution to an affiliate are subject to the market-terms requirement of section 23B.<sup>10</sup> An insured depository institution must establish and maintain policies and procedures that, at a

recognized established securities market (1) in which there exists independent bona fide offers to buy and sell so that a price reasonably related to the last sales price or current bona fide competitive bid and offer quotations can be determined for a particular security almost instantaneously and (2) in which payment will be received in settlement of a sale at such price within a relatively short time conforming to trade custom.

10. IDTs are defined under the interim rule as any derivative contract subject to the Board's risk-based capital guidelines (that is, most interest-rate, currency, equity, or commodities derivatives and other similar contracts, including credit derivatives.)

minimum, provide for the monitoring and control of the bank's credit exposure from these transactions, with each affiliate and with all affiliates in the aggregate. Policies should also ensure that the transactions comply with section 23B. To comply with section 23B, the transactions should be on terms and conditions at least as favorable to the insured depository institution as those transactions conducted with unaffiliated counterparties that are engaged in similar business and substantially equivalent in size and credit quality. Specifically, credit limits imposed on IDTs and intraday extensions of credit to affiliates should be at least as strict as those imposed on comparable unaffiliated companies. The institution should monitor exposures to affiliates at least as rigorously as it monitors unaffiliated exposures to comparable companies. Finally, the pricing and collateral requirements imposed on IDTs and intraday extensions of credit to affiliates should be at least as favorable to the institution as those imposed on comparable unaffiliated companies.

### INTERNATIONAL DIVISION INVESTMENTS

The same types of instruments exist in international banking as in domestic banking. Securities and derivative contracts may be acquired by a bank's international division and overseas branches, and foreign equity investments may be held by the bank directly or through Edge Act corporations. The investments held by most international divisions are predominately securities issued by various governmental entities of the countries in which the bank's foreign branches are located. These investments are held for a variety of purposes:

- They are required by various local laws.
- They are used to meet foreign reserve requirements.
- They result in reduced tax liabilities.
- They enable the bank to use new or increased rediscount facilities or benefit from greater deposit or lending authorities.
- They are used by the bank as an expression of "goodwill" toward a country.

The examiner should be familiar with the applicable sections of Regulation K (12 CFR 211) governing a member bank's international

investment holdings as well as with other regulations discussed in this section. Because of the mandatory investment requirements of some countries, securities held cannot always be as “liquid” and “readily marketable” as required in domestic banking. However, the amount of a bank’s “mandatory” international holdings will normally be a relatively small amount of its total investments or capital funds.

A bank’s international division may also hold securities strictly for investment purposes; these are expected to provide a reasonable rate of return commensurate with safety considerations. As with domestic investment securities, the bank’s safety must take precedence, followed by liquidity and marketability requirements. Securities held by international divisions are considered to be liquid if they are readily convertible into cash at their approximate carrying value. They are marketable if they can be sold in a very short time at a price commensurate with yield and quality. Speculation in marginal foreign securities to generate more favorable yields is an unsound banking practice and should be discouraged.

Banks are generally prohibited from investing in stocks. However, a number of exceptions (detailed earlier in this section) are often applicable to the international division. For example, the bank may, under section 24A of the Federal Reserve Act (12 USC 371d), hold stock in overseas corporations that hold title to foreign bank premises. A foreign branch of a member bank may invest in the securities of the central bank, clearinghouses, governmental entities, and government-sponsored development banks of the country where the branch is located and may make other investments necessary to the business of the branch. Other sections of Regulation K permit the bank to make equity investments in Edge Act and agreement corporations and in foreign banks, subject to certain limitations.

Standard & Poor’s, Moody’s, and other publications from U.S. rating services rate Canadian and other selected foreign securities that are authorized for U.S. commercial bank investment purposes under 12 USC 24 (seventh). However, in many other countries, securities-rating services are limited or nonexistent. When they do exist, the ratings are only indicative and should be supplemented with additional information on legality, credit soundness, marketability, and foreign-exchange and country-risk factors. The opinions of local

attorneys are often the best source of determining whether a particular foreign security has the full faith and credit backing of a country’s government.

Sufficient analytical data must be provided to the bank’s board of directors and senior management so they can make informed judgments about the effectiveness of the international division’s investment policy and procedures. The institution’s international securities and derivative contracts should be included on all board and management reports detailing domestic securities and derivative contracts. These reports should be timely and sufficiently detailed to allow the board of directors and senior management to understand and assess the credit, market, and liquidity risks facing the institution and its securities and derivative positions.

## UNSUITABLE INVESTMENT PRACTICES

Institutions should categorize each of their security activities as trading, available-for-sale, or held-to-maturity consistent with GAAP (that is, Statement of Financial Accounting Standards No. 115, “Accounting for Certain Investments in Debt and Equity Securities,” as amended) and regulatory reporting standards. Management should reassess the categorizations of its securities periodically to ensure that they remain appropriate.

Securities that are intended to be held principally for the purpose of selling in the near term should be classified as trading assets. Trading activity includes the active and frequent buying and selling of securities for the purpose of generating profits on short-term fluctuations in price. Securities held for trading purposes must be reported at fair value, with unrealized gains and losses recognized in current earnings and regulatory capital. The proper categorization of securities is important to ensure that trading gains and losses are promptly recognized—which will not occur when securities intended to be held for trading purposes are categorized as held-to-maturity or available-for-sale.

It is an unsafe and unsound practice to report securities held for trading purposes as available-for-sale or held-to-maturity securities. A close examination of an institution’s actual securities activities will determine whether securities it

reported as available-for-sale or held-to-maturity are, in reality, held for trading. When the following securities activities are conducted in available-for-sale or held-to-maturity accounts, they should raise supervisory concerns. The first five practices below are considered trading activities and should not occur in available-for-sale or held-to-maturity securities portfolios, and the sixth practice is wholly unacceptable under all circumstances.

## Gains Trading

Gains trading is the purchase of a security and the subsequent sale of that security at a profit after a short holding period. However, at the same time, securities acquired for gains trading that cannot be sold at a profit are retained in the available-for-sale or held-to-maturity portfolio; unrealized losses on debt securities in these two categories do not directly affect regulatory capital and are not reported in income until the security is sold. Examiners should note institutions that exhibit a pattern or practice of reporting significant amounts of realized gains on sales of nontrading securities (typically, available-for-sale securities) after short holding periods, while continuing to hold other nontrading securities with significant amounts of unrealized losses. In these situations, examiners may designate some or all of the securities reported outside of the trading category as trading assets.

## When-Issued Securities Trading

When-issued securities trading is the buying and selling of securities in the period between the announcement of an offering and the issuance and payment date of the securities. A purchaser of a when-issued security acquires all of the risks and rewards of owning a security and may sell this security at a profit before having to take delivery and pay for it. These transactions should be regarded as trading activities.

## Pair-Offs

Pair-offs are security purchases that are closed out or sold at or before settlement date. In a pair-off, an institution commits to purchase a security. Then before the predetermined settle-

ment date, the institution will pair off the purchase with a sale of the same security. Pair-offs are settled net when one party to the transaction remits the difference between the purchase and sale price to the counterparty. Other pair-off transactions may involve the same sequence of events using swaps, options on swaps, forward commitments, options on forward commitments, or other derivative contracts.

## Extended Settlements

Regular-way settlement for U.S. government and federal-agency securities (except mortgage-backed securities and derivative contracts) is one business day after the trade date. Regular-way settlement for corporate and municipal securities is 3 business days after the trade date, and settlement for mortgage-backed securities can be up to 60 days or more after the trade date. Using a settlement period that exceeds the regular-way settlement periods to facilitate speculation is considered a trading activity.

## Short Sales

A short sale is the sale of a security that is not owned. Generally, the purpose of a short sale is to speculate on a fall in the price of the security. Short sales should be conducted in the trading portfolio. A short sale that involves the delivery of the security sold short by borrowing it from the depository institution's available-for-sale or held-to-maturity portfolio should not be reported as a short sale. Instead, it should be reported as a sale of the underlying security with gain or loss recognized. Short sales are not permitted for federal credit unions.

## Adjusted Trading

Adjusted trading involves the sale of a security to a broker or dealer at a price above the prevailing market value and the simultaneous purchase and booking of a different security, frequently a lower-grade issue or one with a longer maturity, at a price above its market value. Thus, the dealer is reimbursed for its losses on the initial purchase from the institution and ensured a profit. Adjusted-trading transactions inappropriately defer the recognition of



losses on the security sold and establish an excessive reported value for the newly acquired security. Consequently, these transactions are

prohibited and may be in violation of 18 USC 1001 (False Statements or Entries) and 1005 (False Entries).

1. To determine if policies, practices, procedures, and internal controls for investments are adequate.
2. To determine if bank officers are operating in conformance with the established guidelines.
3. To determine the scope and adequacy of the audit function.
4. To determine the overall quality of the investment portfolio and how that quality relates to the soundness of the bank.
5. To determine compliance with laws and regulations.
6. To initiate corrective action when policies, practices, procedures, or internal controls are deficient or when violations of laws or regulations have been noted.

These procedures represent a list of processes and activities that may be reviewed during a full-scope examination. The examiner-in-charge will establish the general scope of examination and work with the examination staff to tailor specific areas for review as circumstances warrant. As part of this process, the examiner reviewing a function or product will analyze and evaluate internal audit comments and previous examination workpapers to assist in designing the scope of examination. In addition, after a general review of a particular area to be examined, the examiner should use these procedures, to the extent they are applicable, for further guidance. Ultimately, it is the seasoned judgment of the examiner and the examiner-in-charge as to which procedures are warranted in examining any particular activity.

