Comptroller of the Currency
Administrator of National Banks

Funds Management

Comptroller's Handbook (Section 405)

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Liquidity and Funds Management

Funds Management (Section 405)

Table of Contents

Funds Management (Section 405) Introduction

Funds management represents the core of sound financial planning. Although it is not a new concept, practices, techniques, and norms have been revised substantially in recent years. Funds management is the process of managing balance sheet and off-balance sheet instruments to maximize and maintain the spread between interest earned and paid while ensuring the bank's ability to pay off liabilities and fund asset growth. Therefore, a bank's funds management practices will affect earnings and liquidity.

A sound basis for evaluating funds management is by understanding the bank, the customer mix, the asset liability composition, and the economic and competitive environment. The adequacy of policies, procedures, and management information systems must be determined, and the effect of funds management practices on liquidity and interest rate risk analyzed. Liquidity risk is related to, but substantially different from, interest rate risk. Liquidity risk arises from mismatching the maturities of assets and liabilities. Interest rate risk arises from mismatching the repricing of assets and liabilities. Both risks may be increased by rumored or existing asset quality deterioration. Poor asset quality will introduce maturity mismatches through assets failing to pay off as agreed, or repricing mismatches through the borrower's inability to pay higher rates on variable rate loans. Rumored asset problems may cause a run on deposits, which, in turn, will result in both maturity and price mismatches.

Liquidity

Liquidity represents the ability to accommodate decreases in deposits and other purchased liabilities, and fund increases in assets. Funds must be available at reasonable prices relative to competitors, and in maturities required to support prudently medium to longer term assets. Liquidity is essential in all banks to compensate for expected and unexpected balance sheet fluctuations and to provide funds for growth.

The cost of liquidity is a function of market conditions and the degree of risk, both interest and credit, reflected in the bank's balance sheet. If liquidity needs are met through holdings of high quality liquid assets, the cost becomes the income sacrificed by not holding higher yielding long term and/or lower quality assets. If liquidity needs are not met through liquid asset holdings, a bank may

be forced to acquire additional funds under adverse market conditions at excessively high rates. In large banks, however, maturing assets or their liquidation do not provide assured liquidity continuously. In those banks, asset liquidity is supplemented by the ability to roll over maturing liabilities and acquire new ones daily.

Brokered deposits are one example of acquired liquidity. Such deposits are placed by money brokers with banks offering the highest rates. Often these are problem banks that are in need of liquidity but can least afford the higher interest expense. A bank's reliance on those funds should be investigated.

The adequacy of a bank's liquidity will vary from bank to bank. In the same bank, at different times, similar liquidity positions may be adequate or inadequate depending on anticipated need for funds. In addition, a liquidity position that is adequate for one bank may be insufficient for another bank. Determining the adequacy of a bank's liquidity position depends upon an analysis of the bank's:

- Present and anticipated asset quality.
- Present and future earnings capacity.
- Historical funding requirements.
- Current liquidity position.
- Anticipated future funding needs.
- Options for reducing funding needs or attracting additional funds.
- Sources of funds.

To provide funds to satisfy liquidity needs, a bank must perform one or a combination of the following:

- Dispose of liquid assets.
- Increase short-term borrowing (and/or issue additional short- term deposit liabilities).
- Decrease holdings of nonliquid assets.
- Increase liabilities of a term nature.
- Increase capital funds.

Forecasting future events is essential to liquidity planning. Management must consider the effect those events are likely to have on funding requirements. If

management does not consider future events and plan the bank's funding strategy accordingly, the bank will be run by the dictates of the economy rather than by management. All banks are affected by changes in the economic climate. However, sound financial management can buffer negative changes and accentuate positive ones.

Information that management should consider in liquidity planning includes:

- Economic forecasts.
- Internal costs of funds.
- Mismatches in the balance sheet.
- Interest rate forecasts.
- Anticipated funding needs.

Management also must have contingency plans in case its projections are wrong. Effective contingency planning involves identifying minimum and maximum liquidity needs and weighing alternative courses of action designed to meet them.

Contingencies that may affect a bank's liquidity include:

- New business opportunities.
- Acquisitions.
- New management.
- Earnings decline.
- Nonperforming asset increase.
- Downgrading by a rating agency.

Once liquidity needs have been determined, management must decide how to meet them through such methods as asset management, liability management, or a combination of both.

Asset Management

Liquidity needs may be met by manipulating the bank's asset structure through the sale or planned runoff of a reserve of readily marketable (liquid) assets. Many banks, particularly the smaller ones, tend to have little influence over the size of their total liabilities. Such banks rely on liquid assets to fund increases in trade area loan demand. Banks which rely solely on asset management

concentrate on adjusting the price and availability of credit, and the level of liquid assets held in response to changes in customer asset and liability preferences.

The amount of liquid assets a bank should hold depends on the stability of its deposit structure and the potential for rapid loan portfolio expansion. Generally, if deposit accounts are composed primarily of small stable accounts, a relatively low allowance for liquidity is necessary. A higher allowance for liquidity is required when:

- Recent trends show substantial reduction in large accounts.
- Substantial deposits are short-term municipal special assessment-type accounts.
- A substantial portion of the loan portfolio consists of large static loans with little likelihood of reduction.
- Large unused lines of credit or commitments to lend are expected to be used immediately.
- Concentration of credits have been extended to an industry with present or anticipated financial problems.
- A strong relationship exists between individual demand accounts and principal employers in the trade area who have financial problems.

Asset liquidity, or how "salable" the bank's assets are in terms of both time and cost, is of primary importance in asset management. Liquid assets provide insurance as well as yield. To maximize profitability, management must carefully weigh the full return on liquid assets (yield plus insurance value) against the higher return associated with less liquid assets. Income derived from higher yielding assets may be offset if a forced sale is necessary because of adverse balance sheet fluctuations.

Assets normally assumed to be liquid, sometimes are not easily liquidated. For example, investment securities may be pledged against public funds and repurchase agreements, or may be depreciated heavily because of interest rate changes. Trading accounts cannot be reduced materially because banks must maintain adequate inventories.

Seasonal, cyclical, or other factors may often cause aggregate outstanding loans and deposits to move in opposite directions and result in loan demand which exceeds available deposit funds. A bank relying strictly on asset management

would restrict loan growth to that which could be supported by available deposit funds. As an alternative, liquidity needs may be met through liability sources, such as federal funds purchased, borrowings from the Federal Reserve bank, purchased deposits (i.e., brokered deposits), and sale of securities under agreements to repurchase, which would allow the bank to meet the loan demand of its trade area. The decision whether or not to use liability sources should be based on a complete analysis of seasonal, cyclical, and other factors, and the costs involved. In addition to supplementing asset liquidity, liability sources of liquidity may serve as an alternative even when asset sources are available.

The number of banks relying solely on manipulation of the asset structure to meet liquidity needs is declining rapidly.

Liability Management

Liquidity needs can be met through the discretionary acquisition of funds on the basis of interest rate competition. This does not preclude the option of selling assets to meet needs, and, conceptually, the availability of asset and liability options should result in a lower liquidity maintenance cost. The alternative costs of available discretionary liabilities can be compared to the opportunity cost of selling various assets. The major difference between liquidity in larger banks, as contrasted with smaller banks, is that in addition to deliberately designing the composition of the asset side of the balance sheet, larger banks are better able to control the level and composition of their liabilities. When funds are required, larger banks have a wider variety of options from which to select the least costly method of generating funds. In addition, discretionary access to the money market should reduce the size of the liquid asset "buffer" that would be needed if the bank were solely dependent upon asset management to obtain funds.

