Every business faces some kind of risk related to foreign currency fluctuation and due to change in commodity prices. We cannot avoid or eliminate these kinds of risks. However, we can manage and effectively control this through hedging mechanism. If we manage successfully, we can neutralize the risk and can be rewarded with profits and most importantly avoid losses.

What is Hedge?
When people decide to hedge, they are insuring themselves against a negative event. This doesn’t prevent a negative event from happening, but if it happens and we are properly hedged, the impact of the event is reduced.

In financial markets, hedging against the risks means strategically using instruments in the market to offset the risk of any adverse price movement. Hedgers participate in the derivatives market to lock the prices at which they will be able to do the transaction in the future.

What is Derivatives?
Derivatives are financial contracts that derive its value from the performance of an “underlying asset”. These underlying assets can be shares, index, interest rate, bond, FX rates, commodities, metals, crude oil, soya bin, coffee etc. and are often simply called the “underlying”.

“A derivative can be defined as a financial instrument whose value depends on (or derived from) the value of other, more basic underlying variables.”
---John C. Hull

Derivatives are used by:
- Hedgers
- Market makers
- Speculators
- Arbitragers

Types of Derivatives Instruments
A) Forward Contract

There are no certain things in the market place. Prices that looks good now can quickly turn around against us, if unforeseen economic and political developments trigger that bring fluctuations in exchange rate or commodity prices.

- a forward contract is a customized contract between two parties to buy or to sell an asset at a specified future date at a price agreed upon today
- “In forward contracts one of the parties assumes a long position and agree to buy the underlying asset at a certain future date for certain price. The specified price is called delivery price”

Characteristics of Forward Contracts
- They are OTC contracts

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Founder & Managing Partner
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Bangalore
Both Buyer & Seller are committed (to take delivery or deliver underlying Assets)

Price-fixing in nature (decided upfront, committed to full-fill respective obligation)

Counter party risk (credit risk prevails; forward contracts are between parties having good credit standing; hence forward contracts not available for common man)

Currency Forward

- Cash/ tom/ spot
- Buyer of the forward
  ➢ The right to buy a currency at a specified rate at a specified date in future
- Seller of the forward
  ➢ The right to sell a currency at a specified rate at a specified date in the future
- The specified rate is referred to as the forward rate
- Theoretically, the forward rate for a currency pair can be derived from the interest rate differential between the two currencies

Currency Forward – How to derive the theoretical value:

- If S is the USD/INR spot rate, R1 and R2 are the continuously compounded Indian and US risk-free zero interest rates for a maturity T, then the forward rate F is given by
  \[ F = S \times \exp(T \times (R_1 - R_2)) \]
  -This is the interest rate parity relationship

Users of Currency Forward:

- Can be deployed by importers and exporters for hedging their future payables/receivables
- Consider an Indian company having USD imports, where the payment is due after 3 / 6 months

The importer can buy a USD/INR forward now

- Consider an Indian company having USD exports, where the receivable is due after 3 / 6 months

The exporter can sell a USD/INR forward now

B) Future Contracts:

Future have evolved out of forwards and are exchange traded versions of forward contracts.

A futures contract’ is a standardized contract between two parties to buy or sell a specified asset of standardized quantity and quality for a price agreed upon today (the futures price) with delivery and payment occurring at a specified future date (the delivery date), making it a derivative product (i.e. a financial product that is derived from an underlying asset). The contracts are negotiated at a futures exchange, which acts as an intermediary between buyer and seller. The party agreeing to buy the underlying asset in the future, the “buyer” of the contract, is said to be “long”, and the party agreeing to sell the asset in the future, the “seller” of the contract, is said to be “short”

The agreed price is known as strike price. The underlying assets can be commodity, currency, debt, equity or index. The futures are usually performed by payment of difference between strike price and market price on fixed future date and not by physical delivery and full payment on that date.

Characteristics of Future Contract

- Exchange traded (credit risk is mostly eliminated through a system of margin requirement through the clearing house)
- It is a standardized contract with standard underlying instruments, a standard quantity and quality of the underlying instrument and standard time for such settlement transactions
- Existence of regulatory authority
- Margin requirement and daily settlement to act as a safeguard
- Trading in either direction- short / long
- Index trading
Hedging / Arbitrage opportunity

Example: On 1 January/2018 Mr. A enters into a future contract to purchase 100 equity shares of ABC Company at an agreed price of Rs 780 per share in 31 March/2018. If on maturity date (31/March/2018) the price of equity share rises to Rs 820, Mr. A will receive Rs 40 per share and if the price of share falls to Rs 750, Mr. A will pay Rs 30 per share. As compared to forward contract, futures are settled only by difference between the strike price and market price on maturity date.

