

Financial Risk Management by Interest Rate Swaps

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Abstract

The financial derivative itself is merely a contract between two or more parties and its value is determined by fluctuations in the underlying assets. Derivatives are agreements between future buyer and future seller (for a thing called “underlier”) which can be or must be sold at a future date. The various concepts of financial derivatives include Forward, Future, Swap, and Options. The most common underlying assets include stocks, bonds, commodities, currencies, interest rates and indexes. Most derivatives are characterized by high leverages. This paper focuses to interest rate swap, which is a sub classification of Swap. The objective of the research article is to investigate the role of interest rate swap for managing risk.

Keywords: *Derivatives, Interest Rate Swap, Risk Management, Notional Principal, Hedge.*

1. Introduction

A derivative security is a security or contract designed in such a way that its price is derived from the price of an underlying asset. Derivatives help to transfer risk from risk adverse people to risk oriented people. They increase the volume traded in markets because of participation of risk adverse people in greater numbers. The “Underlier” is a form of derivative that specifies future price at which some item or commodity must be or can be sold. Underlier can be a physical thing like wheat or oil etc., or it can be abstract thing like “price index”. The Derivatives can be used for speculation or to hedge. To hedge this risk, the investor could purchase currency futures to lock in a specified exchange rate for the future stock sale and currency conversion back into different global currencies.

2. Types of Derivatives

(A)The Forward Contracts: A forward contract is simply an agreement between two parties to buy or sell, as the case may be, a commodity (or financial instrument or currency) at a pre-determined future date at a price agreed when the contract is entered into.

The key elements are:

- (i) The date on which the commodity will be bought or sold is determined in advance.
- (ii) The price to be paid or received at a future date is determined at present.

(B)The Future Contracts: A future contracts is a contract to buy or sell a standard amount of a standardized or pre-determined grade of a certain commodity at a pre-determined location, on a pre-determined future date at a pre agreed price.

(C)Options: An option is a contract between two parties in which one party acquires the right but not the obligation, to buy or sell a particular commodity or interment or asset, at a specified price, on or before a specified date.

- i) The person who acquires the right is known as the option buyer or holder
- ii) The counterparty is known as the seller or write.

(D)Swaps: Swaps are private agreements between the two parties to exchange cash flows in the future according to a prearranged formula. They can be regarded as portfolios of forward contracts.

The two commonly used swaps all around the globe are interest rate swaps and currency swaps.

(i) Interest Rate Swaps: This type of swapping involves only the interest related cash flows between the parties in the same currency.

(ii) Currency Swaps: This type of swapping involves both principal and interest between the parties, with the cash flows in one direction being in a different currency than those in the opposite direction.

2.1 Evolution of Interest Rate Swap

Most financial market instruments are of such ancient lineage that the initial development is lost in history, but the birth of the interest rate swap is known precisely. The sharp moments of interest rates in recent years have created serious problem for firms. Global firms experienced that earnings squeeze when ever market interest rate price unexpectedly because there cost of debts rises faster than the yield on their assets. This has a resulted many firms look for ways to reduce the risk of their earnings to interest rate fluctuations.

A recent technique that allows firms to hedge this type of risk is the interest rate swap. An interest rate swap is contractual agreement entered into between two counter parties under which each agrees to make periodic payments to other for an agreed period of time based upon a notional amount of principal.

2.2 The World Bank and Interest Rate Swap

The World Bank borrows funds internationally and loans those funds to developing countries and had a definite motivation to seek the lowest cost borrowing it could find. In 1981 the relevant interest rate in the U.S. was at 17 percent, an extremely high rate due to the anti-inflation tight monetary policy of the Fed under Paul Volcker. In West Germany the corresponding rate was 12 percent and Switzerland 8 percent. The problem for the World Bank was that the Swiss government imposed a limit on World Bank could borrow in Switzerland. The World Bank

had borrowed its allowed limit in Switzerland and the same was true of West Germany.

IBM at that time, 1981, had large amounts of Swiss franc and German deutsche mark debt and thus had debt payments to pay in Swiss francs and deutsche marks. IBM and the World Bank worked out an arrangement in which the World Bank borrowed dollars in the U.S. market and swapped the dollar payment obligation to IBM in exchange for taking over IBM's Swiss franc and deutsche mark obligations.

After the World Bank and IBM showed the way the market for swap grew by leaps and bounds. Now the amount of the funds involved in the swap market is many trillions of dollars.