1. Based on the evaluation of internal controls and the work performed by internal and external auditors, determine the scope of the examination.
2. Test for compliance with policies, practices, procedures, and internal controls in conjunction with performing the examination procedures. Also, obtain a listing of any deficiencies noted in the latest review conducted by internal and external auditors and determine if corrections have been accomplished. Determine the extent and effectiveness of investment-policy supervision by—
  - a. reviewing the abstracted minutes of board of directors meetings and minutes of appropriate committee meetings;
  - b. determining that proper authorizations have been made for investment officers or committees;
  - c. determining any limitations or restrictions on delegated authorities;
  - d. evaluating the sufficiency of analytical data used by the board or investment committee;
  - e. reviewing the reporting methods used by department supervisors and internal auditors to ensure compliance with established policy; and
  - f. preparing a memo for the examiner who is assigned to review the duties and responsibilities of directors and for the examiner responsible for the international examination, if applicable. This

memo should state conclusions on the effectiveness of directors' supervision of the domestic and international-division investment policy. All conclusions should be documented.

3. Obtain the following:
  - a. trial balances of investment-account holdings, money market instruments, and end-user derivative positions including commercial paper, banker's acceptances, negotiable certificates of deposit, securities purchased under agreements to resell, and federal funds sold (Identify any depository instruments placed through money brokers.)
  - b. a list of any assets carried in loans and any discounts on which interest is exempt from federal income taxes and which are carried in the investment account on call reports
  - c. a list of open purchase-and-sale commitments
  - d. a schedule of all securities, forward placement contracts, and derivative contracts including contracts on exchange-traded puts and calls, option contracts on futures puts and calls, and standby contracts purchased or sold since the last examination
  - e. a maturity schedule of securities sold under repurchase agreements
  - f. a list of pledged assets and secured liabilities
  - g. a list of the names and addresses of all securities dealers doing business with the bank
  - h. a list of the bank's personnel authorized to trade with dealers
  - i. a list of all U.S. government-guaranteed loans which are recorded and carried as an investment-account security
  - j. for international division and overseas branches, a list of investments—
    - held to comply with various foreign governmental regulations requiring such investments,
    - used to meet foreign reserve requirements,
    - required as stock exchange guarantees or used to enable the bank to provide securities services,

- representing investment of surplus funds,
  - used to obtain telephone and telex services,
  - representing club and school memberships,
  - acquired through debts previously contracted,
  - representing minority interests in non-affiliated companies,
  - representing trading-account securities,
  - representing equity interests in Edge Act and agreement corporations and in foreign banks, and
  - held for other purposes.
4. Using updated data available from reports of condition, UBPR printouts, and investment advisor and correspondent bank portfolio analysis reports, obtain or prepare an analysis of investment, money market, and end-user derivative holdings that includes—
    - a. a month-by-month schedule of par, book, and market values of issues maturing in one year;
    - b. schedules of par, book, and market values of holdings in the investment portfolio (these schedules should be indexed by maturity date, and the schedule should be detailed by maturity dates over the following time periods: over 1 through 5 years, over 5 through 10 years, and over 10 years);
    - c. book value totals of holdings by obligor or industry, related obligors or industries, geographic distribution, yield, and special characteristics, such as moral obligations, conversion, or warrant features;
    - d. par value schedules of type I, II, and III investment holdings, by those legally defined types; and
    - e. for the international division, a list of international investment holdings (foreign-currency amounts and U.S. dollar equivalents) to include—
      - descriptions of securities held (par, book, and market values),
      - names of issuers,
      - issuers' countries of domicile,
      - interest rates, and
      - pledged securities.
  5. Review the reconciliation of the trial balances investment and money market accounts to general-ledger control accounts.
  6. Using either an appropriate sampling technique or the asset-coverage method, select from the trial balances the international investments, municipal investments, and money market and derivative holdings for examination. If transaction volume permits, include in the population of items to be reviewed all securities purchased since the last general examination.
  7. Perform the following procedures for each investment and money market holding selected in step 6.
    - a. Check appropriate legal opinions or published data outlining legal status.
    - b. If market prices are provided to the bank by an independent party (excluding affiliates and securities dealers selling investments to the bank), or if they are independently tested as a documented part of the bank's audit program, those prices should be accepted. If the independence of the prices cannot be established, test market values by referring to one of the following sources:
      - published quotations, if available
      - appraisals by outside pricing services, if performed
    - c. For investments and money market obligations in the sample that are rated, compare the ratings provided to the most recent published ratings.
- Before continuing, refer to steps 15 through 17. They should be performed in conjunction with steps 8 through 14. International-division holdings should be reviewed with domestic holdings to ensure compliance, when combined, with applicable legal requirements.
8. To the extent practicable under the circumstances, test that the institution has analyzed the following:
    - a. the obligors on securities purchased under agreements to resell, when the readily marketable value of the securities is not sufficient to satisfy the obligation
    - b. all international investments, nonrated securities, derivatives, and money market instruments selected in step 6 or acquired since the last examination
    - c. all previously detailed or currently known speculative issues
    - d. all defaulted issues
    - e. any issues in the current Interagency Country Exposure Review Committee credit schedule (obtained from the international loan portfolio manager):

- compare the schedule to the foreign securities trial balance obtained in step 3 to ascertain which foreign securities are to be included in Interagency Country Exposure Review Committee credits
  - for each security so identified, transcribe the following appropriate information to a separate examiner's line sheet or a related examiner's credit line sheet:
    - amount (and U.S. dollar equivalent if a foreign currency) to include par, book, and market values
    - how and when acquired
    - maturity dates
    - default date, if appropriate
    - any pertinent comments
  - return the schedule and appropriate examiner's line sheets to the examiner who is assigned to international—loan portfolio management.
9. Review the most recent reports of examination of the bank's Edge Act and agreement corporation affiliates and foreign subsidiaries to determine their overall conditions. Also, compile data on Edge Act and agreement corporations and foreign subsidiaries that are necessary for the commercial report of examination (such as asset criticisms, transfer risk, and other material examination findings).
10. Classify speculative and defaulted issues according to the following standards (except those securities in the Interagency Country Exposure Review and other securities on which special instructions have been issued):
- a. The entire book value of speculative-grade municipal general obligation securities which are not in default will be classified substandard. Market depreciation on other speculative issues should be classified doubtful. The remaining book value usually is classified substandard.
  - b. The entire book value of all defaulted municipal general obligation securities will be classified doubtful. Market depreciation on other defaulted bonds should be classified loss. The remaining book value usually is classified substandard.
  - c. Market depreciation on nonexempt stock should be classified loss.
  - d. Report comments should include:
    - description of issue
    - how and when each issue was acquired
    - default date, if appropriate
    - date interest was paid to the issue
    - rating at time of acquisition
    - comments supporting the classification
11. Review the bank's maturity program.
- a. Review the maturity schedules by—
    - comparing book and market values and, after considering the gain or loss on year-to-date sales, determine if the costs of selling intermediate and long-term issues appear prohibitive, and
    - determine if recent acquisitions show a trend toward lengthened or shortened maturities. Discuss such trends with management, particularly with regard to investment objectives approved by the investment committee.
  - b. Review the pledged-asset and secured-liability schedules and isolate pledged securities by maturity segment, then determine the market value of securities pledged in excess of net secured liabilities.
  - c. Review the schedule of securities sold under repurchase agreement and determine—
    - if financing for securities purchases is provided via repurchase agreement by the securities dealer who originally sold the security to the bank,
    - if funds acquired through the sale of securities under agreement to repurchase are invested in money market assets or if short-term repurchase agreements are being used to fund longer-term, fixed-rate assets,
    - the extent of matched-asset repo and liability repo maturities and the overall effect on liquidity resulting from unmatched positions,
    - if the interest rate paid on securities sold under agreement to repurchase is appropriate relative to current money market rates, and
    - if the repurchase agreement is at the option of the buying or selling bank.
  - d. Review the list of open purchase-and-sale commitments and determine the effect of their completion on maturity scheduling.
  - e. Submit investment portfolio information regarding the credit quality and practical liquidity of the investment portfolio to the examiner who is assigned to asset/liability management.

