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CAIIB PAPER-2

Module-C Unit-6

Bank Financial Management(BFM)

CAIIB BFM Module C Unit 6: Derivative Products

Derivatives and The Treasury

Derivatives are market products widely used by bank treasuries. Treasury uses derivatives chiefly

- To manage risk, including ALM risks,
- To cater to the requirements of the clients and more particularly the corporate customers, and
- To trade, i.e. to take a trading position in derivative products. While cross currency derivatives existed for long, Rupee derivatives are of fairly recent origin, and use of certain derivative products is still regulated by RBI.

Derivative Products

- **A derivative is a financial contract, specifying an underlying which is a price or rate or an index related to a financial product or market, based on a notional amount and/or specific payment provisions,** with clear settlement terms. By definition, derivatives always refer to a future price and the value of derivative depends on spot market.

OTC and Exchange Traded Products

Banks may structure a derivative product to suit the requirement of an individual client -- based on his risk appetite, size of transaction and maturity requirements. For instance, a bank may offer to a client a forward contract or option for sale of USD on a future date, for whatever period or amount desired by the client. The derivative products that can be directly negotiated and obtained from banks and investment institutions are known as Over-the-Counter (OTC) products.

OTC products are different from exchange traded products in the following respects:

OTC	Exchange Traded
OTC products are offered by banks and financial institutions (need to be authorized banks in India)	Futures contracts are traded only on organized futures exchanges

Contract date, amount and terms as desired by the client	Size of contract is standardized, with pre-set settlement dates for specific terms (eg one month, $1000 contract settled last Wednesday of every month against INR)
Price is quoted by the Bank, adding a margin to market quote	Transparent pricing, based on screen-based order matching system
Security (cash margin, charge on assets etc.), at bank's discretion, based on client status	The Exchange collects daily cash margin based on MTM value of the contract
Counter-party risk (bank risk is present but it is a remote risk.)	No counter-party risk, as Exchange is the counter party which manages the risk by margining system
Settlement is mostly by physical delivery (net settlement only in trading positions / cancellations)	Mostly net settlement by cash (physical delivery may be insisted upon in commodity futures)
Mostly used for hedging underlying risk	Mostly used for trading and speculation.

Bank Treasuries and corporate customers of the bank mostly use OTC products such as forward contracts, options and swaps. Only larger banks, which are market makers, cover their residual position in Futures traded in the exchanges. Where futures exchange is active, OTC derivative products largely reflect exchange traded prices, even though the volume of trade in OTC products is much larger than that of the Exchange Traded Products.

Forwards, Options, Futures and Swaps

In India, derivatives are used for hedging underlying currency, interest rate and commodity risks. Trading in currency and interest rate derivatives is restricted to authorized banks, except in futures market, where individuals , corporates and other entities can freely participate (subject to restrictions on non-resident entities). We shall confine this discussion to currency and interest rate derivatives only.

Derivatives are basically of three kinds:

- Forward contracts;
- Options, and
- Swaps

Futures are part of forwards, where execution of contract at a fixed rate is obligatory through an exchange We will study futures later in the section.

Forward Contract

- **Forward contract is a contract to deliver foreign currency on a future date at a fixed exchange rate**. This is an OTC product where the counterparty is always a bank. An exporter enters into a forward sale contract of his export proceeds denominated in USD

Options

- **Options refer to contracts where the buyer of an option has a right but no obligation to exercise the contract. Options are either put options or call options**. Call option gives a right to the holder to buy an underlying product (currency/bonds/commodities) at a prefixed rate on a specified future date.
- Put option gives a similar right to the holder to sell the underlying at a prefixed rate on a specified future date or during a specified period. The prefixed rate is known as the strike price, which is decided by the customer (Option Holder). The specified time is known as expiry date.

