

Interest Rate Swaps

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SECURITIES INDUSTRY ASSOCIATION INTERNAL AUDITORS DIVISION AUDIT GUIDELINES COMMITTEE

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I. Background

Interest rate swaps are one of the most widely used financing and hedging instruments. A swap may be defined as a financial transaction in which two counterparties agree to exchange streams of payments over time. Some of these swaps require that actual principal not be exchanged either initially or at maturity, but interest rate streams of differing character are exchanged according to predetermined rules and based on an underlying notional principal amount.

The swap technique was originally linked to the Eurobond market, with overseas financial institutions and U.S. industrial corporations as the major participants. The U.S. industrial corporation was able to obtain low cost fixed rate funding by combining an interest rate swap with floating rate bank financing. The bank was able to obtain term floating rate financing also at a reduced cost.

Many variations on this base case structure have since been developed. New forms of swaps are providing greater flexibility and arbitrage potential for a growing universe of participants, including thrifts, commercial banks, insurance companies and higher quality corporate credits. Interest rate swaps have become an increasingly valuable tool in asset and liability management, enabling a company to alter the interest rate sensitivity of its balance sheet, to obtain funds that are unavailable through direct borrowing or simply to obtain a lower cost of financing.

Underlying the swap transactions seen in the market today are four basic structures which may now be considered fundamental.

These structures are the:

- Interest Rate Swap
- Currency Swap
- Currency Coupon Swap
- Basis Rate Swap

The following is a summary of these fundamental swap structures and their primary applications.

Interest Rate Swap

There are many variations of an interest rate swaps. The major categories are:

- Fixed for fixed with different payment dates
- Fixed for floating
- Floating for floating with different reset dates
- Fixed for zeros
- Floating for zeros

In this example the basic structure of an interest rate swap consists of the exchange between two counterparties of fixed rate interest for floating rate interest in the same currency, calculated by reference to a mutually agreed notional principal amount. This principal amount, which would normally equate to the underlying assets or liabilities being "swapped" by the counterparties, is applicable solely for the calculation of the interest to be exchanged under the swap. At no time is it physically passed between the counterparties. Through this straightforward swap structure, the counterparties are able to convert an underlying fixed rate asset/liability into a floating rate asset/ liability and vice versa.

The majority of interest rate swap transactions are driven by the cost savings to be obtained by each of the counterparties. These cost savings, which are often substantial, result from differentials in the credit standing of the counterparties and other structural considerations.

This may be illustrated through the following example:

Exhibit 1

Assume LIBOR Comparative is 103/4%	Comp. A	Comp. B	Comparative Advantage
Credit Rating	AAA	BBB	
Cost of Raising Direct	11.00%	12.00%	1.00%
Fixed Rate Funding			
Cost of Raising Direct Floating Rate Funds	6-month LIBOR plus 2%	6-month LIBOR plus 4%	2.00%

Company A has a AAA credit rating and is able to raise funds at a fixed rate of 11% and a floating rate of LIBOR + 2% Company B, which has a BBB credit rating may pay 12% fixed rate and a floating rate of LIBOR + 4% to raise money.

Based upon these rates, the greater comparative advantage is for Company A to raise funding.

Company A wants to borrow at a fixed rate, company B wants to borrow at a floating rate.

Company B borrows money at a fixed rate of 12% and gives the loan to Company A along with a payment of 1 1/2%. Company A borrow money at a floating rate of LIBOR plus 2% and gives the loan to company B

The cost to company A is 12% less 1 1/2% it received from Company B =10 1/2% vs. 11% if borrowed directly form the bank

The cost to Company B is LIBOR plus 2%, plus the 1 ½% Company B paid Company A= LIBOR +3 ½% vs. LIBOR +4 % if borrowed directly from the bank

A Currency Swap

A currency swap consists of the exchange between two counterparties of one currency, in return for another currency. The purpose of the currency swap is to obtain a better loan rate in the other currency's country. The interest and principal are paid back in the swapped currency The following three basic steps are common to all currency swaps:

a. Initial Exchange of Principal

On the commencement of the swap, the counterparties exchange the principal amounts of the swap at an agreed rate of exchange. The sole importance of this swap is to establish the quantum of the respective principal amounts for the purpose of (a) calculating the ongoing payments of interest and (b) the reexchange of principal amounts under the swap.

b. Ongoing Exchanges of Interest

Once the principal amounts are established, the counterparties exchange interest payments in the swapped currency based on the outstanding principal amounts at the respective fixed interest rates and in the currency agreed at the outset of the transaction.

c. Re-exchange of Principal Amounts

On the maturity date the counterparties reexchange the principal amounts established at the outset.