12. Consult with the examiner responsible for the asset/liability management analysis to determine what information is needed to assess the bank's sensitivity to interest-rate fluctuations and its ability to meet short-term funding requirements. If requested, compile the information using bank records or other appropriate sources. (See the Instructions for the Report of Examination section of this manual for factors to be taken into account when compiling this information.) Information which may be required to be furnished includes—
  - a. the market value of unpledged government and federal-agency securities maturing within one year;
  - b. the market value of other unpledged government and federal-agency securities which would be sold without loss;
  - c. the market value of unpledged municipal securities maturing within one year;
  - d. the book value of money market instruments, such as banker's acceptances, commercial paper, and certificates of deposit (provide amounts for each category); and
  - e. commitments to purchase and sell securities, including futures, forward, and standby contracts. (Provide a description of the security contract, the purchase or sales price, and the settlement or expiration date.)
13. Determine whether the bank's investment policies and practices are balancing earnings and risk satisfactorily.
  - a. Use UBPR or average call report data to calculate investments as a percentage of total assets and average yields on U.S. government and nontaxable investments.
    - Compare results to peer-group statistics.
    - Determine the reasons for significant variances from the norm.
    - Determine if trends are apparent and the reasons for such trends.
  - b. Calculate current market depreciation as a percentage of gross capital funds.
  - c. Review the analysis of municipal and corporate issues by rating classification.
    - Determine the total in each rating class and the total of nonrated issues.
    - Determine the total of nonrated investment securities issued by obligors located outside of the bank's service area (exclude U.S. government-guaranteed issues).
- Review acquisitions since the prior examination and ascertain reasons for trends that may suggest a shift in the rated quality of investment holdings.
- d. Review coupon rates or yields (when available) and compare those recently acquired investments and money market holdings with coupon rates or yields that appear high or low to similarly acquired instruments of analogous types, ratings, and maturity characteristics. Discuss significant rate or yield variances with management.
- e. Review the schedule of securities, futures, forward, and standby contracts purchased and sold since the last examination and determine whether the volume of trading is consistent with policy objectives. If the bank does not have a separate trading account, determine whether such an account should be established, including appropriate recordkeeping and controls.
- f. If the majority of sales resulted in gains, determine if profit-taking is consistent with stated policy objectives or is motivated by anxiety for short-term income.
- g. Determine whether the bank has discounted or has plans to discount future investment income by selling interest coupons in advance of interest-payment dates.
- h. Review the list of commitments to purchase or sell investments or money market investments. Determine the effect of completion of these contracts on future earnings.
14. Review the bank's federal income tax position.
  - a. Determine, by discussion with appropriate officers, if the bank is taking advantage of procedures to minimize tax liability in view of other investment objectives.
  - b. Review or compute the bank's actual and budgeted tax-exempt holdings as a percentage of total assets and its applicable income taxes as a percentage of net operating income before taxes.
  - c. Discuss with management the tax implications of losses resulting from securities sales.



15. Determine that proper risk diversification exists within the portfolio.
- a. Review totals of holdings by single obligor or industry, related obligors or industries, geographic distribution, yields, and securities that have special characteristics (include individual due from bank accounts from the list received from the bank or from the examiner who is assigned to due from banks and all money market instruments).
    - Detail, as concentrations, all holdings equaling 25 percent or more of capital funds.
    - List all holdings equaling at least 10 percent but less than 25 percent of capital funds and submit that information to the examiner who is assigned to loan portfolio management. These holdings will be combined with any additional advances in the lending areas.
  - b. Perform a credit analysis of all nonrated holdings determined to be a concentration (if not performed in step 8).
16. If the bank is engaged in financial futures, exchange-traded puts and calls, forward placements, or standby contracts, determine the following.
- a. The policy is specific enough to outline permissible contract strategies and their relationships to other banking activities.
  - b. Recordkeeping systems are sufficiently detailed to permit a determination of whether operating personnel have acted in accordance with authorized objectives.
  - c. The board of directors or its designee has established specific contract-position limits and reviews contract positions at least monthly to ascertain conformance with those limits.
  - d. Gross and net positions are within authorized positions and limits, and trades were executed by persons authorized to trade futures.
  - e. The bank maintains general-ledger memorandum accounts or commitment registers which, at a minimum, include—
    - the type and amount of each contract,
    - the maturity date of each contract,
    - the current market price and cost of each contract, and
    - the amount held in margin accounts, including—
      - all futures contracts and forward, standby, and options contracts
- revalued on the basis of market or the lower of cost or market at each month-end;
- securities acquired as the result of completed contracts valued at the lower of cost or market upon settlement;
  - fee income received by the bank on standby contracts accounted for properly;
  - financial reports disclosing futures, forwards, options, and standby activity;
  - a bank-instituted system for monitoring credit-risk exposure in forward and standby contract activity; and
  - the bank's internal controls, management reports, and audit procedures to ensure adherence to policy.
17. If the bank is engaged in financial futures, forward placement, options, or standby contracts, determine if the contracts have a reasonable correlation to the bank's business needs (including gap position) and if the bank fulfills its obligations under the contracts.
- a. Compare the contract commitment and maturity dates to anticipated offset.
  - b. Report significant gaps to the examiner who is assigned to asset/liability management (see step 12).
  - c. Compare the amounts of outstanding contracts to the amounts of the anticipated offset.
  - d. Ascertain the extent of the correlation between expected interest-rate movements on the contracts and the anticipated offset.
  - e. Determine the effect of the loss recognition on future earnings, and, if significant, report it to the examiner who is assigned to analytical review and income and expense.
18. On the basis of the pricings, ratings, and credit analyses performed above, and using the investments selected in step 6 or from lists previously obtained, test for compliance with applicable laws and regulations.
- a. Determine if the bank holds type II or III investments that are predominantly speculative or if it holds securities that are not marketable (12 CFR 1.3(b)).
  - b. Review the recap of investment securities by legal types, as defined by 12 CFR

- 1, on the basis of the legal restrictions of 12 USC 24 and competent legal opinions.
- c. For those investment securities that are convertible into stock or which have stock purchase warrants attached—
    - determine if the book value has been written down to an amount that represents the investment value of the security, independent of the conversion or warrant provision (12 CFR 1.10) and
    - determine if the par values of other securities that have been ruled eligible for purchase are within specified capital limitations.
  - d. Review pledge agreements and secured liabilities and determine that—
    - proper custodial procedures have been followed,
    - eligible securities are pledged,
    - securities pledged are sufficient to secure the liability that requires securing,
    - Treasury tax and loan remittance options and note options are properly secured, and
    - private deposits are not being secured.
  - e. Review accounting procedures to determine that—
    - investment premiums are being extinguished by maturity or call dates (12 CFR 1.11);
    - premium amortization is charged to operating income (12 CFR 1.11);
    - accretion of discount is included in current income for banks required to use accrual accounting for reporting purposes;
    - accretion of bond discount requires a concurrent accrual of deferred income tax payable; and
    - securities gains or losses are reported net of applicable taxes, and net gains or losses are reflected in the period in which they are realized.
  - f. Determine if securities purchased under agreement to resell are in fact securities (not loans), are eligible for investment by the bank, and are within prescribed limits (12 USC 24 and 12 CFR 1). If not,
    - g. Review securities sold under agreement to repurchase and determine whether they are, in fact, deposits (Regulation D, 12 CFR 204.2(a)(1)).
    - h. Determine that securities and money market investments held by foreign branches comply with section 211.3 of Regulation K—Foreign Branches of Member Banks (12 CFR 211.3) as to—
      - acquiring and holding securities (section 211.3(b)(3)) and
      - underwriting, distributing, buying, and selling obligations of the national government of the country in which the branch is located (section 211.3(b)(4)).

(Further considerations relating to the above are in other sections of Regulation K. Also review any applicable sections of Regulation T—Credit by Brokers and Dealers (12 CFR 220), Regulation X—Borrowers of Securities Credit (12 CFR 224), and Board interpretations 6150 (regarding securities issued or guaranteed by the International Bank for Reconstruction and Development) and 6200 (regarding borrowing by a domestic broker from a foreign broker). Edge Act and agreement corporations are discussed in the bank-related organizations section.

- i. Determine that the bank's equity investments in foreign banks comply with the provisions of section 25 of the Federal Reserve Act and section 211.5 of Regulation K as to—
    - investment limitations (section 211.5(b)) and
    - investment procedures (section 211.5(c)).
19. Test for compliance with other laws and regulations as follows.
- a. Review lists of affiliate relationships and lists of directors and principal officers and their interests.
    - Determine if the bank is an affiliate of a firm that is primarily engaged in underwriting or selling securities (12 USC 377).
    - Determine if directors or officers are engaged in or employed by firms that are engaged in similar activities (12 USC 78, 377, and 378). (It is an acceptable practice for bank officers to