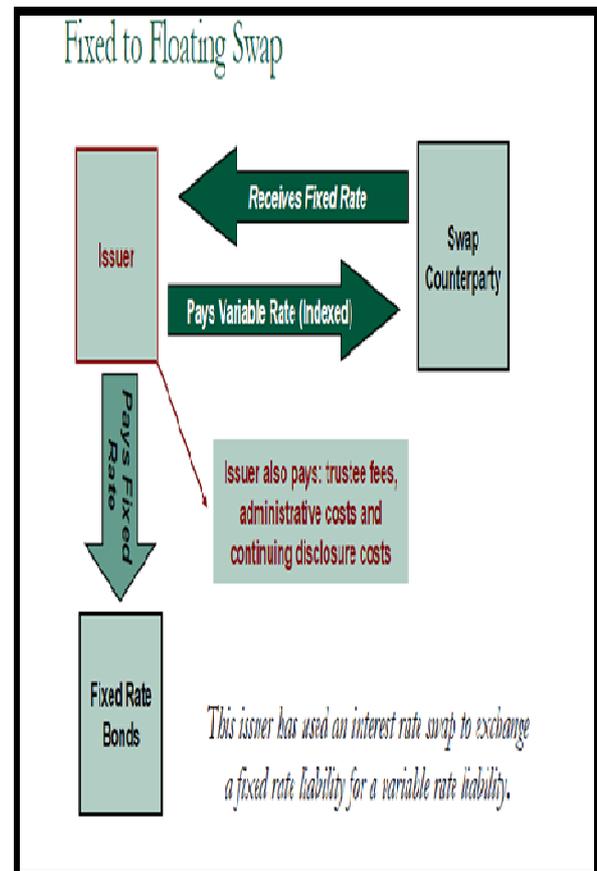


Figure1. A Diagrammatic Representation of Process of Establishment of Interest Rate Swaps

2.3 The Interest Rate Swaps as Tool to Divert the Financial Risks

Interest rate swaps manage risk by following ways:-

(i) The Interest Rate Swaps to hedge Against the Risk of Rising Interest Rates:-

Swaps are valuable hedging tools because they allow a firm with a sizable floating rate debt to hedge or protect itself against the risk of rising interest rates. If interest rate does rise, a firm with floating rate debt will experience higher floating rates. Because interest paid is an expense item on an income statement, net income declines in interest expense rises, all else equal. A greater a percentage of the firm's operating income will flow to the floating rate bondholders, leaving less for the stockholders. Thus firms with floating rate debt are exposed to the risk of rising interest rates. Before the swap, the firm has floating rate debt and after the swap the firm has altered the nature of this liability and is now in the position of having a fixed liability.

(ii) The Interest Rate Swaps to Hedge against the Risk of Falling Interest Rates:-

Swaps are also usable to hedge against the risk of falling rates in market.

For example:-An investment company can invest only in assets with maturities less than a year. The existing yield curve is sharply upward sloping, and two year debt instruments are yielding a great deal more than one-year securities.

Moreover, the company believes that interest rates are about to decline. These investments company can synthetically extend the maturity of investments by engaging in a swap as the receive-fixed party. It can agree to pay the one year floating interest rate (perhaps the Treasury rate) and receive the existing, fixed, two year interest rate.

No physical securities need to be traded, and the investments company still owns only securities with maturities less than one year.

(iii) The Interest Rate Swaps to Lower Borrowing Costs:-

The default risk premium on issued debt instruments is greater in the long term, fixed rate bond market than it is in floating rate debt market. That is there is a quality differential between fixed and floating borrowings. (In the early days of swaps, market participants attributed the quality differential to the relatively risky, low rated firm having a comparative advantage in floating rate market.

3. The Working of Interest Rate Swaps

A quality differential always exists between fixed and floating borrowing. Consider the following example, the BBB Company has the opportunity to borrow either at a fixed rate of 8% or at a floating rate of LIBOR+75 basis point and AA corporation has opportunity to borrow either at a fixed rate of 7% or LIBOR +25 basis points.

The AA corporation has an absolute advantage in both markets because it faces lower interest rates in both markets. Suppose that neither firm wants to borrow funds in the market in which it enjoy its comparative advantage. In other words, BBB wants fixed rate debt, and AA wants floating rate debt.

A plain vanilla fixed for floating interest rate swap can benefit both firms when such a comparative advantage exists.

AA goes to the long term fixed rate bond market and issue \$100 million in seven year fixed rate debt coupon of 7%. BBB borrows the same amount in the floating rate debt market for seven years at a rate of six month LIBOR+75 basis points, payments for both firms will be semiannual.

Then, the two firms enter into a plain vanilla fixed for floating interest rate swap with a tenor of seven years. AA becomes the receive fixed party in the swap. BBB is pay fixed party. AA agrees to pay a floating rate of LIBOR, and receive a fixed rate of 7%. Counterparty BBB agrees to pay a fixed rate of 7% and receive a floating rate of LIBOR.

3.1 The Diagrammatic Representation of the Working of the Interest Rate Swaps

The AA Corporation

Pays 7% to the Capital Market	- 7%
Receives 7% fixed in the Swap	+7%
Pays LIBOR in the Swap	- LIBOR
	-LIBOR

If AA corporation had issued a floating rate bond directly to the capital market, it would have to pay LIBOR+25 basis points. Therefore AA has saved 25 basis points by issuing Floating rate debt.

The BB Company:-

Pays LIBOR+75 bp to the capital market	-75 bp
Pays 7% Fixed in the Swap	-7%
Receives LIBOR in the swap	+LIBOR
	-7.75%

If BB had issued a fixed rate bond directly to the spot debt market, it would have had to pay 8%, so BB has saved 25 basis points by fixed rate debt with the aid of the Swap.

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4. Findings and Conclusions

- (i) Interest rate swaps minimizes the risk of rising interest rates as well as risk of falling rates through hedging transactions.
- (ii) Interest rate swaps reduces the borrowing costs.
- (iii) Interest rate swaps creates value for the firm.
- (iv) Interest rate swaps creates business opportunities for the firm.