CA - FINAL

SFM
STRATEGIC FINANCIAL MANAGEMENT

FOREX

By GAURAV JAINN
FCA, CFA L3 Candidate
(More than 10 years of Practical Experience in Trading Equity Currency & Commodity Derivatives in U.S. and Indian Markets)

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88 Marks

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70 Marks

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AIR 14
Roll No. 133759
94 Marks

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Keshav Goel
AIR 18
Roll No. 132485
83 Marks

May 2016
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AIR 17
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May 2016
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AIR 14
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88 Marks

May 2016
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Roll No. 480693
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Foreign Exchange Exposure & Risk Management

LOS 1: Introduction

Three types of transactions associated with foreign exchange risk:

1. Loans (ECB)
2. Investments (Bonds & Equity)
3. Export & Import

Note:
In India, Foreign Exchange Market is regulated by RBI.

What is Exchange Rate?

- The rate of conversion is the Exchange Rate.
- An exchange rate is the price of one country’s currency expressed in terms of the currency of another country. E.g. A rate of ₹ 50 per US $ implies that one US $ costs ₹ 50.

Rule 1: in an exchange rate two currencies are involved.
Rule 2: in any transaction involving Foreign Currency, you are selling one currency and buying another.
**LOS 2 : Home Currency & Foreign Currency**

**Home Currency:** Country's own currency.

**Example:**
For India ‘₹'/INR is home currency
For USA ‘US $’ or ‘Dollar’ is a home currency
For UK ‘£’ or ‘Pound’ or ‘GBP’ is home currency

**Foreign Currency:** Any currency other than home currency will be a Foreign Currency

**Example:**
For India, $, £, etc. will be a foreign currency.
For US ‘₹’, £ will be foreign currency.

**LOS 3 : Bid & Ask Rate**

**Bid Rate:** Rate at which bank **BUYS** left hand side currency.

**Ask Rate:** Rate at which bank **SELLS** left hand side currency.

**One-way Quote:** [when Bid and Ask Rate are same]

**Example:**
1$ = ₹ 65

**Explanation:**
Bank buys 1$ at ₹ 65.
Bank sells 1$ at ₹ 65.

**Two-way Quote:** [when Bid and Ask Rate are separately given]

**Example:**

\[
1$ = ₹ \frac{62}{65}
\]

<table>
<thead>
<tr>
<th>Left Hand Side Currency</th>
<th>Bid Rate/ Bank Buying rate of left hand currency</th>
<th>Ask Rate/ Bank Selling rate of left hand currency</th>
</tr>
</thead>
<tbody>
<tr>
<td>₹ 62</td>
<td>₹ 65</td>
<td>₹ 65</td>
</tr>
</tbody>
</table>

**Note:**
- Difference between Bid & Ask rate represents Profit Margin for the bank.
- Quotation/ Bid & Ask rate or Exchange Rate is always quoted from the point of view of bank.
- Bid Rate must always be less than Ask Rate.
  
  Or
  
  Ask Rate must always be greater than Bid Rate.
- Always solve question from the point of view of investor/ Customer unless otherwise stated.
- The difference between the Ask & Bid rates is called **Spread**, representing the profit margin of dealer.

**Spread = Ask Rate – Bid Rate**
LOS 4: Direct Quote & Indirect Quote

**Direct Quote:** Home Currency Price for 1 unit of foreign currency.
Example: 1$ = ₹ 50 is DQ for Rupee.

**Indirect Quote:** Foreign Currency Price for 1 unit of Home Currency.
Example: 1Re = 0.0200$ is IDQ for Rupee.

**Note:**
- If a given quotation is direct for one country, then the same quotation will be indirect for another country and vice-versa.
- The concept of DQ and IDQ is only theoretical and don’t have any practical relevance.

LOS 5: Conversion of Direct Quote into Indirect Quote and vice-versa

**Case 1:** One-way Quote [When bid & ask rates are same]

- Direct Quote can be converted into indirect quote by taking the reciprocal of direct quote.

\[
\text{IDQ} = \frac{1}{\text{DQ}}
\]

**Case 2:** Two-way Quote [When bid & ask rates are separately given]

- Direct Quote (DQ) can be converted into Indirect Quote (IDQ) by taking the reciprocal of direct quote and switching the position.