- act as directors of securities companies not doing business in the United States, the stock of which is owned by the bank as authorized by the Board of Governors of the Federal Reserve System.)
- Review the list of federal funds sold, securities purchased under agreements to resell, interest-bearing time deposits, and commercial paper, and determine if the bank is investing in money market instruments of affiliated banks or firms (section 23A, Federal Reserve Act and 12 USC 371(c)).
  - Determine if transactions involving affiliates, insiders, or their interests have terms that are less favorable to the bank than transactions involving unrelated parties (sections 23A and 22 of the Federal Reserve Act (12 USC 371c, 375, 375a, and 375b)).
- b. Determine if Federal Reserve stock equals 3 percent of the subject bank's booked capital and surplus accounts (Regulation I and 12 CFR 209).
- c. Review the nature and duration of federal funds sales to determine if term federal funds are being sold in an amount exceeding the limit imposed by state legal lending limits.
20. With regard to potential unsafe and unsound investment practices and possible violations of the Securities Exchange Act of 1934, review the list of securities purchased and/or sold since the last examination.
- a. Determine if the bank engages one securities dealer or salesperson for virtually all transactions. If so—
- evaluate the reasonableness of the relationship on the basis of the dealer's location and reputation and
  - compare purchase and sale prices to independently established market prices as of trade dates, if appropriate.
- b. Determine if investment-account securities have been purchased from the bank's own trading department. If so—
- independently establish the market price as of trade date,
  - review trading-account purchase and sale confirmations and determine if the security was transferred to the investment portfolio at market price, and
  - review controls designed to prevent dumping.
- c. Determine if the volume of trading activity in the investment portfolio appears unwarranted. If so—
- review investment-account daily ledgers and transaction invoices to determine if sales were matched by a like amount of purchases,
  - determine whether the bank is financing a dealer's inventory,
  - compare purchase and sale prices with independently established market prices as of trade dates, if appropriate (the carrying value should be determined by the market value of the securities as of the trade date), and
  - cross reference descriptive details on investment ledgers and purchase confirmations to the actual bonds or safe-keeping receipts to determine if the bonds delivered are those purchased.
21. Discuss with appropriate officers and prepare report comments on—
- a. defaulted issues;
  - b. speculative issues;
  - c. incomplete credit information;
  - d. the absence of legal opinions;
  - e. significant changes in maturity scheduling;
  - f. shifts in the rated quality of holdings;
  - g. concentrations;
  - h. unbalanced earnings and risk considerations;
  - i. unsafe and unsound investment practices;
  - j. apparent violations of laws, rulings, and regulations and the potential personal liability of the directorate;
  - k. significant variances from peer-group statistics;
  - l. market-value depreciation, if significant;
  - m. weaknesses in supervision;
  - n. policy deficiencies; and
  - o. material problems being encountered by the bank's Edge Act and agreement corporation affiliates and other related international concerns that could affect the condition of the bank.
22. The following guidelines are to be implemented while reviewing securities participations, purchases and sales, swaps, or other transfers. The guidelines are designed to ensure that securities transfers involving state member banks, bank holding companies, and nonbank affiliates are carefully evaluated to determine if they were carried out to avoid classification and to determine

the effect of the transfer on the condition of the institution. In addition, the guidelines are designed to ensure that the primary regulator of the other financial institution involved in the transfer is notified.

- a. Investigate any situations in which securities were transferred before the date of examination to determine if any were transferred to avoid possible criticism during the examination.
  - b. Determine whether any of the securities transferred were nonperforming at the time of transfer, classified at the previous examination, depreciated or sub-investment-grade, or for any other reason considered to be of questionable quality.
  - c. Review the bank's policies and procedures to determine whether securities purchased by the bank are given an independent, complete, and adequate credit evaluation. If the bank is a holding company subsidiary or a member of a chain banking organization, review securities purchases or participations from affiliates or other known members of the chain to determine if the securities purchases are given an arm's-length and independent credit evaluation by the purchasing bank.
  - d. Determine whether bank purchases of securities from an affiliate are in conformance with section 23A, which generally prohibits purchases of low-quality assets from an affiliate.
  - e. Determine that any securities purchased by the bank are properly reflected on its books at fair market value (fair market value should at a minimum reflect both the rate of return being earned on such assets and an appropriate risk premium). Determine that appropriate write-offs are taken on any securities sold by the bank at less than book value.
  - f. Determine that transactions involving transfers of low-quality securities to the parent holding company or a nonbank affiliate are properly reflected at fair market value on the books of both the bank and the holding company affiliate.
  - g. If poor-quality securities were transferred to or from another financial institution for which the Federal Reserve is not the primary regulator, prepare a memorandum to be submitted to Reserve Bank supervisory personnel. The Reserve Bank will then inform the local office of the primary federal regulator of the other institution involved in the transfer. The memorandum should include the following information, as applicable:
    - names of originating and receiving institutions
    - the type of securities involved and type of transfer (such as participation, purchase or sale, or swap)
    - dates of transfer
    - the total number and dollar amount of securities transferred
    - the status of the securities when transferred (for example, rating, depreciation, nonperforming, or classified)
    - any other information that would be helpful to the other regulator
23. Evaluate the quality of department management. Communicate your conclusion to the examiner who is assigned to management assessment and the examiner responsible for the international examination, if applicable.
  24. Update workpapers with any information that will facilitate future examinations. If the bank has overseas branches, indicate those securities that will require review during the next overseas examination and the reasons for the review.

Review the bank's internal controls, policies, practices, and procedures regarding purchases, sales, and servicing of the investment portfolio. The bank's system should be documented completely and concisely, and should include, where appropriate, narrative descriptions, flow charts, copies of forms used, and other pertinent information. *Items in the questionnaire marked with an asterisk require substantiation by observation or testing.*

## POLICIES

1. Has the board of directors, consistent with its duties and responsibilities, adopted written investment-securities policies, including policies for when-issued securities, futures, and forward placement contracts? Do policies outline the following:
  - a. objectives
  - b. permissible types of investments
  - c. diversification guidelines to prevent undue concentration
  - d. maturity schedules
  - e. limitations on quality ratings
  - f. policies for exceptions to standard policy
  - g. valuation procedures and their frequency
2. Are investment policies reviewed at least annually by the board to determine if they are compatible with changing market conditions?
3. At the time of purchase, are securities designated as to whether they are investments for the portfolio or trading account?
4. Have policies been established governing the transfer of securities from the trading account to the investment-securities account?
5. Have limitations been imposed on the investment authority of officers?
- \*6. Do security transactions require dual authorization?
7. Does the bank have any of the following: due from commercial banks or from other depository institutions, time accounts, federal funds sold, commercial paper, securities purchased under agreements to resell, or any other money market type of investment? If so, determine the following:
  - a. Is purchase or sale authority clearly defined?

- b. Are purchases or sales reported to the board of directors or its investment committee?
  - c. Are maximums established for the amount of each type of asset?
  - d. Are maximums established for the amount of each type of asset that may be purchased from or sold to any one bank?
  - e. Do money market investment policies outline acceptable maturities?
  - f. Have credit standards and review procedures been established?
8. Are the bank's policies in compliance with sections 23A and 23B of the Federal Reserve Act and the Board's rules thereunder?

## CUSTODY OF SECURITIES

- \*9. Do procedures preclude the custodian of the bank's securities from—
- a. having sole physical access to securities;
  - b. preparing release documents without the approval of authorized persons;
  - c. preparing release documents not subsequently examined or tested by a second custodian; and
  - d. performing more than one of the following transactions: (1) execution of trades, (2) receipt or delivery of securities, (3) receipt and disbursement of proceeds?
- \*10. Are securities physically safeguarded to prevent loss or their unauthorized removal or use?
11. Are securities, other than bearer securities, held only in the name or nominee of the bank?
  12. When a negotiable certificate of deposit is acquired, is the certificate safeguarded in the same manner as any other negotiable investment instrument?

## RECORDS

13. Do subsidiary records of investment securities show all pertinent data describing the security; its location; pledged or unpledged status; premium amortization;

discount accretion; and interest earned, collected, and accrued?

- \*14. Is the preparation and posting of subsidiary records performed or reviewed by persons who do not also have sole custody of securities?
- \*15. Are subsidiary records reconciled, at least monthly, to the appropriate general-ledger accounts, and are reconciling items investigated by persons who do not also have sole custody of securities?
- 16. For international division investments, are entries for U.S. dollar carrying values of securities denominated in foreign currencies rechecked at inception by a second person?

## PURCHASES, SALES, AND REDEMPTIONS

- \*17. Is the preparation and posting of the purchase, sale, and redemption records of securities and open contractual commitments performed or reviewed by persons who do not also have sole custody of securities or authorization to execute trades?
- \*18. Are supporting documents, such as broker's confirmations and account statements for recorded purchases and sales, checked or reviewed subsequently by persons who do not also have sole custody of securities or authorization to execute trades?
- \*19. Are purchase confirmations compared with delivered securities or safekeeping receipts to determine if the securities delivered are the securities purchased?

## DERIVATIVE-CONTRACTS CONTROLS

- 20. Do *end-user* policies—
  - a. outline specific strategies and
  - b. relate permissible strategies to other banking activities?
- 21. Are the formalized procedures used by the trader—
  - a. documented in a manual and
  - b. approved by the board or an appropriate board committee?
- 22. Are the bank's futures commission merchants and forward brokers—
  - a. notified in writing to trade with only those persons authorized as traders and

- b. notified in writing of revocation of trading authority?
- 23. Has the bank established end-user limits—
  - a. for individual traders and total outstanding contracts?
  - b. that are endorsed by the board or an appropriate board committee?
  - c. whose basis is fully explained?
- 24. Does the bank obtain prior written approval detailing the amount of, duration, and reason—
  - a. for deviations from individual limits and
  - b. for deviations from gross trading limits?
- 25. Are these exceptions subsequently submitted to the board or an appropriate board committee for ratification?
- 26. Does the trader prepare a prenumbered trade ticket?
- 27. Does the trade ticket contain all of the following information:
  - a. trade date
  - b. purchase or sale
  - c. contract description
  - d. quantity
  - e. price
  - f. reason for trade
  - g. reference to the position being matched (immediate or future case settlement)
  - h. signature of trader
- 28. Are the accounting records maintained and controlled by persons who cannot initiate trades?
- 29. Are accounting procedures documented in a procedures manual?
- 30. Are all incoming trade confirmations—
  - a. received by someone independent of the trading and recordkeeping functions and
  - b. verified to the trade tickets by this independent party?
- 31. Does the bank maintain general-ledger control accounts disclosing, at a minimum—
  - a. futures or forward contracts memoranda accounts,
  - b. deferred gains or losses, and
  - c. margin deposits?
- 32. Are futures and forward contracts activities—
  - a. supported by detailed subsidiary records and
  - b. agreed daily to general-ledger controls by someone who is not authorized to prepare general-ledger entries?