Difference between forward and future contract:

<table>
<thead>
<tr>
<th>Structure</th>
<th>Forward Contract</th>
<th>Futures Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customized to customers need. Usually no initial payment required.</td>
<td>Standardized. Initial margin payment required.</td>
<td></td>
</tr>
<tr>
<td>Method of pre-termination</td>
<td>Opposite contract with same or different counterparty. Counterparty risks remains while terminating with different counterparty.</td>
<td>Opposite contract on the exchange.</td>
</tr>
<tr>
<td>Risk</td>
<td>High counterparty risk</td>
<td>Low counterparty risk</td>
</tr>
<tr>
<td>Market regulation</td>
<td>Not regulated</td>
<td>Government regulated market</td>
</tr>
<tr>
<td>Institutional guarantee</td>
<td>The contracting parties</td>
<td>Clearing House</td>
</tr>
<tr>
<td>Contract size</td>
<td>Depending on the transaction and the requirements of the contracting parties.</td>
<td>Standardized</td>
</tr>
<tr>
<td>Expiry date</td>
<td>Depending on the transaction</td>
<td>Standardized</td>
</tr>
<tr>
<td>Transaction method</td>
<td>Negotiated directly by the buyer and seller</td>
<td>Quoted and traded on the exchange</td>
</tr>
<tr>
<td>Guarantees</td>
<td>No guarantee of settlement until the date of maturity only the forward price, based on the spot price of the underlying asset is paid.</td>
<td>Both parties must deposit an initial guarantee (margin). The value of the operation is marked to market rates with daily settlement of profits and losses.</td>
</tr>
</tbody>
</table>

C) Option Contracts:

An option is a contract which gives the buyer (the owner) the right, but not the obligation, to buy or sell an underlying asset or instrument at a specified strike price on or before a specified date. The seller has the corresponding obligation to fulfill the transaction—that is to sell or buy—if the buyer (owner) “exercises” the option. The buyer pays a premium to the seller for this right. An option that conveys to the owner the right to buy something at a certain price is a “call option”; an option that conveys the right of the owner to sell something at a certain price is a “put option”.

The underlying asset can be a share, index, interest rate, bond, FX rate, metal, crude oil, sugar, Soya bean, cotton, coffee etc.

<table>
<thead>
<tr>
<th>Option Buyer /Holder</th>
<th>Right-Yes</th>
<th>Obligation- No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option Seller /Writer</td>
<td>Right- No</td>
<td>Obligation- Yes</td>
</tr>
</tbody>
</table>

American Option: This type of option, the right (buy/call) can be exercised by the buyer at any time during the life of the option contract.

European Option: In this type of option, the right can be exercised by the buyer only at the end of the life of the option contract.

In India all stock options are American style options and index options are European style options.

Option buyer will exercise the option only when he is in the money, that is he gains by exercising the option.

Example: X is holding a security of Rs 1,000 buys an option to put the security at its current price with Y. Now if the price of the security goes down to Rs 900, X may exercise the option of selling the security to Y at the agreed price of Rs 1,000 and protect against the loss on-account of decline in the market value.

If on the other hand, the price of security goes up to Rs 1,100
अत्याधुनिक जर्मन टेक्नॉलॉजी से बने बांगर सीमेंट का जब हो उपयोग, 
तो हर निर्माण बने 
वर्ल्ड क्लास!
X is out of money and does not gain by exercising the option to sell the security at a price of Rs 1,000 as agreed. Hence, X will not exercise the option.

Had this been a futures contract or forward contract, Y could have compelled X to sell the security for the agreed price of Rs 1000 on either case. While future contract can result into both loss and a profit, an option can only result into a profit and not a loss.

Call Option:
A Call option gives the buyer the right to buy a set amount of one currency for another at a specific rate (Strike) on a certain date (expiration). An example of Call Option;

- USD/INR Spot 64.80
- 6 months Swap +1.15
- 6 months (Strike) 65.95
- Call Option Premium at Strike rate of INR 65.95 is USD 23,000 per Notional USD 1 mio

ATMF (at-the-money-forward) means “Option Strike = Forward Rate”

If spot >= 65.95, customer has the right to buy 1mio at 65.95

If spot < 65.95, customer has no obligation; as he is at the market

Key Advantage for purchasing an Option

- Known Payment outgo
- Unlimited Profit Potential
- Flexibility

# Examples of Option Contract:

(i) Zero cost Participating Forward (USD/INR)

A participating forward gives a hedger FX protection. Hedgers can benefit from favorable spot movements, whilst still maintaining protection against adverse FX moves. The participating Forward gives a hedging rate that is better than the average OUTRIGHT FORWARD RATE.