**Example:** $1 = ₹ 47.25 --- ₹ 47.85 (1st Quote)
Convert DQ into the IDQ.

**Solution:**

\[
\text{DQ} => 1 \text{ Re.} = \frac{1}{47.25} = \frac{1}{47.85}
\]

\[
\text{IDQ} => 1 \text{ Re.} = \frac{1}{47.85} = \frac{1}{47.25}
\]

OR 1 Re. = 0.02090 --- 0.02116 (2nd Quote)

**Conversion Rules:**

- Which currency is given in the question, we need that currency in the LHS of the quote.
- Decide whether to Buy that currency or Sell.
- If you Buy ➔ Bank Sells ➔ Use Ask Rate
  If you Sell ➔ Bank Buys ➔ Use Bid Rate
- Always Solve question from the point of view of Customer.
LOS 6: Spot Rate & Forward Rate

**Spot Rate**: Rate used for buying & selling of foreign currency at *As on Today or Immediately*

**Forward Rate**: Rate used for buying & selling of foreign currency at some future Date i.e. Forward rate is the rate contracted today for exchange of currencies at a specified future date.

LOS 7: Premium or Discount

**Premium**: If the currency is costly or Expensive in future as compared to spot it is said to be at a premium.

SR => 1$ = ₹ 45  
FR => 1$ = ₹ 50

In the above quote $ is at Premium.

**Discount**: If the currency is Cheaper in future as compared to spot it is said to be at a discount.

SR => 1Re. = $ 0.0222  
FR => 1Re. = $ 0.02

We can say that rupee is at discount.

**Calculation of Premium or Discount**

\[
\frac{FR - SR}{SR} \times \frac{12}{Forward\ Period} \times 100
\]

**Note**: This formula is applicable only for left hand currency

**Conclusion**:  
❖ If one currency is at a premium, then another currency must be at a discount. However, the rate of premium may not be equal to the rate of discount.  
❖ On account of base effect, premium is slightly higher than the discount.

LOS 8: Calculation of Forward Rate when Spot Rate & Premium or Discount is given

**Example 1:**
SR → 1$ = ₹ 48.50  
$ is at premium = 5%  
Calculate FR?

**Solution:**
FR → 1$ = ₹ 48.50 (1 + 0.05)  
1$ = ₹ 50.925

LOS 9: SWAP POINTS/ Forward Margin/ Forward-Spot Differential

Difference between Forward Rate and Spot Rate is known as Swap Points.
How to ADD or DEDUCT Swap Points

❖ Swap Point should be Added or Deducted from the last decimal point in the Reverse Order.
❖ Premium → Add Swap Points
❖ Discount → Less Swap Points

If Premium / Discount is not mentioned, we observe the following rules:

**Case 1:** When Swap Points are in increasing order:

❖ It indicates premium on left hand currency.
❖ In this case, we will add swap points with spot rates to calculate forward rates.

**Case 2:** When Swap Points are in decreasing order:

❖ It indicates discount on left hand currency.
❖ In this case, we will deduct swap points from Spot Rate to calculate forward rates.

**Note:** Don't apply the rule if Premium or Discount is used in the question.

**LOS 10 : Cross Rate**

*Cross Rate* between any two currencies is derived with the help of quotations between these currencies & third currency.

❖ Cross Rate is normally used in finding out any missing exchange rate.
❖ The calculation of cross rate simply requires you to focus on cancellation of common currencies, to do so you have to multiply with DQ & IDQ.
❖ Always check ASK Rate > BID Rate.

**LOS 11 : Squaring-up the position or Covering the Position or Closing-out the Position under FOREX**

Covering the Position means taking an opposite or reverse position to calculate profit and loss i.e. we cover our position to book Profit or Loss.

<table>
<thead>
<tr>
<th>Long Position</th>
<th>To Cover</th>
<th>Short Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Position</td>
<td></td>
<td>Long Position</td>
</tr>
</tbody>
</table>

**LOS 12 : Exchange Margin**

*Exchange Margin* is the extra amount or percentage charged by the bank over and above the rate quoted by it. Eg. Commission, transaction charges, etc.
8.6 FOREIGN EXCHANGE EXPOSURE & RISK MANAGEMENT

**Actual Selling Rate of Bank:** (Add Exchange Margin)

\[ \text{Ask Rate} (1 + \text{Exchange Margin}) \]

**Actual Buying Rate of Bank:** (Deduct Exchange Margin)

\[ \text{Bid Rate} (1 \text{– Exchange Margin}) \]

**LOS 13: Triangular Arbitrage**

It involves 3 currencies represented by 3 corner points of triangle. We will be starting with one currency, pass through the other two currencies and come back to the original currency. There are two paths → clockwise and Anticlockwise.