33. Do periodic statements received from futures commission merchants reflect—
  - a. trading activity for the period,
  - b. open positions at the end of the period,
  - c. the market value of open positions,
  - d. unrealized gains and losses, and
  - e. cash balances in accounts?
34. Are all of these periodic statements—
  - a. received by someone independent of both the trading and recordkeeping functions and
  - b. reconciled to all of the bank's accounting records?
35. Are the market prices reflected on the statements—
  - a. verified with listed prices from a published source and
  - b. used to recompute gains and losses?
36. Are daily reports of unusual increases in trading activity reviewed by senior management?
37. Are weekly reports prepared for an appropriate board committee and do reports reflect—
  - a. all trading activity for the week,
  - b. open positions at the end of the week,
  - c. the market value of open positions,
  - d. unrealized gains and losses,
  - e. total trading limits outstanding for the bank, and
  - f. total trading limits for each authorized trader?
38. Is the futures and forward contracts portfolio revalued monthly to market value or the lower of cost or market?
39. Are revaluation prices provided by persons or sources who are totally independent of the trading function?

## OTHER

40. Does the board of directors receive regular reports on domestic and international division investment securities, and do reports include—
  - a. valuations,
  - b. maturity distributions,
  - c. the average yield, and
  - d. reasons for holding and benefits received (international division and overseas holdings only)?
41. Are purchases, exchanges, and sales of securities and open contractual commitments ratified by action of the board of directors or its investment committee and thereby made a matter of record in the minutes?

## CONCLUSION

42. Is the foregoing information an adequate basis for evaluating internal control? Are there significant deficiencies in areas not covered in this questionnaire that impair any controls? Explain any deficiencies briefly and indicate any additional examination procedures deemed necessary.
43. Based on a composite evaluation, as evidenced by answers to the foregoing questions, is internal control adequate or inadequate?

### 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 reces-

sions, 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 employment, 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 effec-

tive 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.<sup>1</sup> The U.S. regulatory agencies implemented these principles, jointly agreeing to incorporate those principles into their existing guidance. The revised guidance, "Inter-agency 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

1. Basel Committee on Banking Supervision, "Principles for Sound Liquidity Risk Management and Supervision," September 2008. See [www.bis.org/publ/bcb144.htm](http://www.bis.org/publ/bcb144.htm).

sufficient to determine the adequacy of the institution's liquidity-risk-management process.

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 systems 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 I, 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 liquid-

ity 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 liquidity 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 ensuring 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 watch-listing 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 perfor-

mance of the securitized portfolio in relation to the early-amortization triggers.<sup>2</sup>

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.<sup>3</sup>

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.<sup>4</sup>

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.

### **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.

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

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



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 MANAGEMENT FOR HOLDING COMPANIES AND BRANCHES AND AGENCIES OF FOREIGN BANKING ORGANIZATIONS

The sound practices described above are fully applicable to financial holding companies (FHCs) and bank holding companies (BHCs).

FHCs and BHCs should develop and maintain liquidity-risk management processes and funding programs that are consistent with their level of sophistication and complexity. Small one-bank or "shell" holding companies obviously require programs that are less detailed than those required for larger multibank holding companies that have nonbank subsidiaries. Liquidity-risk management processes and funding programs should take into full account the firm's lending, investment, and other activities and should ensure that adequate liquidity is maintained at the parent company and any of its bank and nonbank subsidiaries. These processes and programs should fully incorporate real and potential constraints on the transfer of funds among subsidiaries and between affiliates and the parent company, including legal and regulatory restrictions.

Liquidity-risk management processes should consider the responsibilities and obligations of the board of directors and senior management at subsidiaries. For example, a bank holding company may manage the liquidity of the corporate entity on a centralized basis; however, directors and senior managers at subsidiary banks remain responsible and accountable for the liquidity risks taken by their institutions. As a result, effective communication and an understanding of the interrelationships between holding company and subsidiary liquidity-management policies, practices, strategies, and tactics are critical to the safety and soundness of the entire organization. Appropriate liquidity-risk management is especially important for BHCs; liquidity difficulties at the holding company can easily spread to subsidiary banking institutions, particularly to similarly named institutions in which customers do not always understand the legal distinctions between the holding company and the bank.<sup>5</sup>

In general, BHCs do not have as many options as banks do for managing their assets and liabilities. Therefore, the liquidity-risk profile of BHCs is generally higher than the risk profile of their subsidiary banks. Another consideration is the ability of BHC management to quickly change the liquidity profile of

5. See the Federal Reserve's *Bank Holding Company Supervision Manual*, sections 2010.1, 2080.0, 2080.1, 2080.2, 2080.4, 2080.5, 2080.6, 4010.0, 4010.1, 4010.2, 5010.27, and 5010.28 for in-depth information on liquidity-risk management for BHCs. The manual also discusses legal and regulatory restrictions on the flow of funds between BHCs and their subsidiaries.

the company by issuing or repurchasing stock, paying dividends, or investing in subsidiaries. The board of directors and senior management of the parent company should establish a clear strategic direction for the level of liquidity that should be maintained at the parent level; this strategy should include liquidity provisions for its subsidiary banks in times of stress.

Bank holding company liquidity should be maintained at levels sufficient to fund holding company and nonbank affiliate operations for an extended period of time in a stress environment—when access to normal funding sources is disrupted—without having a negative impact on insured depository institution subsidiaries. The stability, flexibility, and diversity of primary and contingent sources of funding liquidity should be identified not just at the subsidiary bank but also at the parent level. The impact of bank holding company liquidity and the composition of liquidity sources on the bank's access to the funding markets should be considered carefully.

BHCs should have comprehensive liquidity and liquidity-risk management processes to adequately address their mismatch, market, and contingent liquidity risks. A CFP is an important element of these processes. The CFP should be tailored to the specific business mix and liquidity-risk profile of the BHC. Strategies devised to address potential contingent liquidity situations may include limiting parent company funding of long-term assets and securing reliable, long-term backup funding sources. Backup funding contracts should be reviewed to determine the extent to which any “material adverse change clauses” would constrain the company's access to funding if the company's financial condition deteriorated. A common stress test used by many multibank holding companies is to analyze whether the holding company has adequate liquidity to meet its potential debt obligations and cover operating expenses over the next 12 months, assuming that the firm loses access to funding markets and dividends from subsidiaries.

Many of the sound liquidity-risk management practices advanced in this guidance for banks and BHCs are applicable to U.S. branches or agencies of foreign banking organizations (FBOs). However, several unique liquidity considerations apply to these entities. The Federal Reserve's *Examination Manual for U.S. Branches and Agencies of Foreign Banking Organizations* provides detailed guidance on

supervisory expectations for the management of liquidity risk at these entities.<sup>6</sup>

## 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.

6. See sections 3200 through 3330, *Examination Manual for U.S. Branches and Agencies of Foreign Banking Organizations*, Board of Governors of the Federal Reserve System.

## 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 market-

ability 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 previously: 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).<sup>7</sup> The assessment of the adequacy of liquidity-risk management should

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

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. 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.
- *Commercial Bank Examination Manual*, Board of Governors of the Federal Reserve System.
- “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.



1. To appropriately risk-focus the scope of the examination (that is, ensure that the scope is appropriate, given the institution's activities and the risks they present).
2. To assess the relative volatility or stability of the institution's liability funding sources.
3. To assess the institution's access to liquidity.
4. To assess the institution's potential liquidity needs.
5. To assess (1) the institution's exposure to mismatched risk under normal business conditions and (2) its planned strategies for addressing this risk.
6. To assess the institution's exposure to contingent liquidity risk.
7. To assess the appropriateness and integrity of the institution's corporate-governance policies for management of liquidity risk.
8. To determine whether the institution's policies, procedures, and limits are adequate, given its size, complexity, and sophistication.
9. To determine if management is adequately planning for intermediate-term and longer-term liquidity or funding needs.
10. To assess the adequacy of the institution's liquidity-risk measurement systems.
11. To assess the adequacy of the institution's liquidity-risk management information systems.
12. To assess the adequacy of the institution's contingency funding plans.
13. To assess the adequacy of the institution's internal controls for its liquidity-risk management process.
14. To determine whether the institution is complying with applicable laws and regulations.

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## EXAMINATION SCOPE

1. Review the following documents to identify issues that may require follow-up:
  - a. prior examination findings and workpapers
  - b. audit reports, and
  - c. ongoing monitoring risk assessments (if available)
2. Review appropriate surveillance material, including the Uniform Bank Performance Report (UBPR), BHC Performance Report, and other reports, to identify liquidity trends and the liquidity-risk profile of the institution. This review should include assessments of the marketability of assets and the relative stability or volatility of funding sources.
3. Request and review internal reports management uses to monitor liquidity risk, including the following reports:
  - a. senior management, asset/liability committee (ALCO), and for the board of directors' meetings
  - b. cash-flow-projection reports
  - c. contingency funding plans (CFPs)
  - d. funding-concentration reports
4. Request and review organizational charts and liquidity-risk management policies and procedures.
5. Review the potential liquidity-risk exposure arising from the financial condition of the institution or other trends, such as asset growth, asset quality, earnings trends, capital adequacy, market-risk exposures (interest-rate risk (IRR) exposures for both the banking book and the trading book), business-line operational considerations, and the potential for legal and reputational risk.