This straightforward, three-step process is standard practice in the swap market and results in the effective transformation of a debt raised in one currency into a fully-hedged fixed-rate liability in another currency.

A currency swap structure also allows for interest rate differentials between the two currencies via periodic payments. This enables the swap structure to be customized to fit the counterparties' exact requirements at attractive rates. For example the cash flows of an underlying bond issue may be matched exactly and invariably at much more favorable rates than those available on the foreign exchange market.

Similar to the interest rate swap, a major driving force behind the currency swap market is the cost savings it provides. The swap allows counterparties to arbitrage their relative access to markets. For example, a preferred borrower in the Swiss Franc market may obtain a better fixed US Dollar rate by raising funds directly in fixed Swiss Francs and then "swapping" them into US Dollars.

In addition to the cost advantage the currency swap market also enables entities to effectively access foreign capital markets and obtain funds in currencies which may otherwise be unobtainable except at the highest premium. In this way the swap market provides a significant contribution to the greater integration of the world's capital markets.

Currency Coupon Swap

The currency coupon swap is a combination of the interest rate swap and the currency swap. The transaction follows the three basic steps described for the currency swap with the exception that fixed rate interest in one currency is exchanged for floating rate interest in another currency.

The benefits to be obtained using the currency coupon swap structure are illustrated as follows: A US Corporation wished to enter into a major leasing contract for a capital project to be sited in the United Kingdom.

The US Corporation wanted to obtain the advantage of funding through a UK lease which provided lower lease rentals due to the UK tax advantages available to the UK lessor.

However, the US Corporation was concerned by both the currency and interest rate exposure which would result from the sterling LIBOR based leasing contract. The structure provided by the Bank enabled the US Corporation to obtain the cost benefits available from the UK lease and at the same time convert the underlying lease finance into a fully hedged fixed rate dollar liability. Under the structure the Bank paid, on a quarterly basis, the exact payments due on the US Corporation's sterling LIBOR based UK lease in return for the US Corporation paying an annual amount of fixed US Dollars to the Bank. The amount of the fixed US Dollar payable reflected the beneficial level of the US sterling lease payments. As principal, the Bank hedged this position by entering into a number of currency coupon swaps for different maturities and principal amounts to match the amortizing structure of the US Corporation's lease.

Basis Rate Swap

The structure of the basis rate swap is the same as the straight interest rate swap, with the exception that floating interest calculated on one basis is exchanged for floating interest calculated on a different basis. The forerunner of this type of swap was the US Dollar Prime Rate LIBOR swap. However, other even larger markets have developed for the exchange of 1 month US Dollar LIBOR and more recently for 6 month US Dollar LIBOR for US Dollar commercial paper.

The availability of the basis rate swap market provides an excellent method for entities to arbitrage spreads between different floating rate funding sources. More importantly, it provides a discreet and most efficient method for European entities in particular to simulate the US Commercial Paper funding market without the necessity of meeting the stringent US requirements for a Commercial Paper program. As an example, a structure intermediated by a US Bank could enabled a European Bank to obtain effective 30 day commercial paper funding by converting its 6 month US Dollar funding base into 30 day Commercial Paper, via a basis rate swap. The counterparty to the transaction could be a second European bank wishing to match its commercial paper funding program to its LIBOR asset base.