One path will result in profit while the other path will result in Loss.

**LOS 14: Purchasing Power Parity Theory (PPPT)**

**Calculation of Spot Rate**

- PPPT is based on the concept of ‘Law of One Price’.
- PPPT is based on the fact that price of a commodity in two different market will always be same.
- If Price of a commodity in two different market are not same, there will be an arbitrage opportunity exists in the market.

Suppose Price of a Commodity in India is ₹ X & In USA is $Y. Spot Rate is 1$ = ₹ SR

\[ \text{SR} = \frac{X}{Y} \]

\[ \text{Spot Rate} (\text{₹} / \$) = \frac{\text{Current Price (Rs.)}}{\text{Current Price ($)}} \]

- **Exchange Rate = Price Ratio**

**Calculation of Forward Rate**

PPPT is also applicable in case of inflation. Suppose Inflation Rate of India is I$_{\text{Rs}}$ and in US is I$_{\text{\$}}$. Forward Rate 1$ = ₹ F. Now as per PPPT, we have after 1 year:

\[ X (1 + I_{\text{Rs}}) = y (1 + I_{\text{\$}}) \times FR \]

\[ \text{FR} = \frac{X (1+ I_{\text{Rs}})}{Y (1 + I_{\text{\$}})} \]


\[
FR = SR \times \frac{1 + I_{Rs}}{1 + I_{\$}}
\]

\[
\frac{FR (Rs/\$)}{SR (Rs/\$)} = \frac{1 + \text{Rupee Inflation}}{1 + \text{Dollar (\$) Inflation}}
\]

**Note:**
- The above equation is applicable for any two given currency.
- Determination of Premium or Discount with the help of Inflation Rate: If Inflation Rate of a country is higher, then the currency of that Country will be at a discount in future and Vice-Versa.

**Inflation rate in above equation must be adjusted according to forward period.**

<table>
<thead>
<tr>
<th>Case 1: When Period is less than 1 Year.</th>
<th>Case 2: When Period is more than 1 Year.</th>
</tr>
</thead>
</table>
| \[
\frac{FR (Rs/\$)}{SR (Rs/\$)} = \frac{1 + \text{Periodic Inflation Rate (Rs.)}}{1 + \text{Periodic Inflation Rate (\$)}}
\] | \[
\frac{FR (Rs/\$)}{SR (Rs/\$)} = \frac{(1 + \text{Inflation Rate (Rs.)})^n}{(1 + \text{Inflation Rate (\$)})^n}
\] |

**LOS 15 : Interest Rate Parity Theory (IRPT)**

- IRPT states that exchange rate between currencies are directly affected by their Interest Rate.
- **Assumption:** Investment opportunity in any two different market will always be same.

<table>
<thead>
<tr>
<th>Case 1: When Period is less than 1 Year.</th>
<th>Case 2: When Period is more than 1 Year.</th>
</tr>
</thead>
</table>
| \[
\frac{FR (Rs/\$)}{SR (Rs/\$)} = \frac{1 + \text{Interest Rate (Rs.)}}{1 + \text{Interest Rate (\$)}}
\] | \[
\frac{FR (Rs/\$)}{SR (Rs/\$)} = \frac{(1 + \text{Interest Rate (Rs.)})^n}{(1 + \text{Interest Rate (\$)})^n}
\] |

**Note:**
- The above equation is applicable for any two given currency.
- Interest Rate should be adjusted according to forward period.

<table>
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<th>Case 1: When Period is less than 1 Year.</th>
<th>Case 2: When Period is more than 1 Year.</th>
</tr>
</thead>
</table>
| \[
\frac{FR (Rs/\$)}{SR (Rs/\$)} = \frac{1 + \text{Periodic Interest Rate (Rs.)}}{1 + \text{Periodic Interest Rate (\$)}}
\] | \[
\frac{FR (Rs/\$)}{SR (Rs/\$)} = \frac{(1 + \text{Interest Rate (Rs.)})^n}{(1 + \text{Interest Rate (\$)})^n}
\] |

**Note:**
- Determination of Premium or Discount with the help of Interest Rate: If Interest rate of a country is higher, then the currency of that country will be at a discount in future and vice-versa.
- If IRPT holds, arbitrage is not possible. In that case, it doesn’t matter whether you invest in domestic country or foreign country, your rate of return will be same.