On the basis of the hypothesis developed for both the institution's inherent liquidity-risk exposure and the adequacy of its liquidity management, select the steps necessary to meet examination objectives from the following procedures.

## ASSESSMENT OF INHERENT LIQUIDITY RISK

1. Review the institution's deposit structure.

Discuss the following issues with management: the institution's customer base, costs, and pricing strategies, as well as the stability of various types of deposits. This review should include—

- a. assumptions about deposit behaviors the institution uses in making its cash-flow projections and in conducting its IRR analyses;
  - b. the competitiveness of rates paid on deposits, from both a national and local-market-area perspective;
  - c. lists of large depositors, potential deposit concentrations, and large deposit maturities;
  - d. the institution's use of brokered deposits and deposits from entities that may be especially sensitive to market rates and credit quality; and
  - e. public fund deposits, including pledging requirements and pricing policies.
2. Review the institution's use of nondeposit liabilities. Discuss with management its strategies for employing such funds, the sensitivity of such funds to market rates, and the credit quality of the institution. This review should include—
    - a. the types, costs, amounts, and concentrations of nondeposit liabilities used by the institution;
    - b. the strategies underlying the use of any Federal Home Loan Bank (FHLB) advances and the specific features of those borrowings, including the existence of any options, to determine if the institution adequately understands the risk profile of these borrowings;
    - c. the activities the institution funds with nondeposit liabilities;
    - d. the institution's use of short-term liabilities; and
    - e. compliance with the written agreements for borrowings.
  3. Review the institution's holdings of marketable assets as liquidity reserves. This review should include—
    - a. the quality, maturity, marketability, and amount of unpledged investment securities;
    - b. pledgable and securitizable loans and existing activities in this area; and
    - c. a discussion with management on its

- strategies for maintaining liquid asset reserves.
4. When applicable, review the institution's access to debt markets as a source of liquidity. This review should include—
    - a. the strength of current short- and longer-term debt ratings, including an assessment of the potential for “watch-listing” or downgrades;
    - b. the breadth of the investor base for the company's debt;
    - c. current and future issuance plans;
    - d. concentrations of borrowed funds;
    - e. the availability to utilize FHLB or other wholesale funds providers; and
    - f. the institution's reputation in the capital markets and with major funds providers.
  5. Review the institution's business activities that may have a significant impact on its liquidity needs. This review should include—
    - a. the institution's ability to securitize assets and the amount of its current and anticipated securitization activities;
    - b. payments- or securities-processing activities and other activities that may heighten the impact of operational risk on the liquidity of the firm;
    - c. the amount and nature of trading and over-the-counter (OTC) derivative activities that may have an impact on liquidity;
    - d. the extent of off-balance-sheet (OBS) loan commitments;
    - e. the balance-sheet composition, including significant concentrations that may have an impact on liquidity; and
    - f. operational risks associated with the institution's business activities, risks inherent in the corporate structure, or external factors that may have an impact on liquidity.
  6. Review the institution's cash-flow projections.
  7. Discuss with management the institution's strategies for dealing with seasonal, cyclical, and planned asset-growth funding strategies, including its assessment of alternative funding sources.
  8. Review and discuss with management the institution's identification of potential contingent liquidity events and the various levels of stress those events entail. Determine if the chosen scenarios are appropriate, given the institution's business activities and funding structure.
  9. Review cash-flow projections the institution has constructed for selected contingent liquidity events. Review the assumptions underlying the projections, including sources of funds to be used in a contingent liquidity event and the reports and assumptions on behavioral cash flows.
  10. Review the assumptions and trends in the institution's liquidity-risk “triggers.”
  11. Review CFPs.
  12. When appropriate, review reports on liquidity-risk triggers in the institution's securitization activities.
  13. On the basis of the above procedures, determine if the institution's inherent liquidity risk is low, limited, moderate, considerable, or high.

### ASSESSMENT OF THE QUALITY OF LIQUIDITY-RISK MANAGEMENT

1. Review formally adopted policies and procedures, as well as reports to the board of directors and senior management, to determine the adequacy of their oversight. This review should include whether the board and senior management—
  - a. have identified lines of authority and responsibility;
  - b. have articulated the institution's general liquidity strategies and its approach to liquidity risk;
  - c. understand the institution's liquidity CFPs; and
  - d. periodically review the institution's liquidity-risk profile.
2. Review senior management structures in order to determine their adequacy for overseeing and managing the institution's liquidity. This review should include—
  - a. whether the institution has designated an ALCO or other management decision-making body;
  - b. the frequency of ALCO meetings and the adequacy of the reports presented;
  - c. decisions made by the ALCO and validation of follow-up on those decisions, including ongoing assessment of open issues;
  - d. the technical and managerial expertise of management and personnel involved in liquidity management; and

- e. whether the institution has clearly delineated centralized and decentralized liquidity-management responsibilities.
3. Review and discuss with management the institution's liquidity-risk policies, procedures, and limits, and determine their appropriateness, comprehensiveness, and accuracy. Policies, procedures, and limits should—
  - a. identify the objectives and strategies of the institution's liquidity management and its expected and preferred reliance on various sources of funds to meet liquidity needs under alternative scenarios;
  - b. delineate clear lines of responsibility and accountability over liquidity-risk management and management decision-making;
  - c. be consistent with institution practices;
  - d. identify the process for setting and reassessing limits, and communicate the rationale for the limit structure;
  - e. specify quantitative limits and guidelines that define the acceptable level of risk for the institution, such as the use of maximum and targeted amounts of cash-flow mismatches, liquidity reserves, volatile liabilities, and funding concentrations;
  - f. specify the frequency and methods used to measure, monitor, and control liquidity risk; and
  - g. define the specific procedures and approvals necessary for exceptions to policies, limits, and authorizations.
4. Review and discuss with management the bank's budget projections for the appropriate planning period. Ascertain if management has adequately—
  - a. planned the future direction of the bank, noting the projected growth, the source of funding for the growth, and any projected changes in its asset or liability mix;
  - b. developed future plans for meeting ongoing liquidity needs; and
  - c. assessed the reasonableness of its plans to achieve (1) the amounts and types of funding projected and (2) the amounts and types of asset growth projected.

Determine if management has identified alternative sources of funds if plans are not met.
5. Review the reasonableness of bank-established parameters for the use of volatile liabilities.
6. Review liquidity-risk measurement policies, procedures, methodologies, models, assumptions, and other documentation. Discuss with management the—
  - a. adequacy and comprehensiveness of cash-flow projections and supporting analysis used to manage liquidity;
  - b. appropriateness of summary measures and ratios to adequately reflect the liquidity-risk profile of the institution;
  - c. appropriateness of the identification of stable and volatile sources of funding;
  - d. comprehensiveness of alternative contingent liquidity scenarios incorporated in the ongoing estimation of liquidity needs; and
  - e. the validity and appropriateness of assumptions used in constructing liquidity-risk measures.
7. Review liquidity-risk management policies, procedures, and reports. Discuss with management the frequency and comprehensiveness of liquidity-risk reporting for the various levels of management that are responsible for monitoring and managing liquidity risk. These considerations should include the following:
  - a. management's need to receive reports that—
    - determine compliance with limits and controls;
    - evaluate the results of past strategies;
    - assess the potential risks and returns of proposed strategies;
    - identify the major changes in a bank's liquidity-risk profile; and
    - consolidate holding company and bank subsidiary information.
  - b. the need for the reporting system to be flexible enough to—
    - quickly collect and edit data, summarize results, and adapt to changing circumstances or issues without compromising data integrity; and
    - increase the frequency of report preparation as business conditions deteriorate.
  - c. the need for reports to properly focus on monitoring liquidity and supporting decisionmaking. These reports often help bank management to monitor—
    - sources and uses of cash flows (i.e., cash flows from operating, investing,

- and financing activities), facilitating the evaluation of trends and structural balance-sheet changes;
- CFPs;
  - projected cash-flow or maturity gaps, identifying potential future liquidity needs (reports should show projections using both contractual principal and interest runoffs and maturities (original maturity dates) and behavioral principal and interest runoffs and maturities (maturities attributable to the expected behaviors of customers));
  - consolidated large funds providers, identifying customer concentrations (reports should identify and aggregate major liability instruments used by large customers across all banks in the holding company); and
  - the cost of funds from all significant funding sources, enabling management to quickly compare costs.
8. Review the liquidity CFP and the minutes of ALCO meetings and board meetings. Discuss with management the adequacy of the institution's—
    - a. customization of its CFP to fit its liquidity-risk profile;
    - b. identification of potential stress events and the various levels of stress that can occur under those events;
    - c. quantitative assessment of its short-term and intermediate-term funding needs during stress events, particularly the reasonableness of the assumptions the institution used to forecast its potential liquidity needs;
    - d. comprehensiveness in forecasting cash flows under stress conditions (forecasts should incorporate OBS and payment systems and the operational implications of cash-flow forecasts);
    - e. identification of potential sources of liquidity under stress events;
    - f. operating policies and procedures, including the delineation of responsibilities, to be implemented in stress events, for communicating with various stakeholders;
    - g. prioritization of actions for responding to stress situations;
    - h. identification and use of contingent liquidity-risk triggers to monitor, on an ongoing basis, the potential for contin-
  - gent liquidity events; and
    - i. testing of the operational elements of the CFP.
  9. Determine whether the board and senior management have established clear lines of authority and responsibility for monitoring adherence to policies, procedures, and limits. Review policies, procedures, and reports to ascertain whether the institution's—
    - a. measurement system adequately captures and quantifies risk;
    - b. limits are comprehensive, appropriately defined, and communicated to management in a timely manner; and
    - c. risk reports are regularly and formally discussed by management and whether meeting minutes are adequately documented.
  10. Determine whether internal controls and information systems are adequately tested and reviewed by ascertaining if the institution's—
    - a. risk-measurement tools are accurate, independent, and reliable;
    - b. testing of controls is adequate and frequent enough, given the level of risk and sophistication of risk-management decisions; and
    - c. reports provide relevant information, including comments on major changes in risk profiles.
  11. Determine whether the liquidity-management function is audited internally or is evaluated by the risk-management function. Determine whether the audit and/or evaluation is independent and of sufficient scope.
  12. Determine whether audit findings and management responses to those findings are fully documented and tracked for adequate follow-up.
  13. Determine whether line management is held accountable for unsatisfactory or ineffective follow-up.
  14. Determine whether risk managers give identified material weaknesses appropriate and timely attention.
  15. Assess whether actions taken by management to deal with material weaknesses have been verified and reviewed for objectivity and adequacy by senior management or the board.
  16. Determine whether the board and senior management have established adequate pro-