The ability to obtain additional liabilities represents liquidity potential. The marginal cost of liquidity, the cost of incremental funds acquired, is of paramount importance in evaluating liability sources of liquidity. Consideration must be given to such factors as the frequency with which the bank must regularly refinance maturing purchased liabilities, as well as an estimate of the bank's ability to obtain funds in the money market. The obvious difficulty in estimating the latter is that, until the bank goes to the market to borrow, it cannot be determined with complete certainty that funds will be available at a price that will maintain positive yield spread. Changes in money market

conditions may cause a rapid deterioration in a bank's capacity to borrow at a profitable rate. In this context, liquidity represents the ability to attract funds in the market when needed, at a reasonable cost.

As previously noted, large bank's access to discretionary funding sources is a function of their position and reputation in the money markets. Although smaller institutions do not have a "name" in those markets, they are not precluded from liability management. The scope and volume of their operations is, however, somewhat limited.

Although the acquisition of funds at a competitive cost has enabled many banks to meet expanding customer loan demand, misuse or improper implementation of liability management can have severe consequences. Examiners should be aware of the following risks associated with the practice of liability management:

- Purchased funds may not always be available when needed. If the market loses confidence in a bank, that bank's liquidity may be threatened.
- Concentrations in funding sources increase liquidity risk. A bank relying heavily on foreign interbank deposits will experience funding problems if overseas markets perceive instability in U.S. banks or its economy. Replacing foreign sources will be difficult and costly because the domestic market may view the bank's sudden need for funds as a danger signal.
- Over-reliance on liability management may cause a tendency to minimize holdings of short-term securities, relax asset liquidity standards, and result in a large concentration of short-term liabilities supporting assets of longer maturity During times of tight money, this could cause an earnings squeeze and an illiquid condition. Funds employed from liability management should be hedged or placed principally in assets with matching maturities or which have flexible interest rates.
- Due to rate competition, funding costs may increase. In an attempt to offset the increase, a bank may lower credit standards to invest in higher yielding loans and securities. If a bank is purchasing liabilities to support assets that are already on its books, an increase in the cost of purchased funds may result in a negative yield spread.
- When national monetary tightness occurs, interest rate discrimination may develop, making the cost of purchased funds prohibitive to all but a small number of money center banks. Therefore, banks with limited funding sources should avoid using funds purchased in the national market and

should rely upon their local market.
- Preoccupation with obtaining funds at the lowest possible cost, without considering maturity distribution, greatly intensifies a bank's exposure to the risk of interest rate fluctuations.

In all banks, and particularly in wholesale-funded ones, management must be aware constantly of the composition and characteristics of its funding sources.

Real or rumored deterioration in the financial condition of a bank because of asset quality, fraud, or external economic developments will affect wholesale funding adversely. The extent of that reaction depends on the bank's funding sources and their risk tolerance.

Factors affecting risk tolerance of funds providers include their:

- Obligations to fiduciary investors, such as money market funds, trust funds, and pensions.
- Reliance on rating firms. Bylaws or internal guidelines may prohibit placing funds in banks that have low ratings.
- Obligations to disclose information on investment holdings.
- Self-interest in maintaining an orderly marketplace. For this reason, major banks are slow in eliminating funding to other banks.
- Lack of a personal contact at the bank to provide timely and accurate information about its financial condition.

The following common-funds providers are ranked from the least to the most risk tolerant:

- Money market funds.
- Trust funds.
- Pension funds.
- Money market brokers/dealers.
- Regional banks.
- Government agencies.
- Community banks.
- Multinational banks.
- Individuals.

Interest Rate Risk

Interest rate risk arises from the impact that future interest rates will have on a bank's reported earnings and the market value of its portfolio equity.

The risk to a bank's reported earnings arises from a bank's historic cost business and any positions carried on a market valuation basis. Changes in interest rates will effect reported earnings through changes in net interest income and the market value of trading accounts or assets held for resale carried on a market valuation basis.

The risk to the market value of portfolio equity arises primarily from a bank's long-term, fixed rate positions. The value of a fixed rate instrument varies with interest rates. For example, a five-year, fixed rate bond will decline in value if interest rates rise, and a bond with a longer maturity will decline even more with the same rate change. In the same way, the underlying value of a bank can change when interest rates change, and a bank with unmatched, long-term, fixed rate positions is exposed to a sustained adverse interest rate movement. Although these positions may not pose a risk to near term reported earnings due to historic cost accounting conventions, they can expose the bank to substantial interest rate risk and, over time, result in lower reported earnings or general underperformance of the market.

Risk to reported earnings is often referred to as accounting exposure and the risk to market value of portfolio equity as economic exposure. Both exposures are important and should be considered in assessing interest rate risk. The impact on earnings is significant because of the liquidity and capital adequacy consequences that reduced earnings or losses might imply. The impact on market value is significant because it is a measure of an institution's true capital solvency and a reflection of the net value of a bank upon liquidation or forced sale. This perspective is particularly relevant for regulators because negative changes in the market value of portfolio equity can be a leading indicator of future earnings' problems. In addition, the market value also reflects the true liquidity of bank assets since the cost of selling depreciated assets to meet liquidity needs may be prohibitive.

The deregulation of deposit rates, the introduction of more complex financial products, and increased competitive pressures have accentuated the need for prudent management of interest rate exposures. The margin for error in funds management and pricing decisions has been reduced, and the need for the

board and senior management to adopt policies addressing interest rate risk and to implement adequate risk measurement and reporting systems has increased. Components of prudent interest rate risk management include policy statements, risk limits, risk measurement systems, and reports to management and the bank's board of directors.

Specific strategies adopted by banks to compensate for the changing environment include:

- The expansion of variable rate lending.
- The shortening of maturities in the investment portfolio.
- The generation of fees from the packaging and sale of fixed rate, longer term loans.
- The use of interest rate futures, swaps, and other products to hedge against fluctuations in interest rates when an imbalance exists in a bank's rate sensitivity position. (A discussion of financial futures is contained in the Introduction to the Investment Securities section of the handbook, 203.1)
- The development of sources of fee/noninterest income.
- Asset securitization.

When evaluating a bank's interest rate risk exposure, examiners should consider both the level of risk and the quality of risk management. Examiners should base their assessments on a review of policies and operating limits, management structure and practices, risk measurement systems, and the reported and perceived level of risk exposure.

Risk Limits

Repricing imbalances pose various risks to net interest income. A liability sensitive bank is at a disadvantage when interest rates are rising since it will be more costly to fund liabilities which are supporting fixed rate assets. It is difficult to adjust a liability sensitive position to achieve a balanced one without suffering a loss of business. A bank has limited control over the volume of its fixed rate liabilities. Therefore, to achieve balance would likely require a runoff of rate-sensitive liabilities and a reduction in fixed rate, long- term loans or securities supported by those liabilities. This may be difficult since rising rates would indicate the likelihood of a capital loss from the sale of fixed rate assets.

A proper balance between rate sensitive assets and rate sensitive liabilities should help minimize the effect on earnings caused by adverse movement in interest rates. The larger the imbalance, the greater the risk the bank is assuming, and the greater the impact of an adverse rate movement. To control risk, limits should be established for the risk to earnings arising from mismatches between the repricing of assets, liabilities, and off-balance sheet contracts carried on an historic cost basis. Since these "gap" mismatches create exposure to net interest income, limits on gaps are best expressed in terms of net interest income at risk.