Some of the important features of options are:

- The buyer of an option has the right (but no obligation) to exercise the option at strike price, irrespective of market price prevailing on the expiry date. Hence his profit potential is unlimited. The seller of the option is obliged to buy sell to the holder of the option at the strike price, irrespective of market price; the option-seller's potential loss is therefore unlimited.
- The option is based on an amount which is only notional, as only difference in rates is exchanged in net settlement. The price of an option is much smaller than

the notional value; the traders and speculators therefore do not require large investments to trade in options (known as high leverage).

- The buyer of an option pays premium to the seller for purchase of the option. Option premium is the price of the option, payable to the option-seller upfront. The premium depends on the volatility of the underlying market, the expiry date (maturity), interest rates and the strike price - the factors that determine the risk to the seller. Option premium increases with the volatility of the markets, maturity and intrinsic value of the option.
- Option premium or the price of option is higher or lower based on intrinsic value and time value of the option. In the money options are costlier than out-of-the money options. Time value is linked to residual maturity - longer the maturity, costlier is the option.
- The option always has two legs. A put option on USD at USD/JPY strike (right to sell USD against JPY at rate X) is also a call option on JPY (right to buy JPY against USD payment at X rate). The option may thus be described as USD put or Yen call at, say, 105.
- In financial markets, the underlying product may relate to currency, bonds or equity. A call a bond gives the right to buy the bond at a prefixed price (strike price). Since the price of a risk-free bond reflects the prevailing interest rate, the bond option also becomes an interest rate option, the mechanics are similar to currency option.

Forward Contract	Option Contract
The contract must be executed at contracted rate on the expiry date.	The holder has a right to exercise the option, but has no obligation.
The rate is fixed at current market quote.	Holder may choose strike price (contracted rates) or market rate whichever is better for him.

There is no fee payable, the quoted rate includes bank margin.	Option premium is payable front-end.
Forward premium is the interest rate differential of two currencies involved.	Option premium is determined by several factors, including strike price, volatility of exchange rates and interest rates.
Forward contract is a simple contract for purchase or sale of currency - there are no variations.	Various types of options are available, and simple to complex structures, with varying elements of risk, are possible by combining purchased and written options.
Buyers and sellers have only counter-party risk, and there is no market risk to either of them, so long as the market is liquid.	(1) The writer of an option (option seller) has unlimited risk, while the buyer of an option has full upside benefit, with no risk in a plain vanilla option. (2) There is no market risk in plain vanilla options; however structured products may expose the holder to huge risks, which he may or may not be aware of.

Futures

- Futures are forward contracts traded in a futures exchange. Under a futures contract, the seller agrees to deliver to the buyer a specified security/currency or commodity on a specified date, at a fixed price, Futures relating to exchange rates (currency futures), Interest rates (bond futures) and equity prices (stock/index futures) are known as financial futures, as distinct from commodity futures (oil/metal/agro-products etc.).
- Futures contracts are of standard sizes with prefixed settlement dates, as explained in the earlier part of this section.

Interest Rate and Currency Swaps

Interest Rate Swaps

- **A swap is an exchange of cash flow. An interest rate swap is an exchange of interest flows on an underlying asset or liability, the value of which is the notional amount of the swap**. In a swap, basis for calculation of interest is charged according to the requirement of the borrower (or, lender).
- An interest rate swap is shifting of basis of interest rate calculation, from fixed rate to floating rate, floating rate to fixed rate or floating rate to floating rate (based on a different benchmark rate). The cash flows representing the interest payments during the swap period are exchanged accordingly.

Currency Swap

- A Currency Swap is an exchange of cash flow in one currency, with that of another currency. The cash flow may relate to repayment of principal and/or interest under a loan obligation where the lender or the borrower intends to eliminate currency risk.
- If only currency is hedged, it will be Principal Only Swap (POS); if only interest rate is hedged, it would be Coupon Only Swap (COS). It is left to the discretion of the client to hedge currency and interest rate risks together, or separately.