- cedures for ensuring compliance with applicable laws and regulations.
17. Assess the institution's compliance with applicable laws and regulations as they pertain to deposit accounts.
  18. Assess the institution's compliance with laws and regulations, as well as potential risk exposures arising from interbank credit exposure.
  19. Assess the institution's compliance with regulations A, D, F, and W; statutory restrictions on the use of brokered deposits; and legal restrictions on dividends. Assess whether CFPs comply with these regulations and restrictions.
  20. On the basis of the above procedures, determine whether the quality of the institution's liquidity-risk management is unsatisfactory, marginal, fair, satisfactory, or strong.



Review the bank's internal controls, policies, practices, and procedures for managing funding liquidity risk. The bank's system should be documented completely and concisely and should include, when appropriate, narrative descriptions, flow charts, copies of forms used, and other pertinent information.

1. Has the board of directors, consistent with its duties and responsibilities, reviewed and ratified funds-management policies, practices, and procedures that include—
  - a. clear lines of authority, responsibility, and accountability for liquidity-risk management decisions?
  - b. an articulated general liquidity strategy and approach to liquidity-risk management?
  - c. the review and approval of policies, including liquidity contingency funding plans?
  - d. the specific procedures and approvals necessary for exceptions to policies, limits, and authorizations?
  - e. established procedures for ensuring compliance with applicable laws and regulations?
2. Does senior management provide adequate oversight to manage the institution's liquidity risk?
  - a. Has senior management established clear lines of authority and responsibility for monitoring adherence to policies, procedures, and limits?
  - b. Are clear lines of responsibility and accountability delineated over liquidity-risk management and management decisionmaking?
  - c. Is there a designated asset/liability committee (ALCO) or other management decisionmaking body in which liquidity risk is appropriately discussed? Does the institution have a separate liquidity-risk management function?
  - d. Is the frequency of ALCO meetings appropriate, and are the reports presented at meetings adequate?
  - e. Does management regularly and formally discuss risk reports, and are meeting minutes and decisions adequately documented?
  - f. Is the technical and managerial expertise
- of management and personnel involved in liquidity management appropriate for the institution?
- g. Are senior management's centralized and decentralized liquidity-management responsibilities clearly delineated?
3. Are the institution's policies, procedures, and limits for liquidity risk appropriate and sufficiently comprehensive to adequately control the range of liquidity risk for the level of the institution's activity?
  - a. Do the policies and procedures identify the objectives and strategies of the institution's liquidity management, and do they include the institution's expected and preferred reliance on various sources of funds to meet liquidity needs under alternative scenarios?
  - b. Are policies and procedures consistent with institution practices?
  - c. Are the limits comprehensive and appropriately defined for the institution's level of activity? Are limit exceptions communicated to management in a timely manner?
  - d. Is there a formal process for setting, reassessing, and communicating the rationale for the limit structure?
  - e. Do quantitative limits and guidelines define the acceptable level of risk for the institution (i.e., maximum and targeted amounts of cash-flow mismatches, liquidity reserves, volatile liabilities, funding concentrations, etc.)?
  - f. Are the frequency and methods used to measure, monitor, and control liquidity risk specified?
4. Are liquidity-risk measurement methodologies, models, assumptions, and reports, as well as other liquidity-risk management documentation, sufficiently adequate, comprehensive, and appropriate?
  - a. Is liquidity-risk management involved in the financial institution's new-product discussions?
  - b. Has the institution developed future growth plans and ongoing funding needs, and the sources of funding to meet those needs?
  - c. Has the institution developed alternative sources of funds to be used if its future plans are not met?
  - d. Does management adequately utilize com-

- prehensive cash-flow projections and supporting analysis in order to manage the institution's liquidity?
- e. Does the institution utilize appropriate summary measures and ratios that adequately reflect its liquidity-risk profile?
  - f. Do the above reports provide relevant information, including comments on major changes in risk profiles?
  - g. Does the planning and budgeting function consider liquidity requirements?
  - h. Are internal management reports concerning liquidity needs and sources of funds to meet those needs prepared regularly and reviewed, as appropriate, by senior management and the board of directors?
5. Does an independent party regularly review and evaluate the components of the liquidity-risk management function?
- a. Is the liquidity-risk management function audited internally, or is it evaluated by the risk-management function? Are the audit and/or evaluation of the liquidity-risk management process and controls independent and of sufficient scope?
  - b. Are audit findings and management responses to those findings fully documented and tracked for adequate follow-up?
- c. Do the internal controls and internal audit reviews ensure compliance with internal liquidity-management policies and procedures?
  - d. Is line management held accountable for unsatisfactory or ineffective follow-up?
  - e. Do risk managers give identified material weaknesses appropriate and timely attention? Are their actions verified and reviewed for objectivity and adequacy by senior management or the board?
6. Are internal controls and information systems adequately tested and reviewed?
- a. Are risk-measurement tools accurate, independent, and reliable?
  - b. Is the frequency for the testing of controls adequate, given the level of risk and sophistication of risk-management decisions?
7. On the basis of a composite evaluation, as evidenced by answers to the foregoing questions, are the internal controls and internal audit procedures considered adequate?

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.<sup>1</sup>

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

1. 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.

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 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.

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
<i>Customer-driven cash flows</i>								
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								
<i>Management-controlled cash flows</i>								
Investment securities								
Repos, FFP, & other short-term borrowings								
FHLB & other borrowings								
Committed lines								
Uncommitted lines								
Other								
Subtotal								
Net cash-flow gap								
Cumulative position								

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 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 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



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

<i>Potential outflows/funding erosion</i>	<i>Day 1</i>	<i>Day 2</i>	<i>Days 3–7</i>	<i>Week 2</i>	<i>Week 3</i>	<i>Week 4</i>	<i>Month 2</i>	<i>Months 2+</i>
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								
<i>Off-balance-sheet funding requirements</i>								
Loan commitments								
Amortizing securitizations								
Out-of-the-money derivatives								
Backup lines								
Total potential outflows								
<i>Potential sources to cover outflows</i>								
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								

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

<i>Events:</i>	<i>Current</i>	<i>Ratings downgrade</i>	<i>Earnings</i>	<i>Reputation</i>	<i>Other (?)</i>
<i>Scenarios:</i>		<i>1 cate-</i>	<i>BBB</i>	<i>RoA = ?</i>	
<i>Potential funding erosion</i>		<i>gory</i>	<i>to BB</i>		
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	—	—	—	—	—
<i>Off-balance-sheet needs</i>					
Letters of credit	—	—	—	—	—
Loan commitments	—	—	—	—	—
Securitizations	—	—	—	—	—
Derivatives	—	—	—	—	—
Total OBS items	—	—	—	—	—
Total funding erosion	—	—	—	—	—
<i>Sources of funds</i>					
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)

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

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.

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.<sup>2</sup>

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.

2. 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.

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.

*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 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

## Exhibit 5—General Characteristics of Stable and Volatile Liabilities

<i>Types of funds providers</i>	<i>Characteristics of funds providers that affect the stability/volatility of the funds provided</i>				
	<i>Fiduciary agent or own funds</i>	<i>Insured or secured</i>	<i>Reliance on public information</i>	<i>Relationship</i>	<i>Stability assessment</i>
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	—	—	—	—	—

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 obviously 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.<sup>3</sup> 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,

3. 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.

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 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 puttable 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*<sup>4</sup> (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

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.

4. See section 3010.1.

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, non-stable 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.<sup>5</sup> (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 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,

5. 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.