Risk limits should also address risk to earnings arising from positions that are carried on a market valuation basis (mark- to-market or lower-of-cost-or-market). This includes trading positions and assets held for resale. Limits on these positions may be expressed in term of the risk to market values.

Limits on earnings exposure should consider potential adverse changes in interest rates rather than anticipated rate movements. Anticipated rate movements may indicate management's expectation of what is likely to happen. Risk limits are designed to control what may happen if outcomes deviate from expectations.

Banks with unmatched, long-term, fixed rate positions are exposed to a sustained adverse interest rate movement. It is premature to expect banks to quantify and limit the risk to the market value of portfolio equity arising from these positions. Banks that have such positions, however, should evaluate and limit the severity of these exposures. Typically, these positions arise from mortgage and investment portfolios that are funded short-term.

Rate Risk Measurement Systems

There is wide variation in the techniques used by banks to measure and manage their interest rate exposure, and no one technique is appropriate for all banks. The adequacy of risk measurement systems and the extent of reviews performed to determine management's ability to monitor exposure will depend on the bank's size, complexity, and level of interest rate risk assumption. For example, a community bank without significant interest rate exposure might rely on a simple gap report to measure its exposure. A bank that engages heavily in mortgage lending may need a more sophisticated system that captures prepayment risk on fixed rate mortgages. A market valuation assessment may be

more valuable in large banks, banks experiencing liquidity problems, or banks with a relatively large volume of long-term, fixed rate assets or liabilities. In general, the risk measurement technique(s) used should capture a bank's significant sources of interest rate exposure.

Gap Reports

The most common tool used to measure rate sensitivity is a point-in-time maturity ladder (gap) report. Gap reports typically are used to measure risk to net interest income arising from instruments carried at historic cost. Differences in the repricing dates of assets, liabilities, and off-balance sheet contracts are a primary component of risk to net interest income. A typical gap report stratifies all current and contracted positions by their respective repricing date. By netting the gross balances, a net repricing imbalance in each time frame is determined. These imbalances indicate the sensitivity of net interest income to a change in interest rates. The amount of risk depends on the size of the repricing imbalances, how long the imbalances remain open, and potential movements in interest rates.

Net positions in each time frame may be expressed as assets less liabilities, as liabilities less assets, or as the ratio between rate sensitive assets (RSA) and rate sensitive liabilities (RSL). For example, a short funded position (liabilities repricing before assets) would be expressed as a net negative position when period gaps are computed by subtracting repricing liabilities from repricing assets. When using the ratio method, a RSA/RSL ratio of 1 indicates a balanced position and a ratio greater than 1 an asset sensitive bank. A ratio less than 1 indicates a liability sensitive bank.

Many banks, rather than relating repricing imbalances to net interest income at risk, simply limit the size of their gaps. For example, a bank may limit the ratio of rate sensitive assets to rate sensitive liabilities to given range, such .90 to 1.10. Such limits, by themselves, do not directly identify earnings exposure. A bank that uses such limits, probably made some assumptions about the relationship between gaps and earnings when it established those limits. Expressing limits in terms of net interest income at risk makes those assumptions explicit. Examiners should encourage banks using gap reports to express limits in terms of the account at risk, net interest income.

Gap reports provide a measurement of net interest income at risk and indicate the timing of that risk. They are particularly useful in identifying sources of risk

arising from the existing assets, liabilities, and off-balance sheet contracts of a bank.

Gap reports are subject to limitations, however. Indeed, maintaining a balanced position for all time periods in a gap report does not ensure that the bank is immune to interest rate risk. The following cause this apparent contradiction and are the limitations inherent in most gap reports:

- Interest rates do not always move in tandem. For example, when interest rates are moving upward, the prime rate will often lag the federal funds and CD rates. The divergence in interest rate movements is referred to as basis risk. A bank that funds a prime-based loan with a short-term CD might not show any exposure for this position in its gap report since both instruments have short maturities. The bank could suffer a decline in earnings, however, if the CD rate has increased at the repricing date but the prime rate has not changed.

- Significant risk may be hidden in the repricing time frames of the gap report. A bank's gap report may show a balanced position for a 90-day period. However, interest rate risk may be significant if most assets reprice at the beginning of the period, most liabilities reprice at the end of the period, and interest rates decrease at the beginning of the period.

- Many retail banking products incorporate options features, which are often referred to as embedded options. Examples of these include prepayments on fixed rate loans, caps on floating rate loans, and early withdrawal rights on deposits. The repricing dates for products with options will vary with interest rates. For example, fixed rate mortgages typically will prepay faster in lower interest rate environments. Embedded options generally work in favor of the customer and against the bank. When prevalent, options can pose significant risk to net interest income, but their effects are not easily incorporated into a gap report. To capture these exposures, some banks will prepare a series of gap reports for different levels of interest rates. A gap report for a low rate environment may show shorter maturities for mortgage loans, reflecting higher prepayments, while under a high rate environment, mortgage maturities would lengthen, and floating rate loans subject to caps would be shown as fixed rate assets.

- Gap reports depict the existing structure of the bank at one point in time.

Exposures arising from new business generally are not captured.

- Repriceable investments/funds may roll off at rates significantly different from current rates. This can cause a change in earnings even if the bank has a balanced gap position. To aid in the assessment of this reinvestment risk, some banks will show the rates associated with the repricing volumes in their gap reports.

Many assets and liabilities have repricing dates that are unspecified (are not clearly established in the contract or are not otherwise readily determinable). Examples of such instruments include demand deposits, savings accounts, and credit cards. As noted earlier, the repricing dates for products with embedded options will vary depending on future interest rates. To stratify these balances, management must make informed estimates regarding their effective repricing dates. An analysis of a gap report must include a review of management's assumptions on how these balances are stratified.

To address the limitations of gap reports, banks often complement gap reports with simulation models.

Simulation Models

Simulation models analyze interest rate risk in a forward- looking or dynamic context. They are used to evaluate the risk arising from both the bank's current positions and its forecasted future business. Typically, simulation runs are performed only over a fairly short time horizon (up to two years) because the confidence in interest rate and business forecasts is less beyond the short-term horizon.

The focus of most simulation models is risk to net interest income, although many models may also be able to assess changes in the book value of capital and the market values of portfolio equity or other specific instruments. Risk to net interest income is measured by projecting the future composition of the bank and applying different interest rates scenarios. Conceptually, the greater the variation of future net interest income under various rate scenarios, the higher the indicated level of interest rate risk at the bank. Simulation models can also test the effect of different business strategies on a bank's risk profile and provide a useful link between business planning and risk management. Simulation can be used to evaluate alternative balance sheet and off-balance sheet strategies.

Simulation models allow greater versatility in dealing with some of the assumptions underlying gap-based risk measurements.

For example, gap measurements assume a one-time shift in interest rates while simulation models handle varied interest rate paths and variations in yield curve shapes. Basis risk can be evaluated by varying spreads between the various indices the bank uses to price its products. The impact of caps, prepayment rights, and other options can be evaluated by more sophisticated models.

While offering greater versatility, simulations may provide a less objective indicator of a bank's existing risk position by introducing more assumptions on future business. Changes in the target account (net interest income) arise from predicted balance sheet changes as well as predicted interest rate changes. In addition, because simulation projections are usually limited to a one- or two-year time horizon, significant longer term exposures often are not captured. It is these longer term exposures, however, that can pose the greatest threat to a bank's capital and its market value of portfolio equity. For these reasons, simulation is best supplemented by measurement systems that isolate the risk inherent in the bank's existing balance sheet position and which capture the risk from longer term repricing imbalances.