Currency Pair: USD / INR
Trade Date: 01/01/2018
Buyer of USD: XYZ Ltd
Seller of USD: ABC Bank
Spot Reference: 64.00
Strike Rate: 65.00
Average outward Forward Rate: 65.50
Expiry Date: 28/02/2018 (2 months)
31/03/2018 (3 months)
Notional Amount: USD 1,000,000 OR USD 2,000,000-
on each date

Premium: ZERO PREMIUM

Outcomes: On the Expiry date,
If spot is at or below strike rate 65.00, XYZ Ltd buys USD 2.0 Mio @ 65.00
If spot is above strike rate 65.00, XYZ Ltd buys 1.0 Mio @ 65.00
Remarks: This contract guarantees an exchange of principal, but the amount is variable, with a fixed hedge rate at 65.00

(ii) Range forward Option (USD/INR)

Currency Pair: USD / INR
Trade Date: 01/02/2018
Buyer of USD: XYZ Ltd
Seller of USD: ABC Bank
Spot Reference: 64.20
Lower Strike Rate: 64.40
Upper Strike Rate: 65.10
Expiry Date: 31/03/2018 (2 months)
30/04/2018 (3 months)
Notional Amount: USD 2,500,000- on each date
Premium: 0.35%(USD 17,500) payable upfront on Trade date

Outcomes:

a) If spot is at or below Lower strike rate 64.40, XYZ Ltd buys USD 2.50 Mio @ 64.40
b) If spot is between 64.40 and 65.10, XYZ Ltd can buy at the prevailing spot FX rate (no obligation on either party)
c) If spot is at or above Upper strike rate 65.10, XYZ Ltd buys 2.50 Mio @ 65.10

Remarks: This contract guarantees that the worst rate at which XYZ Ltd can buy USD is 65.10. The Range Forward gives us the benefit of any fall in spot, but this benefit is capped at 64.40 – which represents the best-case exchange rate under this contract.

D) SWAP:

A swap is a derivative in which two counterparties exchange cash flows of one party’s financial instrument for those of the other party’s financial instrument. Specifically, two counterparties agree to the exchange one stream of cash flows against another stream usually through an intermediary like a financial institution.

Types of Swaps:

(i) Interest rate Swap
(ii) Currency Swap

Interest rate SWAP:

- In interest Rate swap; one party agrees to make fixed rate of interest payment in return for floating-rate interest payments from counter party.

Currency SWAP in India:

- Marketed started in 1995-96
- RBI allows the use of swaps as hedge instruments
- Banks and FIs initially the market makers
- Hedging in the spot market as well as use by banks of their offshore offices to manage USD risk
- Corporates are hedging currency exposures for the ECBs loans, forex trade etc.

Currency Swap – Type:

- Total currency swap
  - Exchange rate risk on both coupon and principal
- Coupon-only swap
  - Exchange rate risk only on coupon
- Principal-only swap
  - Exchange rate risk only on principal

Examples of Currency Swap on an ECB Loan:

- Swap Bank provided Customer with a fixed INR rate, whereby
  - Customer protected against interest risk - changes in LIBOR
  - Customer protected against exchange - changes in USD/INR exchange rate

Swap Bank- Customer - Rupee-Dollar swap - Basic terms

- Principal: USD 10 mn
- Customer receives: USD 3m LIBOR + 2%
- Customer pays: 9.5%
- Current USD/INR rate: 65.00
- Maturity: June 202
Currency Swap – Initial Principal (Draw) Exchange:

Currency Swap – Interest Flow:

Currency Swap – Final Principal (Repayment) Exchange:

Currency Swap – An advantage:
- Lock in a fixed Rupee interest rate and principal amount for the tenor of the swap
- No uncertain cash flow implications on settlement
- Operationally convenient
- Complete hedge for interest rate and exchange rate risk for the entire tenor

Examples: Managing metal price risk: Aluminum price hedging

SWAP
“A hedging company (shipping entity) enters into a swap by paying a Fixed Price for its aluminum against a given reference, for a known tonnage over an established future period.”

- Any price settlement above the Fixed Price leads to an offsetting cash payment from Bank to the shipping entity.
- Any price settlement below the Fixed Price leads to an offsetting cash payment from the shipping entity to Bank.