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 sum-

marize 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 liabilities 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—

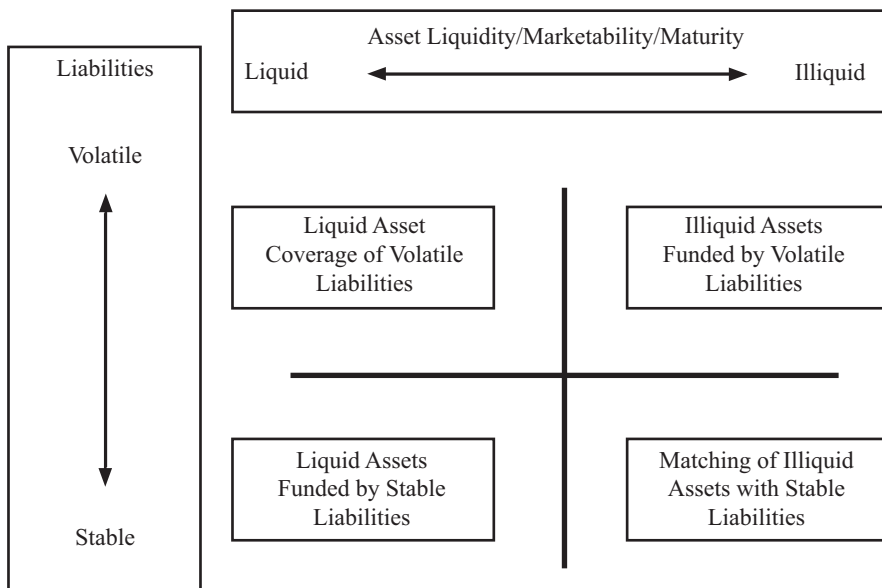
- net short-term liabilities (short-term liabilities minus short-term assets) as a percent of total assets;
- stable deposits as a percent of total assets;
- total purchased funds as a percent of total assets;
- uncollateralized borrowings as a percent of total assets; and
- liquid assets as a percent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

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



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 liquid-

ity 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-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

Because of their unique liquidity-risk profile, bank holding companies (BHCs) confront some different liquidity-risk management issues than do banks. BHCs cannot accept deposits, purchase fed funds, or borrow from the discount window; as a result, they are more reliant than banks on more-credit-sensitive wholesale funding sources. Accordingly, BHCs depend on different sources of funds and have a higher liquidity-risk profile than that of banks. The nature of this risk profile depends greatly on the size and complexity of the firm. Small one-bank

shell holding companies face significantly simpler liquidity-risk profiles than do multibank holding companies and those with nonbank subsidiaries.

The flow of funds between a BHC and its subsidiaries introduces challenges for liquidity managers at both the bank and the BHC. For example, BHCs may place cash with their bank subsidiaries. These cash deposits may represent the temporary placement of idle funds, or they may constitute a more permanent source of bank funding. In the latter case, the cash deposits may not be a ready source of liquidity for the BHC. As a result, liquidity managers at both the bank and the BHC level should fully assess the ability of the subsidiary bank to replace the funds in the marketplace through other sources if such deposits are required by the BHC.

A BHC may also have loans or debt outstanding to its subsidiaries, which may have an impact on the parent company’s liquidity profile. A large, negative net short-term position may result if these loans cannot be repaid readily by the subsidiaries in the event of liquidity needs at the holding company. A subsidiary may be unable to readily repay loans or debt from its parent if it does not have adequate sources of alternative liquidity or if the repayment of the loan would breach regulatory requirements or covenants between the subsidiary and other lenders.

BHCs may enter into sweep agreements with the customers of a nonbank subsidiary to invest those customers’ excess funds on an overnight basis, and those funds are usually placed with an insured depository institution subsidiary. In view of the extremely short-term maturity of this funding source, care should be taken to invest the proceeds in short-term, highly liquid, readily marketable assets. Use of sweep-account proceeds to finance longer-term assets may lead to serious liquidity mismatches that compromise safety and soundness.

Liquidity support for the BHC may be available from nonbank subsidiaries of the BHC. Nonbank subsidiaries may have fewer regulatory restrictions on “upstreaming” dividends to their parent companies. Nonetheless, they may also have significant creditor restrictions or limited liquidity available to upstream.

Commercial paper issuances are often important sources of funding liquidity for BHCs. Commercial paper (CP) is a short-term, fixed-maturity, unsecured promissory note issued in the public markets as an obligation of the

issuer. The rate of interest paid on CP generally tracks the rates paid on other money market instruments. Most CP is issued with maturities of less than 270 days, the threshold under which SEC registration is not required. Most investors limit purchases of CP to rated or high-quality paper. A superior CP rating depends in part on the adequacy of the issuer's short-term liquidity. To obtain a superior rating, an issuer may need to obtain credit support to guarantee payment. Credit support generally takes the form of a letter of credit or the collateralization of the CP issuance with high-quality assets. The costs of providing this credit support, including the opportunity costs of pledging high-quality assets, should be considered in determining the cost-effectiveness of this source of funding liquidity.

CP proceeds are used by BHCs to fund a variety of activities. However, care must be taken to ensure CP and other short-term debt are not used to fund long-term assets, corporate dividends, or current expenses. Maintaining a high CP rating is important, as CP investors are credit-sensitive. Losing access to the CP market can seriously compromise the funding of the operations of the BHC, given its limited sources of alternative liquidity. BHCs should endeavor to ensure that the distribution of their CP is as broad as possible so that the failure of one holder to continue to participate in the CP program does not place the company in a liquidity squeeze, thus forcing the BHC to resort to more-drastic and expensive funding sources.

Liquidity managers and supervisors should monitor the extent to which a BHC's CP program is supported by backup lines of credit from unaffiliated banks to cover any unexpected CP runoff. Commitments for lines of credit should be in writing, and the impact of any "material adverse change clauses" or restrictive covenants should be considered carefully. Lines of credit should be structured to be immediately available in the event that access to the CP markets is interrupted. Owing to the potential for contagion effects between the BHC and bank subsidiaries, BHCs' frequent or extended use of backup lines of credit for liquidity purposes may unintentionally compromise perceptions of the safety and soundness of the subsidiary bank(s)—a particular concern if the bank does not have a significant source of stable liabilities. Holding companies may look to backup lines of credit as an ultimate source of liquidity. In such

cases, market perception is critical for accessing backup lines. The drawdown of a liquidity facility may be a signal to the market that the company is facing funding difficulties throughout the consolidated organization and could raise questions about the funding stability of its banks. These concerns can be ameliorated to the extent that the subsidiary banks are largely core-funded. Conversely, if the subsidiary banks do not have ample sources of stable funds, the parent company's reliance on backup lines may be misplaced.

### *A. Liquidity Measurement for BHCs*

Cash-flow projections under alternative scenarios are critical liquidity measures at all levels within a complex BHC structure, such as a multibank holding company or a firm with nonbank subsidiaries. In addition, several types of liquidity measures discussed in the previous sections can be adapted for use at the BHC level—particularly measures of the concentration of funding sources and needs based on the marketability of assets or the relative stability of liabilities. However, as a result of the unique funding structure and liquidity-risk profile of BHCs, liquidity-risk managers, supervisors, rating agencies, and other parties often use summary measures customized for BHCs. The importance of debt ratings to institutions that have publicly rated debt issuances means liquidity managers at such institutions should be fully knowledgeable of the measures rating agencies use to assess the liquidity of the holding company and its subsidiaries.

One common type of summary measure used in analyzing holding company liquidity is the evaluation of the company's ability to self-fund its cash obligations for a minimum period of one year. The excess of liquid assets over potential cash demands (net short-term position) expressed as a percentage of consolidated earnings is one such measure. It provides insights as to the extent to which a deficiency could be addressed by upstreamed dividends from subsidiaries to the parent. In such analyses, regulatory and creditor limitations on dividend payments from subsidiaries must be taken fully into consideration. The liquid-assets component of this measure includes cash and deposits in banks, securities (net of haircuts), and interest income and fees generated at the holding company. Liquid assets may be adjusted to

include dividends from nonbank subsidiaries that are not subject to regulatory or creditor limitations and are reasonably expected to be paid within the year. Cash demands include all short-term debt, the portion of long-term debt maturing within one year, and all operating expenses at the holding company. Cash demands are netted against the holding company's unpledged liquid assets to arrive at a net short-term position. This net short-term position is then compared with the net income generated on a consolidated basis, in order to provide a rough indication of the scope of any potential liquidity shortfall. If the ratio is positive, it indicates that a sale of the holding company's liquid assets would be sufficient to meet its cash demands over the next year. If the ratio is negative, potential cash demands outstrip liquid assets, and the holding company may have to develop a strategic plan to address the potential liquidity shortfall.

Other common types of measures used to assess the liquidity of BHCs are fixed-charge-coverage ratios. The fixed-charge-coverage ratio measures the parent holding company's ability to pay its fixed contractual obligations to creditors (including the payment of taxes) and preferred stockholders. The ratio is calculated as after-tax income, plus an add-back of interest and lease expense (already deducted from after-tax income), as a percentage of fixed contractual obligations to creditors and preferred stockholders. The common-stock cash-dividend-coverage ratio measures the ability of the parent to continue to pay cash dividends. It is calculated as after-tax income minus fixed contractual obligations as a percentage of the common-stock-dividend payout. Coverage ratios in excess of 1:1 are critical for both of these ratios.

Declining trends in these and other liquidity ratios may signal a need for the company to curtail common-stock dividends or take other action to bolster liquidity. Supervisors should be aware that BHCs may bolster these ratios through increasing the dividends paid by subsidiaries. While subsidiary dividends are an important component of earnings for many BHCs, dividends upstreamed from an insured institution's subsidiary should be reasonable and prudent in light of the subsidiary's financial condition and capital position. If dividends from an insured institution's subsidiary are deemed excessive in light of the subsidiary's resources,

a written program of corrective action may be required.

## 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.