Agents and Principals

Economically, each party to the swap transaction will obtain the financing it desires at a rate lower than it could otherwise obtain. However, a third party (C) can become involved in arranging swap transactions. In some instances, the third party acts strictly as an agent or a "finder" for a fee. As an agent, the intermediary will disclose the identity of all parties involved and assume no further responsibility or risk in the transaction. For his matchmaking efforts, the intermediary will receive an accommodation fee, usually a percentage of the notional amount. If the fee is to be paid upfront, it is usually recorded as income when earned. If the fee is to be paid over the life of the swap, it should be recorded at the beginning of the swap at the discounted present value. In all cases, the fee should be considered earned at the point the deal is consummated.

In other instances, C acts as a principal [SWAP Dealer] between A and B. In these cases, C becomes a party to two offsetting swap transactions. C attempts to lock in an interest rate spread by offsetting two variable rate and two fixed rate interest streams with each usually having a positive spread for C. Generally, such an arrangement reduces C's exposure to the creditworthiness of A and B. Broker/dealers are frequently acting as principals in such arrangements, either through the broker/dealer itself or through a non-broker/dealer subsidiary. If the intermediary is subject to continued risk in the transaction, the auditor should consider the intermediary a principal in the transaction and account for it appropriately.

As a principal, C may enter into a transaction with party A, with a view to locating another party, say B, in the future to offset interest flows from A. Such a transaction is characterized as an "unmatched transaction." C may use different derivatives, such as interest rate Futures or currency Forwards to offset risk. When C finds an offsetting party to the transaction the total transaction is characterized as a "matched transaction."

When a third party acts as principal in the swap, he is accepting the responsibility for and the risk of one party defaulting. In determining if an intermediary is acting as principal or agent, one must examine the underlying agreement as well as the economic interest payments between the parties for arranging the transaction and assuming some of the risk.

As a principal, the intermediary is exposed to credit risk and must find, and most likely pay, another party to assume the commitment of the defaulting party.. It is also exposed to market risk the impact of a change in the underlying interest rate. To this extent, credit reviews should be performed on all parties involved in the swap by the intermediary.

II. Audit Procedures

The three main objectives of an audit of interest rate swaps are:

- 1. To determine the adequacy and effectiveness of controls relating to interest rate swap transactions;
- 2. To ascertain that swap transactions are properly recorded in accordance with their terms; and
- 3. To ensure that the company's financial statements and regulatory reports properly reflect, in accordance with generally accepted accounting principles, the results of interest rate swap activity.

The following considerations should be included:

- Proper identification of matched vs. unmatched transactions
- Proper accrual of interest income and expenses
- Reflect fees when earned.
- Reflect market value of all positions
- Reflect the effects of interest rate swaps in the company's net capital computation

III. Risks

An interest rate swap is a credit related transaction. As such, the principals involved in a swap assume the risks of economic loss in the event of non performance by a counterparty. Because of this, the exposure inherent in an interest rate swap is a combination of credit risk and market risk:

- a. the probability that a counterparty will default on its obligations resulting in a loss from uncollectible accrued receivables ("credit risk"); and
- the probability that, and the extent to which, market rates will move away from contracted swap rates in a direction which would cause a loss to the non defaulting party ("market risk").

The overall risk of loss to an institution entering into a swap is the probability that these two events will occur.

Additional other risks to be considered when reviewing interest rate swaps are as follows:

Liquidity Risk: The risk that a financial instrument cannot be sold quickly at full market value.

Settlement Risk: The risk that the swap terms are not clearly defined or honored, giving rise

to exposure to an offsetting swap or a purchased hedge. The risk is increased with upfront fees, delayed starts and swap options. Additionally, there is a settlement risk associated with the coupon payment for example a counterparty may fail to perform as called for in the contract.. This risk is increased where cash flows are not paid net. This would occur where the agreement does not so provide or payment dates do not coincide, i.e., quarterly versus semi-annual repricings or zero coupon arrangements.

Regulatory Risk: The risk that the regulatory rules will change making the transaction unprofitable or illegal.

Accounting & Tax Risk: The risk that the accounting and tax rules will change or be unfavorably interpreted making the transaction unprofitable. Areas of accounting concern include the possibility that Interest Rate Swaps may become balance sheet instruments (affecting ROA); mark to market versus deferral methods, gross versus net disclosure of receivables and payables, recognition of fee income, etc. The most significant tax related issue is mark to market vs. deferral methods of income recognition.