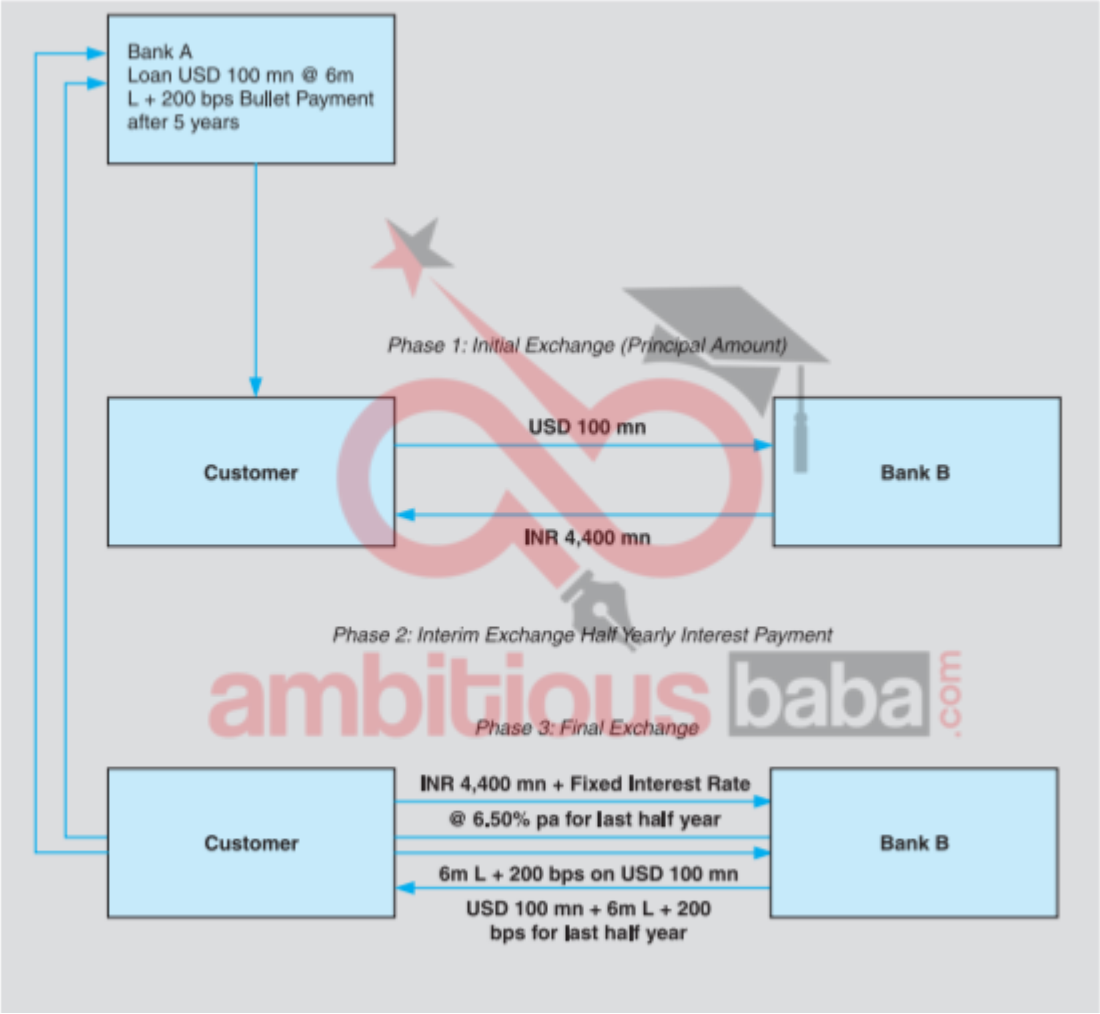
Operationally, the three variants of currency swap function as under:

- **Principal Only Swap (POS):** The borrower continues to pay interest in USD terms, but has the benefit of using the principal amount in home currency, without exchange risk. The repayment takes place in domestic currency, at a fixed rate of exchange, hence there is no exchange risk.
- **Coupon Only Swap (COS):** The USD loan is utilized in the same currency, but interest on USD loan is swapped into Rupee interest - the borrower has to pay interest in Rupees at swap rate, principal repayment is as per original loan terms. Such strategy is useful, if principal amount is hedged by using other derivative instruments (e.g. options), or if the borrower prefers to leave the position open, in anticipation of appreciation of paying currency (If Rupee appreciates, USD borrows will effectively pay fewer Rupees to settle the debt).
- **P+I swap:** Without initial exchange - where the borrower has eliminated the currency risk and interest rate risk completely (zero risk) and will pay principal

and interest in domestic currency (Rupees) to settle the foreign currency borrowing. The swap cost is included in the rupee interest rate.