Simulation models are data and assumption intensive. Examiners should assess the integrity of data input, the reasonableness of forecasts and assumptions regarding future interest rates and volumes, and the quality and reliability of output. Examiners also must ascertain whether management has a detailed understanding of the design to the model, particularly when it has been purchased from an outside vendor.

Market Valuation Models

Most gap and simulation models were designed to assess the rate sensitivity of future net interest income rather than to measure the sensitivity of market values to rate movements. Techniques that measure market value sensitivity are useful because they capture exposures across the full maturity spectrum of the bank. Market value sensitivity systems are often based on duration analysis. Most commonly they are used by larger banks to establish earnings at risk limits for trading positions.

The duration concept was proposed by Frederick Macaulay in 1938 to measure the timing of a bond's cash flow. This measure was later modified to express the price sensitivity of a bond to a given change in interest rates; this is known as "modified duration." When interest rates increase, the market value of a fixed income instrument will decline. Modified duration indicates by how much. For example, if a bond has a modified duration of five, its value will decline roughly 5 percent if interest rates increase one percentage point.

Under the accounting perspective, duration can be used to measure risk arising from instruments carried on a market valuation basis. The duration of a portfolio of fixed income contracts is calculated by adding together the weighted durations of the individual contracts. The duration of the portfolio indicates the risk to earnings arising from that position if interest rates move adversely.

Some banks are exploring the use of duration to measure the sensitivity of the market value of portfolio equity to changes in interest rates. While often complex to calculate, conceptually, the duration of equity is derived by calculating the durations of assets, liabilities, and off-balance sheet contracts. The duration of equity indicates whether the market value of portfolio equity will increase or decrease with a change in rates. A bank with long-term assets funded by shorter term liabilities will generally have a positive duration of equity. The market value of its portfolio equity will decline if interest rates increase. Conversely, a bank with short-term assets funded with long-term liabilities will generally have a negative duration of equity. The market value of its portfolio equity will decline if interest rates decline. In general, the higher the duration of equity, the more sensitive the market value of portfolio equity to changes in rates.

Duration can be useful for setting risk limits on trading accounts at larger banks. In the past, many banks limited the earnings risk arising from trading portfolios with simple position limits, usually based on maturity. This provided only an indirect limit on exposure, and limits based on duration can be an improvement.

Duration is one way to measure the sensitivity of the market value of portfolio equity to changes in interest rates. The calculations and assumptions required for this measurement, however, are substantial. In addition, there are some technical limitations to duration. Duration accurately measures changes in

market value only for small changes in rates, and the duration of contracts with different cash flows evolve at different rates with the passage of time. Due to these limitations, duration as a tool to measure economic exposure is generally found only at the larger regional and multinational banks.

A more detailed discussion of the nature and measurement of interest rate risk can be found in the "Interest Rate Risk" section of the "Multinational Source Book," distributed by the Multinational Banking Department.

Interest Rate Swaps

An interest rate swap is a contract between two parties that provides for the exchange of a series of cash flows. It may be used to reduce interest rate risk created by unwanted repricing mismatches between assets and liabilities. The two parties exchange a series of cash flows usually representing fixed and floating rate interest payments. Swaps are also done with both parties exchanging floating rates based on different indexes.

Hedging

In a fixed for variable interest rate swap, the party with fixed rate assets funded by variable rate liabilities literally "swaps" its liability payment stream with that of a counterparty who may be borrowing at fixed rates to fund floating rate assets. The floating rate received from the counterparty can be used to pay for the first party's variable rate liabilities. In return, the first party pays the counterparty a fixed rate cash flow, which is used by the counterparty to pay its fixed rate liabilities. As a result, both parties are able to lock in a spread between their asset and liability cash flows, limiting or eliminating each party's interest rate risk.

In addition to hedging the spread between asset and liability cash flows, interest rate swaps can also be used to obtain lower funding costs than would otherwise be available to one of the parties through normal funding sources. Due to global geographic location and differences in perceived credit strength, each swap party may have access to funding at different costs. The incentive to enter into a swap may occur when one party, who because of its size or credit standing, has access to relatively low cost, fixed rate funds but seeks a floating rate obligation, while the other, with access to floating rate funds, seeks fixed rate funds. The parties divide the difference of the funding cost advantage of the

first party through their contractual agreement.

The analysis upon which the adequacy of a swap hedge is determined is often based on the bank's current asset/liability structure. However, subsequent changes in the market environment can cause changes in the bank's balance sheet. If interest rates fall, fixed rate loans are often refinanced, and the funds received from these prepayments must be reinvested at the current, lower yields. If the bank has entered into a swap hedge in which it pays fixed rate liabilities, the prepayments will cause the spread between asset yields and funding costs to narrow. With the cash side of the hedge declining, the swap position leaves the hedging bank once again exposed to interest rate risks. Loan prepayment penalties can help reduce the prepayment's impact on the spread. However, in practice, prepayment penalties rarely are enforced. Before entering into a swap contract used as a hedge, management must conduct a thorough analysis of its asset/liability structure and base the amount and terms of the swap on the particular prepayment and repricing characteristics of its assets and liabilities. This kind of hedge analysis should continue over the life of a swap.

Speculation versus Hedging

Although most interest rate swaps are employed to offset an undesirable rate or maturity mismatch, they can also be used to speculate. Swaps can be initiated, or assumed in the secondary market, with no requirement for offsetting bank assets or liabilities. If interest rates move favorably for the speculator, the swap will increase in value and can be sold at a premium in the secondary market. In addition, a bank may enter a swap originally to reduce interest rate risk but later sell the swap at a premium when interest rates change. If the offsetting asset or liability is not simultaneously disposed of, a bank selling its swap position at a gain may be increasing interest rate risk in order to increase current income. Speculative use of swap contracts by banks that do not act as dealers in swaps should be criticized.

Credit Risks and Controls

An interest rate swap does not involve any transfer of principal. However, the parties establish a principal amount upon which they will base the exchange of cash flows. This amount is referred to as the "Notional Principal" amount since it is the notional or theoretical principal amount of the interest rate swap. The terms of a swap agreement usually call for the exchange of interest payment

streams on an annual, semiannual, or quarterly basis. Because the transaction is based entirely on an exchange of interest payments, the credit exposure is, therefore, limited to the parties' respective swap payments. Losses may result to a bank swap participant when a counterparty owing a swap payment defaults. In a hedging situation, if either party becomes insolvent, declares bankruptcy, or merely refuses to honor the swap agreement, the counterparty may have to enter the market to acquire another swap or other funding sources at increased costs. Bankruptcy of one party may not absolve the counterparty of its required performance, i.e., one party may be unable to perform while the other party may still be compelled to do so. This type of risk is usually reduced by a contractual agreement between each party to offset its obligation against the payment stream to be received from the counterparty. The International Swap Dealers Association, Inc. has developed a universal interest rate swap contract that incorporates the offsetting payment stream provision, as well as other standardized terms and conditions. Although the universal contract can be altered to fit terms unique to a particular swap deal, the standardization has helped promote a secondary market for swaps.

To minimize swap credit exposure, each bank should ensure that the counterparty possesses the financial strength and liquidity to meet its obligations. Bank swap participants should conduct initial and periodic credit analyses on swap counterparties. This analysis and related approvals should be done by persons who normally make credit judgments and not by individuals involved in arranging swap deals. Swap exposures and all other types of credit exposure to the same counterparty should be consolidated and reviewed to control bank-wide exposure to single a counterparty.