Documentation Risk: The risk that the transaction is incorrectly or not adequately documented, such that it is not enforceable in the event of a dispute with the counterparty. *Systems and Processing Risk:* The risk that the accounting, operational and management information reporting systems cannot provide accurate and timely information to meet internal and external needs.

Typically, an Interest Rate Swap system will require the same controls as any other transaction processing system. The key elements of the swap system will include:

Database of all swap transactions. Transaction Authorization.

Payment diary (tickler system). Receivable / payable ledgers.

Mark to market procedures. Custody / inventory system for hedges.

IV. Control Points

Adequate procedures and controls associated with interest rate swap transactions should exist to help minimize the risks inherent in the transaction process.

Specifically these controls include the following:

A. Market Risk

1. Policies and procedures should be in effect which set position limits regarding the swaps entered into by the firm. In addition, policies and procedures should be established on the mark to market process which should include the credit worthiness of counterparties. Limits may be set according to maturity, interest rate exposure at each maturity level and reference rate (i.e., LIBOR; CD, etc).

> There should be daily, independent monitoring of the swap positions versus preset limits, and all excesses should be approved.

- 2. Traders in swaps should be experienced. To ensure that the firm is minimizing risk due to poor traders, there should be an established recruitment policy for all traders; training and continuing education for all traders; adequate supervision of daily activities and individual limits.
- 3. All transactions should be authorized and affirmed. This includes independent confirmation of transactions (and follow-up of responses, when necessary); and tapes of all telephone transactions.
- 4. Specific management reports should be provided, including:
 - Daily mark to market reports;
 - Profitability reports (including cost of carry on hedge transactions and other net cash flows).
- 5. A daily reconciliation of traders' positions should be performed.
- 6. To minimize market risk in hedge transactions:
 - There should be independent sign off procedures for hedging models.
 - All hedge strategies should be clearly defined in the Policies & Procedures Manual.
 - All software products should be secure and tamper resistant.
- B. Credit Risk/Settlement Risk

Typical controls of credit limits include the following:

1. A credit committee should establish credit limits for counterparties based upon a review of their financial condition exposure, based upon the counterparty's industry, country and the maturity date of the swap agreement.

- 2. Provisions should be established for obtaining collateral from counterparties, especially in a deteriorating situation.
- 3. Legal contracts should contain clauses regarding netting of interest payments/ receipts; collateral, assignment of the agreement, credit enhancements and default conditions.

Controls regarding exposure to credit loss include:

- 1. An approved method of calculating average exposure at the inception and throughout the life of the swap, and a periodic review of the interest rate/volatility assumptions used in the calculations.
- 2. Procedures should be appropriately monitored by use of an aging analysis and application of follow-up procedures.
- 3. Whenever possible, all interest rate swaps should be documented on the standard contract developed by the International Swap Dealers Association.
- 4. All contracts should be subject to review by the Legal Department and, if necessary outside legal counsel. Any deviations from standard agreements should be authorized and limited in number.
- C. Liquidity

1. Liquidity may become an issue for firms that act as an Agent rather than a Dealer in the transaction

2. Caution in mark to market pricing is critical to ensure reasonable valuation

D. Regulatory

There are several procedures which serve as a control for limiting exposure in a regulatory sense. These include:

- 1. Key personnel should keep abreast of current information through representation in or involvement with various regulatory agencies (e.g., ISDA; SEC, etc).
- 2. Pricing of swap agreements and positions taken should be performed in anticipation of potential downside risks.
- E. Accounting and Tax

A s a result of the lack of authoritative accounting pronouncements, various accounting treatments may be acceptable, depending on the exact nature of the entities' business, to limit exposure in the event that authoritative pronouncements are issued and cause any procedures currently followed to be unprofitable or illegal:

- 1. Proposed accounting methods should be reviewed by external accountants.
- 2. Also, general ledger detail should be specific and complete in anticipation of future information requirements.
- 3. Proposed tax treatment should be reviewed and approved by external legal counsel.
- 4. Below is a summary of some of the basic accounting issues that should be considered relating to an intermediary acting as principal in a swap.
 - How should the related receivables and payables be reflected in the balance sheet, net or gross? Does the legal right of offset have to exist to present the transaction on a net basis?
 - How should the income received in the form of an interest rate spread be recorded?
 - Should a swap be marked to the market?
- a. Unmatched swaps
 - 1. For a broker/dealer or market maker who has an intent to trade or sell, current literature seems to indicate that the swap and any hedge on the swap should be marked to the market.
 - For a non-broker/dealer or a non-regulated subsidiary of a broker/ dealer, if the swap is hedged, guidance may be determined from SFAS #80, that is the accounting for the hedge should be related to the swap. If the swap is neither markedto-market nor hedged, the auditor should probably evaluate the swap in accordance with the principle of recognizing unrealized losses per SFAS #5.
- b. Matched swap
 - 1. If the principal is not a broker/dealer, industry standards relating to the accounting for fixed income

securities should probably be followed. With a broker/dealer in a matched swap, both sides of the swap should probably be marked-tomarket.

- 2. When one or both legs of a swap is sold or assigned with or without recourse, how should income be recognized?
- F. Documentation
 - 1. Management should review the various forms of documentation applicable in an interest rate swap transaction and determine the critical forms. Some of these may include:
 - a. Taped recordings of phone calls,
 - b Trader authorized deal forms,
 - c. Customer confirmations,
 - d. Security agreements on collateral (including reference to quality, location and coverage),
 - e. Credit authorization/approval forms,
 - f. Signed (master) swap agreements.

There are many legal questions surrounding swaps which have not yet been tried in court with respect to a default or bankruptcy of one party. To help mitigate any potential legal problems, all swaps should be supported by legal documents which should specify, among other things, the following:

- the notional amount (underlying principal) and maturity,
- method of calculating the interest payments,
- specific identification of the rate to be used, e.g. LIBOR and the ratemaking party
- the timing of the interest payments, whether interest payments are to be made net or gross (net payments are recommended from a legal viewpoint), a provision regarding assignability with or without recourse,
- a termination and default clause,
- a damages clause specifying the method of calculation (payments under this clause should approximate the cost of the remaining party to

assign the defaulting party's commitment to another party),

- provisions for and specification of collateral (having collateral is particularly relevant in the event of a bankruptcy),
- submission of jurisdiction (New York is one of the best and widely accepted even with international parties), and
- a default guarantee which may be in the form of, in order of preference, a standby letter of credit, insurance or a legal right of offset.
- 2. The flow of documents should be closely monitored by person(s) other than traders.
 - All incoming documents should be signed and reviewed for completeness.
 - Delinquent documents should be aged and follow up procedures employed to facilitate receipt.
- 3. Original documents should be maintained in a secure, fire proof location, such as a vault.
- G. Systems and Processing

In order to minimize the risk attached to the use of accounting, operational and management information systems, the following controls should be established:

- 1. Reconciliations should be performed on a regular basis, probably daily. These reconciliations include (but are not necessarily limited to) the following:
 - a. The swap database to the general ledger, traders' records, payment diary and document tracking system (General Control).
 - b. Receivable and payable records to payment diary and money transfer records (Cash Control).
 - c. Mark-to-Market reports to credit exposure records (Mark-to-Market Control).
 - d. Hedge marks to market position to custody account records (Control of asset custody).
- 2. Other cash controls include:
 - a. Establishment of receivable and payable accounts in an aged sub-

ledger distinguishing accruals from fees or coupon flows payable or receivable.

- b. Confirmation of repricing of swap agreements.
- 3. Systems input controls
 - a. Batch or equivalent controls over input of all deal form data including: counterparty, payment instructions, repricing dates, maturity, interest rate conventions, etc.
 - b. Authorized trade tickets and change notifications.
- 4. Collateral obtained from counterparties on swap agreements should be on hand, or, if in another location, monitored to ensure that the same securities are not being used to collateralize other agreements.
- 5. There should be an independent pricing of hedge positions.
- 6. A periodic independent review of the discounting model used in the mark to market process and the assumptions required should be performed.
- 7. There should be adequate operations support and training, including:
 - comprehensive exception reports,
 - satisfactory supervisory controls,
 - systems support.

