

Interest Rate Risk and Risk Hedging Strategies

A swap is the exchange of one set of cash flows for another. It is a contract between two parties in which the first party promises to make a payment to the second and the second party promises to make a payment to the first. Both payments take place on specified dates.

A swap is a method for reducing financial risks. Generally, one party in the swap deal has a fixed rate obligation and the other party in the same deal has a floating rate obligation. A swap is any agreement to a future exchange of one asset for another, one liability for another or more specifically, one stream of cash flows for another.

A swap is a private agreement between two parties in which both parties are 'obligated' to exchange some specified cash flows at periodic intervals for a fixed period of time.

A swap is an agreement between two parties to exchange sequences of cash flows for a set period of time. Usually, at the time the contract is initiated, at least one of these series of cash flows is determined by a random or uncertain variable, such as an interest rate, foreign exchange rate, equity price, or commodity price.

Corporate finance professionals may use swap contracts to hedge risk and minimize the uncertainty of certain operations. For example, sometimes projects can be exposed to exchange rate risk and the Company's CFO may use a currency swap contract as a hedging instrument.

Interest Rate Swaps

What is an Interest Rate Swap?

An interest rate swap is a forward contract in which one stream of future interest payments is exchanged for another based on a specified principal amount. Interest rate swaps usually involve the exchange of a fixed interest rate for a floating rate, or vice versa, to reduce or increase exposure to fluctuations in interest rates or to obtain a marginally lower interest rate than would have been possible without the swap.

Understanding Interest Rate Swaps

Interest rate swaps are the exchange of one set of cash flows for another. Because they trade over-the-counter (OTC), the contracts are between two or more parties according to their desired specifications and can be customized in many different ways.

An interest rate swap is a contract between two counterparties who agree to exchange the future interest rate payments they make on loans or bonds. These two counterparties are banks, businesses, hedge funds, or investors.

- The most common is the so-called vanilla swap. It's when a counterparty swaps floating-rate payments with the other party's fixed-rate payments.
- The floating-rate payment is tied to the Libor, which is the interest rate banks charge each other for short-term loans.
- The counterparty that wants to swap its floating-rate payments and receive fixed-rate payments is called a receiver or seller. The counterparty that wants to swap its fixed-rate payments is the payer.
- The counterparties make payments on loans or bonds of the same size. This is called the notional principle.

- In a swap, they only exchange interest payments, not the bond itself.

Forward Rate Agreements

A Forward Rate Agreement or an Interest Rate Swap provides means for hedging the interest rate risk arising on account of lending's or borrowings made at fixed/ variable interest rates. A Forward Rate Agreement or an Interest Rate Swap provides means for hedging the interest rate risk arising on account of lending's or borrowings made at fixed/ variable interest rates.

A Forward Rate Agreement (FRA) is a financial contract between two parties to exchange interest payments for a 'notional principal' amount on settlement date, for a specified period from start date to maturity date. Accordingly, on the settlement date, cash payments based on contract (fixed) and the settlement rate, are made by the parties to one another. The settlement rate is the agreed bench-mark/ reference rate prevailing on the settlement date

In fact, the notional principal never changes hands. It is simply used to calculate the compensation or settlement amount that is paid by one party to the other. One side is said to be the buyer and the other the seller.

- a) Buyer: The buyer of the FRA is compensated in cash by the seller if the reference or benchmark interest rate for the contract period turns out to be above that agreed in the contract.
- b) Seller: The seller of the FRA contract is compensated by the buyer if the benchmark interest rate turns out to be below the contractual rate.

Objective of Forward Rate Agreements

The objectives of FRA are:

- The primary motive behind entering into an FRA is to lock in the interest rate for the future and save the adverse impact of fluctuations in the interest rate. For example, a commercial bank is planning to come up with CDs (certificates of deposit). The bank, however, expects the rate to go up. So, to minimize the risk, it can lock the current rate by entering into a forward rate agreement.
- In case, the interest rate does rise, then the bank would get the payment through FRA that compensates for the higher interest.
- Apart from locking the interest rates, one can also use FRA to lock-in the price of short-term security. One can do it in the following ways:
 - While making investment, then one can sell the FRA to protect against the risk of a drop in interest rates. This would eventually raise the price of your investment.
 - If you are selling an investment, then one needs to buy the FRA to protect yourself from the risk of a rise in interest rates.
 - One can use it to minimize foreign currency risks. For example, a businessman is expecting a foreign currency payment within a month from now. So, to protect himself from the risk of currency fluctuation, the businessman can lock the present currency rate by going for FRA.

Interest Rate Futures

Interest rate futures are a type of futures contract that are based on a financial instrument which pays interest. It is a contract between a buyer and a seller which agrees to buy and sell a debt

instrument at a future date when the contract expires at a price that is determined today.

Some of these futures may require the delivery of specific types of bonds, mostly government bonds on the delivery date.

These futures may also be cash-settled in which case, the one who holds the long position receives and one who holds the short position pays. These futures are thus used to hedge against or offset interest rate risks. Which means investors and financial institutions cover their risks against future interest rate fluctuations with these.

These futures can be short or long term in nature. Short term futures invest in underlying securities that mature within a year. Long term futures have a maturity period of more than one year.

Pricing for these futures is derived by a simple formula: $100 - \text{the implied interest rate}$. So, a futures price of 96 means that the implied interest rate for the security is 4 percent.

Since these futures trade in government securities, the default risk is nil. The prices depend only on the interest rates.

Interest Rate Options

An interest rate option is a financial derivative that allows the holder to benefit from changes in interest rates. Investors can speculate on the direction of interest rates with interest rate options. Interest rate options are part of a trading strategy of betting on which direction interest rates will move in the short term or long term.