**LOS 16 : Covered Interest Arbitrage (CIA)**

<table>
<thead>
<tr>
<th>Type 1</th>
<th>Type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>When Bid and Ask rates are same.</td>
<td>If Bid &amp; Ask rates are given separately.</td>
</tr>
<tr>
<td>When Investment &amp; Borrowing rates are same in one country.</td>
<td>Investment &amp; Borrowing rate of a given currency is separately given.</td>
</tr>
<tr>
<td># (Short – cut is available)</td>
<td># (Hit &amp; Trial method is used)</td>
</tr>
</tbody>
</table>

- When Investment opportunity in any two given countries are different, covered Interest Arbitrage is possible.
- When IRPT is not applicable, then covered interest arbitrage will be applicable.
❖ The rule is to “Borrow from one country & Invest in another Country”.
❖ Suppose Interest Rate of India is INT\$\text{A} and USA is INT\$. Spot Rate is 1$ = ₹ SR, Forward Rate
$\Rightarrow \ 1$ = ₹ FR

Let assume Investor is having ₹ A for investment

**Option 1:** When investor invest ₹ A in India:
Amount of ₹ Received after one year

$$A_1 = A (1 + INT)$$

**Option 2:** When investor invest ₹ A in USA:
Amount of Equivalent ₹ Received after one year

$$A_2 = \left[ \frac{A}{SR} (1 + INT$) \right] \times FR$$

<table>
<thead>
<tr>
<th>IF A1 = A2</th>
<th>IF A1 &gt; A2</th>
<th>IF A1 &lt; A2</th>
</tr>
</thead>
<tbody>
<tr>
<td>No arbitrage opportunity.</td>
<td>Arbitrage Opportunity is Possible. Arbitrager should invest in India (Home Country) &amp; borrow from USA (Foreign Country)</td>
<td>Arbitrage opportunity is possible. Arbitrager should invest in USA (Foreign Country) &amp; borrow from India (Home Country)</td>
</tr>
</tbody>
</table>

**Note:**
If in 1st try we have arbitrage profit, then no need to solve 2nd case.
If in 1st try we have arbitrage loss, then 2nd case must be solved.

**LOS 17: Forward Contract**

❖ Transaction exposure arises when a firm has a known amount of foreign currency payable or receivable but home currency equivalent of which is unknown.
❖ Hedging is defined as an activity converted uncertainty into certainty. The simplest hedging strategy is hedging through forward contract.
❖ In case of foreign currency is to be received in future

![Diagram](https://via.placeholder.com/150)

On Expiry
- 1$ = ₹ 68
- 1$ = ₹ 63

Because of Hedging
- Loss
- Profit

❖ In case of foreign currency is to be Paid in future

![Diagram](https://via.placeholder.com/150)

On Expiry
- 1$ = ₹ 68
- 1$ = ₹ 62

Because of Hedging
- Profit
- Loss
Case 1: If Foreign Currency is to be received in future:

**Step 1:** Borrow in Foreign Currency. Amount of borrowing should be such that Amount Borrowed + Interest on it becomes equal to the amount to be received.

**Step 2:** Convert the borrowed foreign currency into home currency by using spot rate.

**Step 3:** Invest this home currency amount for the required period.

**Step 4:** Pay the borrowed amount of foreign currency with interest using the amount to be received in foreign currency. [May be Ignored]

Case 2: When foreign currency is to be paid in future

**Step 1:** Invest in Foreign currency. Amount of investment should be such that, “Amount Invested + Interest on it” becomes equal to amount to be paid

**Step 2:** Borrow in Home Currency, equivalent amount which is to be invested in foreign currency using Spot rate.

**Step 3:** Pay the borrowed amount with interest in Home Currency on Maturity.

**Step 4:** Pay the outstanding amount with the amount received from investment. [May be ignored]

Loss 19: Adjusting Exchange rate quotation when exchange margin is attached to it