V. Audit Procedures

- Obtain inventory list of all swap contracts. Ascertain that it agrees with the balance sheet. Obtain management reports and select representative number of contracts for testing. For each swap transaction selected, obtain the related contract, term sheets, computer input forms, etc.
 - Cross reference each form noting agreement.
 - Review data for appropriate level of approval.
 - Ensure customer has been approved for swap transactions by credit committee.
- Verify existence and location of collateral, as necessary. Recompute amount of collateral as required by contract terms.
- Review term sheets/contract for any upfront fees to be paid/ received.
 - Vouch payment.
 - Tie to general ledger.
- Recompute interest receivable/payable through test date based upon contract terms.
 - Vouch receipts/payments of interest on scope basis.
 - Ensure interest is reconciled and tied to the general ledger.
 - Recompute accruals of interest income and expense.
- Confirm selected interest rate swaps with counterparties.
- Discuss with appropriate management personnel company policy concerning pricing of open swap positions.
 - Test mark-to-market computations, taking into account discounted future cash inflow/outflow.
 - Determine if marks have been reviewed by a second, independent party, and signed off by that person.
 - Review and test hedging strategies as appropriate.
- Review overall activities of the credit department or committee to ensure economic soundness of parties with whom company enters into swap transactions.
 - Obtain credit approval forms and review to ensure that extension of credit is

properly authorized (based upon a review of the counterpartiey's financial condition) and that it is current and unexpired.

- Also insure that total exposure does not exceed limits set by management.
- Review for concentration violations.
- Conclude as to the adequacy of the credit extension function.
- Test adherence to position limits.

Glossary of Terms

- ASSET SWAP A swap that transforms the cash flows (interest income) from an underlying asset.
- ASSIGNMENT Sale of swap contract to third party.
- BASIS The spread between two interest rates or prices.
- BASIS POINT 1/100th of one percentage point.
- CALLABLE SWAP A swap with an option to terminate under specific circumstances.
- CP Commercial paper.
- CD Certificate of deposit.
- DEFER The process of income recognition whereby gains and losses are only recognized for the current repricing period.
- HEDGE To reduce a risk by taking an offsetting position.
- INTEREST RATE GAP The exposure to a change in interest rates at a particular maturity.
- ISDA International Swap Dealers Association.
- LIABILITY SWAP A swap that transforms the cash flows (interest expense) from an underlying borrowing.
- LIBOR London interbank offer rate. The rate at which banks lend funds in the international interbank market.
- LIQUIDITY RISK The risk that a financial instrument cannot be sold quickly at full market value.
- MARK-TO-MARKET The process of revaluing a financial instrument to reflect its current market value.
- NOTIONAL PRINCIPAL The hypothetical amount on which swap payments are based.
- PLAIN VANILLA SWAP US Dollar swap indexed to six month LIBOR.
- REPRICING DATE The date on which the floating payment is recalculated.

- REVERSE SWAP Where an exactly offsetting swap is written with the same or a new counterparty to establish a gain or a loss.
- ROA Return on assets, a financial ratio commonly used by banks.
- SETTLEMENT RISK The possibility that something interrupts the transfer of funds / securities or prevents agreement being reached.
- SWAP EXPOSURE The cost of replacing the swap, a function of future interest rates and swap spreads.
- SYNTHETIC SWAP A combination of financial instruments that together replicate the cash flows from a swap.
- SWAPTION An option to enter into a swap at a future date on predetermined terms.
- TERMINATION (or unwinding) The cancellation of a swap agreement (usually for a fee).
- UNDERLYING INDEX The interest rate of which the floating payments are priced.
- ZERO COUPON SWAP Swap in which the fixed rate payer makes one payment at swap maturity.

This guideline is intended to provide members of the Internal Auditors Division with information for the purpose of developing or improving internal audit programs. The procedures contained in this guideline constitute merely one of a number of methods which members may choose to utilize. The Internal Auditors Division recognizes that member firms may conduct their business in compliance with legal and regulatory requirements although they may employ procedures which differ from those contained in this guideline. The information is designed to provide guidance to member firms in the preparation of procedures tailored to the specific needs of their individual environment.