Importance/ Features/ Advantages

Investors can use the interest rate options as a hedging tool to protect themselves from the fluctuations in the interest rates. Or, they use it as a trading strategy to benefit from the directional movement in the interest rate. Moreover, investors can also use the interest rate option to enlarge or diversify their portfolios. Banks can also benefit from the interest rate options as they generally have a large loan portfolio. By using the interest rate option, banks can limit or cap their downside risk if there is a drop in the interest rates.

Limitations of Interest Rate Options

- Since a holder can exercise this option only at the expiry, it takes away the flexibility element. Or, we can say that investors are unable to take advantage of favourable interest rates before the expiry. Investors, however, can cancel the contract by using an offsetting contract.
- Investors in an interest rate option must have a good understanding of the bond market. They must understand the inverse relation between the Treasury yields and bond prices.
- Also, investors having no or less understanding of the macro factors may find it difficult to benefit from the interest rate options

Caps, Floors and Collars

Cap and Collar is a term used in connection with interest rates. A Cap is an upper limit, or maximum interest rate that will apply, while a Collar is the minimum interest rate. As such, the interest rate may vary between these two points. A capped interest rate is useful in uncertain economic environments as it can reduce the risk of interest rates increasing beyond affordability. The actual interest rate charged can vary between the Cap and the Collar, but will never exceed

the Cap, or fall below the Collar. This type of interest rate mechanism gives a borrower more certainty than a fully variable interest rate.

The Floor, in relation to Cap and Collar, is an interest rate minimum charge. A Cap is an upper limit, or maximum interest rate that will apply. A Collar is the lower limit, or minimum interest rate that will apply.

Interest Rate Caps, Floors and Collars are option-based Interest Rate Risk Management products. These option products can be used to establish maximum (cap) or minimum (floor) rates or a combination of the two which is referred to as a collar structure. These products are used by investors and borrowers alike to hedge against adverse interest rate movements.

A Cap provides variable rate borrowers with protection against rising interest rates while also retaining the advantages of lower or falling interest rates.

1. Who uses Interest Rate Caps?

Variable rate borrowers are the typical users of Interest Rate Caps. They use Caps to obtain certainty for their business and budgeting process by setting the maximum interest rate they will pay on their borrowings. By implementing this type of financial management, variable rate borrowers obtain peace of mind from rising interest rates but retain the ability to benefit from any favourable interest rate movements.

How does an Interest Rate Cap work?

An Interest Rate Cap ensures that you will not pay any more than a pre-determined level of interest on your loan. An Interest Rate Cap enables variable rate borrowers to retain the advantages of their variable rate facility while obtaining the additional benefits of a maximum interest rate.

2. Who uses Interest Rate Collars?

Variable rate borrowers are typical users of Interest Rate Collars. They use Collars to obtain certainty for their borrowings by setting the minimum and maximum interest rate they will pay on their borrowings. By implementing this type of financial management, variable rate borrowers obtain peace of mind from the knowledge that interest rate changes will not impact greatly on the borrowing costs, with the resultant freedom to concentrate on other aspects of their business.

How does an Interest Rate Collar work?

An Interest Rate Collar ensures that you will not pay any more than a pre-determined level of interest on your borrowings. An Interest Rate Collar however, will not allow you to take advantage of interest rates below a pre-determined level. An Interest Rate Collar enables variable rate borrowers to retain the advantages of their variable rate facility while obtaining the additional benefits of a maximum interest rate, at a reduced cost to an Interest Rate Cap.

3. Who uses Interest Rate Floors?

Variable rate investors are the typical users of Interest Rate Floors. They use Floors to obtain certainty for their investments and budgeting process by setting the minimum interest rate they will receive on their investments. By implementing this type of financial management, variable rate investors obtain peace of mind from falling interest rates and the freedom to concentrate on other aspects of their business/investments.

How does an Interest Rate Floor work?

An Interest Rate Floor ensures that you will not receive any less than a pre-determined level of interest on your investment. The Bank will reimburse you the extra interest incurred should interest rates fall below the level of the Floor.

An Interest Rate Floor enables variable rate investors to retain the upside advantages of their variable rate investment while obtaining the comfort of a known minimum interest rate.

Swaption

A swaption, also known as a swap option, refers to an option to enter into an interest rate swap or some other type of swap. In exchange for an options premium, the buyer gains the right but not the obligation to enter into a specified swap agreement with the issuer on a specified future date.

A swaption (also known as a swap option) is an option contract that grants its holder the right but not the obligation to enter into a predetermined swap contract. In return for the right, the holder of the swaption must pay a premium to the issuer of the contract. Swaptions typically provide the rights to enter into interest rate swaps, but swaptions with other types of swaps can also be created

Features of Swaption

- A swaption is traded outside the stock exchange or open market.
- It usually occurs in the U.S. dollar, sterling, euro, and Japanese yen.
- The buyer and the seller must predetermine the swap option price (premium) and expiry date.
- The premium allows the trader to execute the swap option at a fixed or floating rate and notional amounts.
- The buyer must pay a premium to the issuer of the swap deal.
- Large corporations, investment and commercial banks, financial institutions, and hedge funds are the main participants in the swap option.
- Investors use the contract as a backup plan if their main operations and financial arrangements are exposed to interest rate risk.
- The options contract can be settled in two ways:
 - Cash Settlement – When the seller pays the buyer the current market price for the underlying swap
 - Swap Settlement – Two parties swap according to the agreement's predetermined terms when choosing a swap option.