**Example:**
1 Euro = £ 1.7846 ± 0.0004

**Solution:**
1 Euro = £ 1.7842 ---- 1.7850
LOS 20: Foreign Capital Budgeting

Two approaches are followed in case investment is undertaken in foreign country:
❖ Home Currency Approach
❖ Foreign Currency Approach

**Home Currency Approach:**

**Step 1:** Compute all cash inflows & outflows arising in foreign currency.
**Step 2:** Convert these cash inflows & outflows into home currency by using appropriate exchange rates (i.e. Forward Rate) (Calculate through Swap Point or IRPT)
**Step 3:** Compute a suitable discount rate.
**Step 4:** Compute Home Currency (NPV)

**Foreign Currency Approach:**

**Step 1:** Compute all cash inflows & outflows arising in foreign currency.
**Step 2:** Compute a suitable discount rate (RADR).
**Step 3:** Compute Foreign Currency (NPV)
**Step 4:** Convert foreign currency NPV into Home currency by using Spot Rate

**Note:**
❖ Answer by both approach will be same.
❖ Discount Rate to be used should be risk-adjusted discount rate (RADR), Since foreign project involves risk.

\[
(1 + \text{RADR}) = (1 + \text{Risk-free rate}) (1 + \text{Risk Premium})
\]

❖ Discount Rate or RADR of both the country are different.
❖ Risk Premium of both home country and foreign country are assumed to be same.

LOS 21: Cancellation/Modification under Forward Contract

Forward Contract are legal binding contracts, which must be fulfilled by each and every party. In case of cancellation of Forward Contracts, following rules must be followed:

**How to cancel Forward Contract**

Forward Contracts must be cancelled by entering into a reverse contract.

- **Long Position (Buying Position)**  ➡️ **To Cancel** ➡️ **Short Position (Selling Position)**
- **Short Position (Selling Position)**  ➡️ **To Cancel** ➡️ **Long Position (Buying Position)**
Rate at which contract needs to be Cancelled

<table>
<thead>
<tr>
<th>Case</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1</td>
<td>Cancelled before expiry. Forward Rate prevailing as on today for expiry.</td>
</tr>
<tr>
<td>Case 2</td>
<td>Cancelled on expiry. Spot Rate of expiry.</td>
</tr>
<tr>
<td>Case 3</td>
<td>Cancelled after expiry. Spot Rate of the date when customer contracted with the bank.</td>
</tr>
<tr>
<td>Case 4</td>
<td>Automatic Cancellation. Spot Rate prevailing on 15th day i.e. when grace period ends.</td>
</tr>
</tbody>
</table>

Settlement of Profit/Loss:

<table>
<thead>
<tr>
<th>Case</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1</td>
<td>Cancelled on or before expiry. Customer will be eligible for both profit/Loss.</td>
</tr>
<tr>
<td>Case 2</td>
<td>Cancelled after expiry or automatic cancellation. Customer will be eligible only for Loss</td>
</tr>
</tbody>
</table>

LOS 22: Extension of Forward Contract

**Step 1:** Cancellation of original Contract

**Step 2:** Entering into a new forward contract for the extended period.

LOS 23: Early Delivery

The bank may accept the request of customer of delivery at the before due date of forward contract provided the customer is ready to bear the loss if any that may accrue to the bank as a result of this. In addition to some prescribed fixed charges bank may also charge additional charges comprising of:

a) **Swap Difference:** This difference can be loss/gain to the bank. This arises on account of offsetting its position earlier created by early delivery as bank normally covers itself against the position taken in the original forward contract.
b) **Interest on Outlay of Funds**: It might be possible early delivery request of a customer may result in outlay of funds. In such a case, the bank shall charge from the customer at a rate not less than the prime lending rate for the period of early delivery to the original due date. However, if there is an inflow of funds, the bank at its discretion may pass on interest to the customer at the rate applicable to term deposits for the same period.

**LOS 24**: Cancellation after Due Date / Automatic Cancellation Late Delivery / Extension after due date

In these cases the following cancellation charges may be payable:

1. Exchange Difference
2. Swap Loss
3. Interest on outlay of funds

**Swap Loss / Gain**

\[ \text{Swap Loss / Gain} = \text{Difference} \times \text{Notional Amount} \times \text{ROI} \times \text{Time} \]
**LOS 25: Centralized Cash Management & Decentralized Cash Management System**

- Under Decentralized Cash Management, every branch is viewed as separate undertaking. Cash Surplus and Cash Deficit of each branch should not be adjusted.
- Under Centralized Cash Management, every branch cash position is managed by single centralized authority. Hence, Cash Surplus and Cash Deficit of each branch with each other is accordingly adjusted.