Credit Limits

Limits under 12 USC 84 do not apply to swaps. However, this limitation may be used as a prudential guideline. Credit limits for one counterparty should be determined by reviewing the potential magnitude of adverse payment increases that could be expected over the life of the swap. One method to analyze risk is to base risk exposure calculations on a possible 2 percent to 5 percent change in interest rates per year over the life of the swap. Thus, a bank with a 10-year swap using 3 percent per year as potential exposure would consider its maximum potential exposure to be 30 percent of the notional principal amount. In this example, if 30 percent of the swap to one counterparty combined with other credit exposures to the same counterparty exceeds 15 percent of capital

and surplus (e.g., the lending limit), exposure to that entity should be considered excessive.

Credit Concentrations

As with all types of credit exposure, bank management should also monitor risk diversification in swaps. Concentrations of credit risk in swaps with one counterparty, or concentration risk with counterparties in one or related industries, are potentially unavoidable because of the large size of most swaps and the limited number of swap market participants. For example, if swaps are concentrated with counterparties in the same industry, and 30 percent of the aggregate of such swap exposures combined with other credit exposures to the same counterparties exceeds 25 percent of capital and surplus, exposure to these groups should be pointed out as a concentration of risk.

Bank's Status: Intermediary vs Principal

If either party to a swap is unwilling to accept the credit of a potential swap counterparty or cannot locate a counterparty, a third party may stand between the two swap participants. This intermediary assumes the risks of both participants by signing similar swap agreements with each party. Under this structure, each counterparty deals solely with the intermediary and does not know the identity of the other party. The intermediary is compensated by taking a small fraction of the swap payments.

Infrequently, swap intermediaries may act in an agent capacity, merely introducing swap counterparties. An intermediary that acts as an agent must ensure that it limits its liabilities by providing each counterparty with disclosures that clarify its obligations to the counterparties. To be considered an agent, a bank intermediary must disclose its fee, state that it has no liability for swap payments, and provide the name of the counterparty. Failure to make such disclosures will cause the bank to be viewed as a principal.

Collateralizing a Swap

In certain instances, the bank may be asked to pledge collateral to provide remedy to the swap counterparty in the event of default. Collateral is most often sought by swap participants when they doubt strongly the ability of the counterparty to meet the terms of the swap. Banks are usually asked to pledge collateral when they experience significant problems and when they can least

afford to do so.

The collateral requirements are normally a function of term, the negotiated fixed rate, and the forecast of future rates. U.S. government or federal agency securities are usually the requested form of collateral. Generally, a national bank should not pledge its most liquid assets to collateralize any off- balance sheet contractual arrangements, such as interest rate swaps, because this type of long term encumbrance of a bank's most liquid assets impairs asset liquidity and limits bank management's flexibility. Collateral agreements of this type should be avoided.

Acceptable collateralization systems require both parties to establish maintenance margin accounts. Maintenance margin payment amounts are ascertained by using a model or formula to determine net exposure of the swap market values. The formulas should be reviewed periodically to ensure that they do not require more collateral than normally would be justified by market exposure. Initial margin should not be required unless it is based on market risk.

Swaps with Nonbank Bank Holding Company Affiliates

Nonbank affiliates, such as mortgage banking or leasing subsidiaries, may benefit from the use of swaps as a hedging tool, and holding company management may try to take advantage of the lead bank's credit standing by arranging a swap between the nonbank subsidiary and the lead bank acting as a principal intermediary with another counterparty. Since the bank is acting as principal intermediary, the nonbank affiliate is able to use the bank's credit standing to obtain a swap with better payment terms than it would have received had it had to obtain a swap in the open market. In this situation, if the nonbank affiliate cannot honor its obligations to the bank, the bank acting as intermediary must continue to pay its swap obligations. Thus, the affiliate's swap obligations become the bank's liability. Although it has not been determined that swaps are covered transactions under 12 USC 371(c), as a prudential matter, the limitations of 12 USC 371 (c) for covered transactions should be applied to the estimated exposure on swaps between banks and nonbank affiliates.

Managerial Systems of Control

The board of directors should consider any plan to engage in swap activities and should endorse specific written policies and procedures in authorizing these activities. Policy objectives should be specific enough to outline permissible swap strategies and their relationships to other banking activities. The policy should also establish gross dollar limits and exposure limits for swaps and limits per counterparty. The board of directors, a duly authorized committee thereof, or the bank's internal auditors should review all outstanding swap positions periodically and ensure that these limits are not exceeded. Appropriate committee minutes should document in detail how the swap positions taken contribute to attaining the bank's stated objectives. Recordkeeping systems must be sufficiently detailed to permit internal auditors and examiners to determine whether operating personnel have acted in accordance with authorized objectives.

Recordkeeping

Intermediaries and/or market makers should maintain records of their matched books or open swap positions. Such reports should display the gains and losses in the offsetting and open positions, the net and gross positions and exposure estimates for each swap use, position, or counterparty, overall product profitability, and a trial balance of the swap positions.
End users should have reports which list the swap notional principal amounts, accrued income and expense, identify the cash positions being hedged, and detail the correlation and effectiveness of the hedge.

All banks involved in swaps should retain records of the initial and periodic credit approval of counterparties, documentation deficiencies including the types of errors and the timeliness of their correction, payment delinquencies, and swap positions incorporated into bank-wide funds management reports. Swaps should be reported in the general ledger contingent accounts, as well as in Call Report Schedule RC-L. Reports showing net interest income and expense accruals to the next swap payment date should also be maintained.

Securitization of Assets

Securitization is the pooling of assets with similar characteristics into a standard format for sale to investors.

Securitization can provide benefits to banks and the banking system by liquefying bank assets, providing more flexibility for managing various types of

risk, and generating fee and spread income. By using publicly traded securities to access different sectors of the capital markets, securitization can be used to improve a bank's liquidity. Securitizing bank assets may be a very attractive form of alternative funding for traditional banking activities.

Financial institutions have been securitizing residential mortgage loans for almost two decades. Since the mid 1980's, this activity has expanded to include virtually every type of consumer receivable on a bank's balance sheet. To a limited extent, commercial loans have also been securitized.

Most banking activities now considered part of the process of securitizing bank loans are refinements of, or logical extensions to, traditional banking functions. Banks may play one or more of several distinct roles in the process:

- Lender. Banks extend credit to customers.
- Packager. An independent party or a division of the selling bank segregates loans into a separate trust or special-purpose subsidiary in order to sell and remove the loans from the books of the originating bank. The packager, in conjunction with a financial advisor or underwriter, also structures the security's maturity, coupon/rate, payment terms, etc., to meet market place demands.
- Trustee. The trust is managed by a trustee who is required to work for the best interests of bondholders in accordance with the terms of the indenture governing the trust.
- Servicer. Often the originating bank, the servicer collects scheduled principal and interest payments, principal prepayments, payments under escrow arrangements, and is responsible for collecting on delinquent accounts. The servicer usually remits payments to the trustee for ultimate payment to investors.
- Credit Enhancer. The majority of asset securitization programs for consumer and commercial loans involve some type of a limited guaranty by the selling bank or by an independent third party. As credit enhancers, banks usually provide letters of credit to third party originators, or they provide recourse to investors in support of their own asset-backed securities.
- Underwriter. Banks may distribute bonds to investors and advise the packager on the terms of the securitization and the trust indenture. At this time, the legal ability of a bank to perform this function is still being decided in the courts.
- Investor. Banks purchasing securitized assets receive pro rata ownership

rights to loans in the pool and are entitled to payments from the cash flow generated by the underlying assets.