Example: SWAP

<table>
<thead>
<tr>
<th>Period</th>
<th>Second Half (July – December) 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Price Payer (shipping entity)</td>
<td>XYZ Ltd</td>
</tr>
<tr>
<td>Fixed Price Receiver (Bank)</td>
<td>ABC Bank</td>
</tr>
<tr>
<td>Price</td>
<td>US$ 2,625 per tonne</td>
</tr>
<tr>
<td>Reference</td>
<td>LME Official Primary Aluminium Price</td>
</tr>
<tr>
<td>Settlement</td>
<td>Monthly average rate, monthly cash settled</td>
</tr>
<tr>
<td>Amount</td>
<td>500 metric tonnes per month</td>
</tr>
<tr>
<td>Total Amount</td>
<td>3,000 metric tonnes</td>
</tr>
</tbody>
</table>

Collar
“A hedging company (shipping entity) agrees to pay a Minimum Price for its aluminum, in return, for a given maximum price over a pre-determined period on an agreed volume”.

- Price settlement above the maximum “Cap” Price leads to an offsetting payment from Bank.
- Price settlement below the “Floor” Price result in a payment from the hedging co.
- Price settlement between the min. floor and max cap price levels result in, no offsetting payments.
Who We Are
We provide a secure platform for individuals and institutions to own, control and share digitally trusted identity built upon Blockchain Technology

Key Features:
- Identity Verification
- Educational Verification
- Employment Verification
- Digital Wallet
- Blockchain Verified Profile
- Data & Document stored securely on user's mobile device
- Digital Signature through QR code
- Share your document via QR code
- Peer to Peer
- End to End Encryption
- Biometric

STOP IDENTITY THEFT
STOP DEGREE FRAUD
STOP CV FRAUD

Be Part of Trusted and Verified Professional Network
**Example: Collar**

<table>
<thead>
<tr>
<th>Period</th>
<th>Second Half (July – December) 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cap Buyer (shipping entity)</td>
<td>XYZ Ltd</td>
</tr>
<tr>
<td>Cap Strike</td>
<td>US$ 2,875</td>
</tr>
<tr>
<td>Floor Buyer (Bank)</td>
<td>ABC Bank</td>
</tr>
<tr>
<td>Floor Strike</td>
<td>US$ 2.410</td>
</tr>
<tr>
<td>Reference</td>
<td>LME Official Primary Aluminium Price</td>
</tr>
<tr>
<td>Settlement</td>
<td>Monthly average, monthly cash settled</td>
</tr>
<tr>
<td>Amount</td>
<td>500 metric tonnes per month</td>
</tr>
<tr>
<td>Total Amount</td>
<td>3,000 metric tonnes</td>
</tr>
<tr>
<td>Premium</td>
<td>Zero – Cost</td>
</tr>
</tbody>
</table>

**Three-way Hedge**

“A three-way hedge is a variation on the zero-cost collar. It has a minimum floor price and a maximum cap price, but in-order to reduce the cap price level, the buyer agrees to limit the cap payout compensation to an agreed maximum. It does this by selling another cap at a higher strike.

- Price above the lower cap level leads to a compensation payment, but the payout is limited to the difference between the first cap and the higher priced (sold) cap.
- Price below the floor price lead to a payment from the shipping entity to Bank.
- Price above the floor, but below the cap lead to no payment.

**Example: Three – Way Hedge**

<table>
<thead>
<tr>
<th>Period</th>
<th>Second Half (July – December) 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cap 1 Buyer (shipping entity)</td>
<td>XYZ Ltd</td>
</tr>
<tr>
<td>Cap 1 Strike</td>
<td>US$ 2,800</td>
</tr>
<tr>
<td>Cap 2 Buyer (Bank)</td>
<td>ABC Bank</td>
</tr>
<tr>
<td>Cap 2 Strike</td>
<td>US$ 2,950 (i.e. max. payout $150)</td>
</tr>
<tr>
<td>Floor Buyer (Bank)</td>
<td>ABC Bank</td>
</tr>
<tr>
<td>Floor Strike</td>
<td>US$ 2.300</td>
</tr>
</tbody>
</table>

**Benefits on hedging metal price risk on Aluminium**

- Hedging helps protect against lower profits caused by higher Aluminium costs
- Many consumers employ a hedging policy
- Hedgers are often opportunistic in the timing of their traders, taking advantage of dips in the market to increase their hedge volumes
- Successful hedging programme pre-established aluminum strategies, including price targets and volumes

**References**

1. [https://en.wikipedia.org/wiki/Derivative_(finance)]
2. *A hand book on derivatives* by Rakumar S Adukia

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