**LOS 26: Contribution to Sales Ratio based decision under FOREX**

\[
\text{Contribution to Sales Ratio} = \frac{\text{Contribution} (\text{Sales} - \text{VC})}{\text{Sales}} \times 100
\]

**Decision:**
Higher the C/S Ratio, Better the position.

**LOS 27: Leading & Lagging**

- Leading means advancing the timing of payments and receipts.
- Lagging means postponing or delaying the timing of payments and receipts.

**LOS 28: Exposure Netting**

Netting means adjusting receivable and payables (or inflows & Outflows)

**Two conditions must be fulfilled:**
1. Netting can be done for same currency.
2. Netting can be done for same period.

**Note:** In case of Netting, No. of forward contracts can be reduced.
LOS 29: Currency Pairs

Currency Pairs are written by ISO Currency codes of the base currency and the counter currency, separating them with a slash character.

Example:

A price quote of EUR/USD at 1.30851 means
1 Euro = 1.30851 $

LOS 30: Gain/Loss under FOREX

LOS 31: Evaluation of Quotation from two Banks

When quotations are received from two banks, customer should select that quotation which is more beneficial to him.

Example:

<table>
<thead>
<tr>
<th>Sell</th>
<th>HDFC Bank 1£ = $ 1.9650</th>
<th>$ 1.9670</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axis Bank</td>
<td>1£ = $ 1.9550</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$ 1.9650 (HDFC)</td>
<td>$ 1.9560 (ICICI)</td>
</tr>
</tbody>
</table>

LOS 32: Expected Spot Rate

Expected Spot Rate = $ \sum \text{Spot Rates} \times \text{Probability}$

LOS 33: Currency Futures

Steps Involved:
**Step 1:** Decide Position

- Long Position
- Short Position

**Note:** First we will decide which currency will buy or which currency we will sell then check the currency on the LHS of the quotation & then accordingly decide Long Position & Short Position.

**Step 2:** Calculation of Number of contracts/Lots

\[
\text{No. of Lots} = \frac{\text{Value of Position}}{\text{Value of one Contract}} = \frac{\text{£}}{\text{£}} = \frac{\text{£}}{\text{£}}
\]

**Note:** Convert exposure amount in the same currency as of Lot Size/Contract Size & it will be converted at CONTRACT RATE.

**Step 3:** Calculate Settlement Amount/ Total Outflow/Inflow under Future Contract

1. **Calculate Profit and Loss under Future Contract**

   \[
   \text{Profit and Loss} = \text{Change in Future Price} \times \text{No. of Lots} \times \text{Value of One Contract}
   \]

2. **Calculate Total Receipt/Total Payment using SR on Expiry**

3. **Calculation of opportunity cost of initial margin if Given**

   Total Outflow / Inflow under Future Hedging
**LOS 34: Currency Options**

**Steps Involved:**

**Step 1:** Decide Position
- Long Call
- Short Call
- Long Put
- Short Put

**Note:** First we will decide which currency will buy or which currency we will sell then check the currency on the LHS of the quotation & then accordingly decide Long Call & Long Put

**Step 2:** Calculation of Number of contracts/Lots

\[
\text{No. of Lots} = \frac{\text{Value of Position}}{\text{Value of one Contract}} = \frac{\text{£}}{\text{£}} = 17.35 \text{ or 17 lots}
\]

**Note:** Convert exposure amount in the same currency as of Lot Size/Contract Size & it will be converted at CONTRACT RATE.

**Step 3:** Now the UNHEDGE POSITION should be hedge through forward market as there is no lot size requirement under forward market.

**Step 4:** Calculation of Option Premium paid as on today with opportunity cost on it.

**Step 5:** Calculate / Total Outflow/Inflow under Option Contract

(i) Option Premium paid as on today with opportunity cost on it.
(ii) Unhedged Position under forward contract
(iii) Under Option Contract using Exercise Price

---

**Total Outflow / Inflow under Option Hedging**
LOS 35: Calculation of Return under FOREX

Return (In terms of Home Currency) = \[1 + \left( \frac{P_1 - P_0 + I}{P_0} \right) (1 + C) - 1\]

- \(P_0\) = Price at the beginning
- \(P_1\) = Price at the End
- \(I\) = Income from Interest/Dividend
- \(C\) = Change in exchange rate.