In this process, banks can play individual or multiple roles. However, it is OCC policy that banks may not act as trustee in conjunction with other described capacities because this presents an unmanageable conflict of interest. The conflict arises because the bank will not be able to demonstrate that it has exercised unbiased due diligence.

With regard to the sale of assets with recourse, Regulatory Accounting Principles contrast sharply with Generally Accepted Accounting Principles. With the exception of certain agricultural loans and residential mortgages, a transaction will be regarded as a borrowing and not a sale for Call Report purposes if the purchaser has any recourse to the selling bank's current earnings, capital, or assets. Regardless of accounting classification, risk based capital rules will require capital to be retained for those assets sold with recourse.

Less flexibility in collection practices will surely flow from the securitization process. Investors will expect asset-backed securities to perform according to terms. If a bank routinely buys back distressed credits to protect its name in the capital markets or to provide workout credit restructuring to borrowers, this may result in financing treatment for all of the "sold" loans and the need for additional capital, revised financial statements, and significant increases in loan loss reserves. As a result, lenders may become less flexible with problem credit workouts, and troubled borrower situations may more often end in bankruptcy proceedings. This poses serious problems for community banks participating in the securitization process.

Because this is a rapidly evolving area, and because of the need to have a coordinated regulatory response to emerging issues, interested parties should contact the OCC's Investment Securities Division for further information.

Interest Rate Ceiling Agreements

An interest rate ceiling agreement sets a cap on the customer's borrowing rate for a specified time period. The agreement protects the customer when interest rates rise above the cap. The cap is compared periodically, usually quarterly or semi- annually, to the actual average rate of an interest rate index, such as London Interbank Offered Rate (LIBOR), prime rate, secondary market

certificate of deposit rate, or Eurodollar rates. If the interest rate index rises above the cap rate, the customer is compensated for the difference by a reduced borrowing rate or a cash settlement. If the index rate falls below the cap rate, a payment is not required from either party. The customer has ensured that the effective future interest expense will not be higher than the cap rate but has retained the flexibility to benefit from interest rate declines.

Agreements are written generally for 6 to 36 months and may extend as long as 10 years. The contract rates may be quoted on a forward basis, effective less than 30 months from the date of the quote. The customer pays an up-front, non-refundable fee of approximately 1 percent per annum. The fee is computed on the notional (principal equivalent) amount of the contract.

Agreements carry high potential risks if not properly controlled. To minimize risks, the bank's policies and procedures should address:

- Transactional costs. In pricing an agreement, the bank should consider those costs, which may be significant as a result of hedging requirements.
- Interest rate risk. The bank should determine how it will reduce/manage the interest rate risk exposure that results from outstanding agreements.
- Asset-liability management. The bank should relate agreement activity to its overall asset-liability management objectives.
- Monitoring. The bank should establish limits on outstanding agreements and implement procedures for frequent comparisons of those limits to outstandings.

Pricing of Assets

Conclusions drawn from the analysis of the bank's interest rate sensitivity position rest upon the assumption that the bank has an adequate asset pricing mechanism. A pricing mechanism that is not attuned to the bank's cost of funds, overhead costs, credit risk, and a reasonable return to shareholders will not allow the bank to maintain an adequate net interest margin on an ongoing basis. Pricing methods and interest rate sensitivity are interdependent factors when an examiner is assessing the bank's ability to maximize and maintain the spread between interest earned and interest paid.

The major component of pricing is the cost of funds. Bankers generally price from either the average cost of funds or their marginal cost. The average cost of

funds is a weighted average of all of the rates paid on interest bearing liabilities, which is easily understood, computed, and applied. However, in periods of rising interest rates and/or shifts in the bank's liability structure toward higher cost funding sources, it results in a cost estimate that is too low. The marginal cost of funds is defined as the cost of the additional funds needed to support asset growth. That cost is considered the more appropriate method economically since funds on the balance sheet already support assets held, and their cost should not enter into the pricing decision for new assets.

Funds Management Policy Guidelines

As more banks are attracting funds on a cost competitive basis, the need for properly supervised funds management policies increases. The board of directors has ultimate responsibility for the institutional exposure to interest rate risk and should establish overall strategic policy and adopt constraints on the level of risk assumed. A good policy should generally provide for forward planning which considers the unique characteristics of the bank, management goals regarding asset and liability mix, desired earnings, and margins necessary to achieve desired earnings. Forward planning should also anticipate funding needs and the means available to meet those needs. The policy should establish responsibility for funds management decisions and provide a mechanism for the necessary coordination between the different departments of the bank. This responsibility may be assigned to an asset liability management committee (ALCO).

In addition to establishing responsibility for planning and day-to-day funds management decisions, the policy should set forth certain guidelines. Examples of some typical guidelines are:

Liquidity:

- Balance sheet ratio limits. For example, a limit on total loans/total deposits and purchased funds/total assets.
- Limits on the sources of funds, such as:
  - Concentrations in funding sources.
  - Use of broker/dealers.
  - Maximum use of a particular wholesale funding market.
- Limits on uses of funds.
- A percentage limit on the relationship between anticipated funding needs and available sources. For example, the ratio of primary sources/anticipated needs shall not fall below a certain percent. (Primary sources for meeting

funding needs should be defined.)
- Limits on the minimum/maximum average contract (not repricing dates) maturity for different categories of liabilities. For example, the average maturity of negotiable certificates of deposit shall not be less than a stated number of months.

Rate Sensitivity:
- Limits on the acceptable level of earnings at risk arising from mismatches between the repricing of assets, liabilities, and off-balance sheet contracts carried on a historic cost basis. These limits are best expressed in terms of net interest income at risk. Limits should also address the risk to earnings arising from positions that are carried on a market valuation basis. This includes trading positions and assets held for resale. Limits on these positions are best expressed in terms of the risk to market values.
- Limits on earnings exposure should consider potential adverse changes in interest rates rather than anticipated rate movements. The magnitude of an appropriate rate movement will depend on the length of time within which a bank could realistically act to close a position. This reaction time may vary from overnight for liquid trading instruments, to a year or longer for illiquid long-term positions.
- Banks with significant unmatched, long-term, fixed rate positions should evaluate and limit the severity of this exposure.

Management Information Systems

A workable management information system is central to sound funds management decisions. Reports that contain certain basic information should be prepared and reviewed regularly. Report content and format will vary from bank to bank depending on its characteristics, the funds management practices used, and the risks being measured. For example, a good management information system for assessing liquidity would contain reports that detail liquidity needs and the sources of available funds. The contracted (not repricing) maturity distribution of assets and liabilities and expected funding of commitments would prove useful in preparing this report. In contrast, reports used for interest rate risk management would focus on repricing maturity distributions rather than contractual maturities.

Report content should reflect the complexity of the bank's funds management activities. Examples of items that may be addressed in a report include:

Liquidity:

- Liability customer concentration reports that reflect total funds provided by a particular entity.
- Liability concentrations by:
  - Market segment (foreign banks, brokers, thrifts).
  - Market instrument (federal funds, Eurodollars).
  - Geographic distribution.
- Reports that track the amounts and names of wholesale funding customers and changes in the amounts of funds provided by each and the reasons why.

Rate Sensitivity:

- Asset yields, liability costs, net interest margins, and variations both from the prior month and budget. (Reports should be detailed enough to permit an analysis of the cause of interest margin variations.)
- Historical interest margin trends.
- Repricing maturity reports and, if applicable, information on interest rate caps and floors.
- Past consumer behavior patterns on products with unspecified maturities or embedded options.