- If we look closely we find that the currency swap only combines the currency forward rates and interest swap rates for the relevant period, in a structure easily understood by the buyer of the swap.

(A chart describing the cash flows in a currency & interest rate swap is attached for reference. Figure)



Developments In Indian Markets, and RBI Guidelines On Risk Exposure

The interest rate swaps (IRS) and forward rate agreements (FRA) were first allowed by RBI in 1999. Indian banks are permitted by RBI to enter into only plain vanilla type interest rate swaps, i.e. without any exotic structures. Corporate

clients of bank can use IRS only for hedging purpose. Banks, Primary Dealers, Financial Institutions and Mutual funds can use IRS for hedging, as also for their *balance sheet management* and market making. RBI has issued detailed guidelines for capital adequacy requirement for derivatives.

While introducing IRS, RBI has taken some bold steps to encourage the derivative market, including

- Banks have been allowed to use the IRS not only for hedging, but also for trading (market making) purpose - which provision has boosted the treasury activity.
- RBI had earlier restricted benchmarks only to domestic markets - where only O/N MIBOR was widely used. Upon representation from banks, RBI allowed MIFOR as a benchmark for interest rate swaps, but later restricted the use of MIFOR only for inter-bank dealings. MIFOR combines LIBOR and forward premium (in short interest rate differential), and is based on active forex market dealings.
- RBI has permitted banks under ISDA Agreement, to opt for dual jurisdiction, i.e. under Indian as well as common law jurisdiction. This provision is important for global banks to engage with Indian banks.

Comprehensive Guidelines on Derivatives, in April 2007, which were subsequently modified in 2011 RBI in particular stipulated that

- Derivative products can be offered only to those corporates who have clearly laid down risk management policy approved at the Board level, and
- Banks must have a suitability & appropriateness policy so that they would avoid mis-selling of derivative products.

The key features of the new contracts are:

- Market Participants, i.e., residents and foreign portfolio investors, are allowed to take positions in the cross currency contracts without having to establish underlying exposure subject to the position limits as prescribed by the exchanges.
- Authorised Dealer Category-I bank trading members may undertake trading in all permitted exchange traded currency derivatives within their Net Open

Position Limit (NOPL) subject to limits stipulated by the exchanges (for the purpose of risk management and preserving market integrity) provided that any synthetic USD-INR position created using a combination of exchange traded FCY-INR and cross-currency contracts shall have to be within the position limit prescribed by the exchange for the USD-INR contract.

Financial Benchmarks India Pvt Ltd (FBIL)

In order to overcome the possible conflicts of interest in the benchmark setting process arising out of the governance structure of the Fixed Income Money Market and Derivative Association of India (FIMMDA and Foreign Exchange Dealers' Association of India (FEDAI) an independent body was to be formed, either separately or jointly, by the FIMMDA and the FEDAI for administration of the benchmarks.

FBIL, an independent company, is a three-way joint venture between Fixed Income, Money Market and Derivatives Association of India, Foreign Exchange Dealers Association of India and Indian Banks Association. It was formed in December 2014 as a private limited company under the Companies Act 2013. Its aim is to develop and administer benchmarks relating to money market, government securities and foreign exchange in India.

FBIL also announces the benchmark rates/matrix of

- Term MIBOR for three tenors of 14-day, 1-month and 3-month
- FC-Rupee Options Volatilities for five tenors of 1-week, 1-month, 3-month, 6-month and 12-month
- Certificates of Deposit (FBIL-CD), and
- Treasury Bills (FBIL-TBILL)

on a daily basis except Saturday, Sundays and public holidays.