LOS 36: Broken Date Contracts

A Broken Date Contract is a forward contract for which quotation is not readily available.

Example: If quotes are available for 1 month and 3 months but a customer wants a quote for 2 months, it will be a Broken Date Contract. It can be calculated by interpolating between the available quotes for the preceding and succeeding maturities.

LOS 37: Implied Differential in Interest Rate

Interest rate is just another name of premium or discount of one country currency in relation to another country currency (As per IRPT).

\[\text{Premium or Discount} = \text{Difference in Interest Rate}\]

Equation:

\[
\frac{\text{FR (Rs./$)} - \text{SR (Rs./$)}}{\text{SR}} \times \frac{12}{\text{Forward Period}} \times 100 = \text{Interest Rate (₹) – Interest Rate($)}
\]

LOS 38: Savings due to Time Value (Discount) & Currency Fluctuation

If the firm decides to pay today rather than in future he may get two types of benefits:
- Benefit on account of discount for pre-payment.
- Benefit on account of currency fluctuation.

LOS 39: Nostro Account, Vostro Account and LORO Account

**Nostro Account [Ours account with you]**

This is a current account maintained by a domestic bank/dealer with a foreign bank in foreign currency.

**Example:** Current account of SBI bank (an Indian Bank) with swizz bank in Swizz Franc. (CHF) is a Nostro account.

**Vostro Account [Yours account with us]**

This is a current account maintained by a foreign bank with a domestic bank/dealer in Rupee currency.
**Example:** Current account of Swizz bank in India with SBI bank in Rupee (₹) currency

---

**Loro Account [Our account of their Money with you]**

This is a current account maintained by one domestic bank on behalf of other domestic bank in foreign bank in a foreign currency.

In other words, Loro account is a Nostro account for one bank who opened the bank and Loro account for other bank who refers first one account.

Example: SBI opened Current account with swizz bank. If PNB refers that account of SBI for its correspondence, then it is called Loro account for PNB and it is Nostro account for SBI.

---

**Note:**

- SPOT purchase/sale of CHF affects both exchange position as well as Nostro account.
- However, forward purchase/sale affects only the exchange position.

### 1. Nostro A/c (Cash A/c) in Foreign Currency

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Dr. [Debit] outflow of Dollars (FC)</th>
<th>Cr. [Credit] Inflow of Dollars (FC)</th>
</tr>
</thead>
</table>

### 2. Exchange Position A/c/

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Long Dollar Buy (FC)</th>
<th>Short Dollar Sell (FC)</th>
</tr>
</thead>
</table>

1. **Spot Buy**

   - Nostro (Cash) A/c
   - Exchange Position A/c
   - Inflow of Dollars (Credit)
   - Long Position

2. **Spot Sell**

   - Nostro (Cash) A/c
   - Exchange Position A/c
   - Outflow of Dollars (Debit)
   - Short Position
3. Forward Buy
   - Nostro (Cash) A/c
     - No Impact
   - Exchange Position A/c
     - Long Position

4. Forward Sell
   - Nostro (Cash) A/c
     - No Impact
   - Exchange Position A/c
     - Short Position

5. Forward Buy Contact Cancelled
   - Nostro (Cash) A/c
     - No Impact
   - Exchange Position A/c
     - Short Position

6. Forward Sell Contact Cancelled
   - Nostro (Cash) A/c
     - No Impact
   - Exchange Position A/c
     - Long Position

7. FC Draft Made
   - Nostro (Cash) A/c
     - No Impact
   - Exchange Position A/c
     - Short Position

8. DD Cancelled
   - Nostro (Cash) A/c
     - No Impact
   - Exchange Position A/c
     - Long Position

9. Bill Receivable
   - Nostro (Cash) A/c
     - No Impact
   - Exchange Position A/c
     - Long Position

10. BR Cancelled
    - Nostro (Cash) A/c
       - No Impact
    - Exchange Position A/c
       - Short Position
11. Remittance By TT

- Nostro (Cash) A/c
  - Outflow of Dollars (Debit)

- Exchange Position A/c
  - Short Position