General:

- Any exceptions to policy guidelines.
- Economic conditions in the bank's trade area, interest rate projections, and any anticipated deviations from original plan/budget.

Additional reports may be needed. Funds management decisions should be made on an informed basis through a good management information system.

Funds Management (Section 405) Examination Procedures

1. Complete or update the Internal Control Questionnaire, and prepare a brief description of the bank's funds management policies and practices.

2. Review the UBPR, interim financial statements, and internal management reports paying particular attention to:

   a. Asset mix and trends.

   b. Liability mix and trends.

   c. The relationship between rate sensitive assets and rate sensitive liabilities and trends.

   d. Stability of interest margins under varying economic conditions. (Causes of significant fluctuations should be identified.)

   e. The volume of liquid assets compared to total assets and volatile liabilities.

   f. Source and use of funds.

3. Review the bank's written funds management policy for reasonableness. At a minimum, it should discuss:

   a. Liquidity parameters.

   b. Source and use of funds.

   c. Acceptable levels of concentrations in funding sources.

   d. Maturities.

   e. Acceptable maturity mismatches.

   f. Whether brokered funds will be employed and, if so, to what extent.

g. Minimum levels of liquid assets.

h. Specific limits on acceptable levels of interest rate risk.

i. Contingency funding plans.

j. Whether to employ off-balance sheet interest rate contracts (financial futures, interest rate swaps).

k. Net interest margin goals.

l. Mechanisms for monitoring interest rate risk.

m. Responsibilities within the bank for funds management functions.

n. Reporting mechanisms.

In connection with performing steps 4 through 11, keep in mind the need to evaluate the effectiveness of internal management reporting systems in providing for adequate supervision of funds management.

4. Determine if management has properly planned for liquidity needs and if the bank has adequate sources of funds to meet anticipated or potential needs over the short term by:

   a. Reviewing the internal management report detailing liquidity requirements and sources of liquidity.

   b. Reviewing the minutes of the asset liability management committee or the board of directors for discussions regarding liquidity risk management.

   c. If adequate internal management reports are not available, obtaining the information needed to determine the bank's ability to meet funding needs. This analysis may be prepared for any period considered appropriate, e.g., for a 30-day period or for the next seasonal period if the bank experiences seasonal fluctuations.

   d. Preparing the analysis schedule and evaluating the bank's ability to

meet anticipated or potential needs.

e. Considering the effect of financial futures transactions on the liquidity of the investment portfolio.

f. Considering the bank's current and projected asset quality and earnings.

g. Reviewing the most recent liability-related internal management reports to determine the liability customer mix and stability.

h. Determining the retail and wholesale market acceptance of the bank's name by reviewing any changes in the types of funds providers, pricing versus the market, broker/dealer treatment, and available maturities.

5. Obtain and review for adequacy any existing contingency funding plan. An effective plan should include:

   a. An administrative section outlining the roles of key managers in a liquidity crisis.

   b. Quantification of vulnerable source funds and realistic additional funding sources or salable liquid assets.

   c. A list of probable funding strategies in vulnerable markets, and pricing and policies for early payment of term liabilities.

6. Evaluate the bank's management of its rate sensitivity position by:

   a. Obtaining and reviewing rate sensitivity reports and information used by management to monitor interest rate risk and determining:

      - If management monitors rate sensitivity through gap analysis:

        – The timeliness of the report data.

        – Whether all assets and liabilities and relevant off-balance sheet items are included. If not, ascertain management's reasons for

the exclusions.

- Whether appropriate analysis has been performed to estimate the rate maturities of instruments with noncontractual repricing dates, such as DDA, regular savings, and credit cards. Determine that management has considered seasonal fluctuations, historic volume trends, and current and expected interest rates.

- Whether reasonable prepayment assumptions were made in stratifying fixed rate mortgages.

- If management monitors rate sensitivity through simulation analysis:

  - The timeliness of the report data.

  - Whether manual manipulation of source data results in delays or potential inaccuracies.

  - The adequacy of yield curve and spread assumptions forecast by management under the separate scenarios tested, and underlying analysis of historic relationships.

  - Whether future volume scenarios are consistent with desired asset/liability growth and mix and the specific interest rate scenarios under consideration. Simulating income under several future rate scenarios requires distinct future volume assumptions for each scenario.

  - Whether the components of interest rate risk can be broken out by those arising from existing business, new business, reinvestments, and changes in spread relationships.

- If management monitors market valuation exposure:

  - How management assesses the sensitivity of the value of longer term, fixed rate instruments to future rates. If no adequate systems exist, determine the need to develop such systems, particularly if sizeable, over-one-year positions exist

or if liquidation of assets is likely to meet funding requirements.

b. For any monitoring system used, determine if critical assumptions are identified, periodically reviewed for validity, and documented.

c. If a significant imbalance exists in the bank's rate sensitivity position, determining the effect on future earnings if management's projected interest rate scenario does not materialize.

d. Determining the bank's ability to adjust its rate sensitivity position.

e. Considering the effect of financial futures transactions and other off-balance-sheet activities on the bank's rate sensitivity position.

7. If the bank is engaged in interest rate swaps, test for compliance with policies, procedures, and internal controls by performing the following examination procedures:

a. When initiating the examination, determine the nature and extent of interest rate swap activity, and assess the examination scope by:

- Reviewing policies, studies, or profiles which describe the bank's swap services and objectives.

- Determining if the bank is an end user of swaps, an intermediary, or an active market maker.

- Noting where these swap activities are originated, controlled, and recorded so that the location of the examination can be set.

- Requesting and reviewing swap reports used by the board of directors, senior management, product or strategy managers, and traders.

- Meeting with management to discuss objectives, volume, profitability, and future plans.

b. Through report review and discussion with management, determine

(1) the source of reports; (2) the number and type of automated systems; (3) the extent to which independent systems are integrated and compatible with each other so that information used in management information systems can be consolidated into a meaningful format; and (4) if only parties independent of the trading units have the authority and ability to alter software used in pricing, revaluing, and report production. Ensure that independent parties conduct month-end revaluation of swap positions. For end users of swaps, reports should include notional principal amounts, accrued income and expenses, data on the correlation, and effectiveness of the hedge. Swap reports for banks acting as intermediary should also show gains and losses in matched swaps. Obtain and review the bank's reports, including at a minimum:

- Trial balance for swaps.
- Limit and position reports for each swap use, position, or counterparty.
- Product profitability and/or hedge effectiveness reports.
- Delinquency reports.

c. Review written policies and procedures manuals to determine whether:

- Policies approve the types of swap contracts to be used, as well as the uses and specific strategies of the swaps.
- Policies adequately describe and quantify how counterparty credit and open swap position risk will be monitored. Review counterparty and strategy swap limits to determine if the board has established them in terms of exposure to capital and/or income.
- Policies specifically permit or prohibit open or unmatched positions and, if permitted, limits on these open positions.
- Bank's credit approval process calls for exposure to be reviewed by those not involved in making the swap deal and exposure to be

consolidated with all bank credit exposure to the same counterparty.

- Operational manuals, flowcharts, and other written procedures are detailed sufficiently.

- Swap revaluation is realistic, independent, and consistent.

d. Review internal and external audit reports, and determine audit deficiencies, the status of uncorrected deficiencies, and the adequacy of completed corrective action.

e. Determine the adequacy of audit coverage by:

   - Reviewing and assessing the adequacy of written internal audit procedures for swaps.

   - Evaluating whether auditors test for compliance with the procedures manual, revaluation procedures, credit analysis and limits, report content and accuracy, and documentation deficiencies, such as lack of swap contract or confirmation ticket.

   - Discussing audit procedures and findings with internal audit staff responsible for swaps audit and determining whether it possesses sufficient expertise to analyze this activity.

f. Analyze risk and profitability by reviewing budgets and strategic plans to increase swap volume, changes in strategies and/or types of transactions, and associated increases or decreases in exposure.

g. Analyze product profitability reports by reviewing swap gains and losses, and determine the source and reasons for large or unusual gains or losses. If the bank is an end user, determine the effectiveness of the hedge. If the bank conducts swaps as an intermediary, determine the profitability of its operations.

h. Determine and evaluate management procedures for monitoring limits and positions, and hedges. Management procedures for end user banks should include monitoring balance sheet composition to

determine if unwanted mismatches in the asset/liability structure have changes, making the swap hedge ineffective.

i. Evaluate risk positions by:

- Reviewing position reports and determining the size of unhedged swap positions. Determine if these positions are within approved limits and other policy provisions.

- Reviewing management models which estimate exposure under different market condition scenarios. Determine that changes in these models' formulas are properly monitored and approved by persons other than those who use or originate the model.

- Estimating profit or loss impact of possible changes in interest rate risk.

- Determining whether unhedged and hedged swap positions are incorporated into bank-wide funds management reports.

j. Determine if procedures have been established to review accruals, revaluation, invoicing, and settlement. Ensure that if the bank does not have a completed contract, that swap confirmation tickets have been obtained.

k. Verify adherence to credit approval procedures by using an appropriate sampling technique to review individual transactions, and:

- Determine if prior credit approval was given to the swap origination division by the appropriate credit analysis unit.

- Verify that swap credit exposure is consolidated and analyzed with all other types of credit exposure to the same counterparty and is properly reflected in the liability ledger or customer credit approval records.

- Ensure that the credit analysis unit has obtained a record of the swap exposure and that periodic credit approval is conducted at least annually.

l. Determine if management monitors the credit quality of the swaps portfolio by:

   - Reviewing reports that identify credit risk or internal credit ratings for swap transactions.

   - Determining overall credit quality of swaps portfolios.

m. Discuss and evaluate swap credit risk formulas, and determine whether formulas realistically estimate market loss resulting from potential default.

n. Ensure that only maintenance margin accounts are used for collateral by determining that the amount of collateral does not exceed the net amount of the swap market value payable by one participant owed between payment dates. If collateral is required, ensure that maintenance margin outlays are required by both parties.

o. Determine whether the notional principal amount of interest rate swaps are reported accurately in Call Report Schedule RC-L.

p. Determine that all swaps are posted in general ledger contingent accounts.

q. If an intermediary bank claims an agent status, ensure that it has disclosed its fee, the name of the counterparty, and stated that it has no liability for swap payments. Such disclosures must be in writing, preferably in the swap contract.

r. Evaluate accounting procedures, and determine whether income and expense recognition is appropriate.

s. Discuss with appropriate management, and prepare report comments on:

   - The soundness of objectives, strategies, policies, and procedures.

   - The level of risks assumed.

- The effectiveness of controls, reporting, and analytical systems.
- The adequacy of documentation, operations, and internal controls.

8. If the bank is engaged in interest rate ceiling agreements, determine if:

   a. Adequate policies and procedures exist.

   b. Recordkeeping systems are detailed sufficiently to determine whether operating personnel have acted according to authorized objectives.

   c. The board of directors or its designee has established limits on outstanding agreements and reviews existing contracts, at least monthly, to ascertain conformance to those limits.

   d. Current outstanding agreements are within authorized limits.

   e. The bank maintains general ledger memorandum accounts or commitment registers that detail outstanding agreements.

   f. Fee income received by the bank is accounted for properly.

   g. The bank's internal controls, management procedures, and internal audit procedures are adequate to assure adherence to policy.

9. Determine the adequacy of interest margins. If margins are inadequate, or if a declining trend is evident, determine:

   - If goals have been established for net interest earnings.
   - Management's success in meeting established goals.
   - The effect of the bank's rate sensitivity position on meeting established goals.
   - The effect of the bank's pricing policies on meeting established goals.

10. Determine if management is adequately planning for longer term,

liquidity/funding needs by:

- Discussing with management and/or reviewing budget projections for the appropriate planning period. Prepare the Projected Source and Use of Funds Statement.

- Reviewing the Projected Source and Use of Funds Statement to determine the future direction of the bank and noting the growth projected, source of funding for growth, and any projected changes in asset or liability mix.

- Evaluating the reasonableness of future plans regarding funds management.

- Ascertaining whether the bank can achieve the amounts and types of funding projected and can achieve the amounts and types of asset growth projected.

- Ascertaining whether the degree of risk associated with the bank's projected rate sensitivity position will be within reasonable limits.

11. Evaluate the effectiveness of internal management reporting system in providing for adequate supervision of funds management.

12. Determine if the bank has brokered funds. If such funds comprise a significant portion of total deposits, ascertain:

    - The extent of reliance on brokered funds for liquidity.

    - The effect on interest margins, rate sensitivity, and possible adverse impact on asset quality.

    - The cost compared to other available funding alternatives.

    - The ability to repay or replace those deposits with other sources of funds should they not be renewed.

13. Write in appropriate report format, and discuss with management general remarks on:

a. The current adequacy of liquidity and reasons for the adequacy.

b. The quality of the bank's planning to meet liquidity needs and the current ability of the bank to meet anticipated and potential liquidity needs.

c. The bank's rate sensitivity position and an assessment of the degree of risk associated with the bank's position.

d. The quality of administrative controls and internal management reporting systems.

e. The effect of funds management decisions on earnings.

Funds Management (Section 405) Internal Control Questionnaire

Discuss with senior management the bank's funds management policies and practices.

1. Has the board of directors, consistent with its duties and responsibilities, adopted a funds management policy which includes:

   - Lines of authority and responsibility for funds management decisions?
   - A formal mechanism to coordinate asset and liability decisions?
   - A method to identify liquidity needs and the means to meet those needs?
   - Requirements for the level of liquid assets and other sources of funds in relationship to anticipated and potential needs?
   - Guidelines for the level of rate sensitive assets and rate sensitive liabilities and the relationship between them?
   - Limits on the risk to earnings arising from historic cost accounts and instruments carried on a market valuation basis?

2. Does the planning and budgeting function consider liquidity and rate sensitivity?

3. Has provision been made for the preparation of internal management reports which are an adequate basis for funds management decisions and for monitoring the results of those decisions? And:

   - Are internal management reports concerning liquidity needs and source of funds to meet those needs regularly prepared and reviewed by the board of directors and senior management?
   - Are reports prepared on the bank's rate sensitivity?

- Is historical information regarding asset yields, cost of funds, and net interest margins readily available?

- Are variations in the interest margin, both from the prior reporting period and from the budget, regularly monitored?

- Is sufficient information available to permit an analysis of the cause of interest margin variations?

- Is corrective action taken when unfavorable interest margin trends are detected?

4. Is the foregoing information an adequate basis for evaluating internal control in that there are no significant additional internal auditing procedures, accounting controls, administrative controls, or other circumstances that impair any controls or mitigate any weaknesses indicated above (explain negative answers briefly, and indicate conclusions as to their effect on specific examination procedures)?

5. Based on a composite evaluation, as evidenced by answers to the foregoing questions, internal control is considered _____ (good, medium, or bad).