10/12/17

Treasury Management

☆ Financial system

An institutional framework existing in a country to enable financial transaction.

→ Three main parts

- Financial assets (loans, deposits, bonds, equities, etc).
- Financial institutions (banks, mutual funds, insurance companies, etc).
- Financial markets (money market, capital market, forex market, etc).

IMP.

1. Money Market → providing short term funds [45-1. question in exam]
2. Forex Market
3. Capital Market → long term funds → Trading
4. Derivative Market → Trading / hedging
5. Commodity Market
6. Insurance Market
7. Mutual funds Market.

★ Role of integrated treasury

1 Managing cash flows/liquidity

2 Adhering to Statutory requirements

3 Deploying surplus funds for maximizing returns.

4 To undertake proprietary trading to exploit market opportunities.

5 To undertake arbitrage transactions taking benefit of price difference in different markets.

6 To effectively manage forex assets & liabilities of the bank.

7 Providing market cover & hedging exchange risk for banks & its clients

8 To manage the treasury risk of the bank within the prudential limits approved by the bank & regulatory authority.

9 To submit various statutory & compliance reports.

★ structure of Treasury.

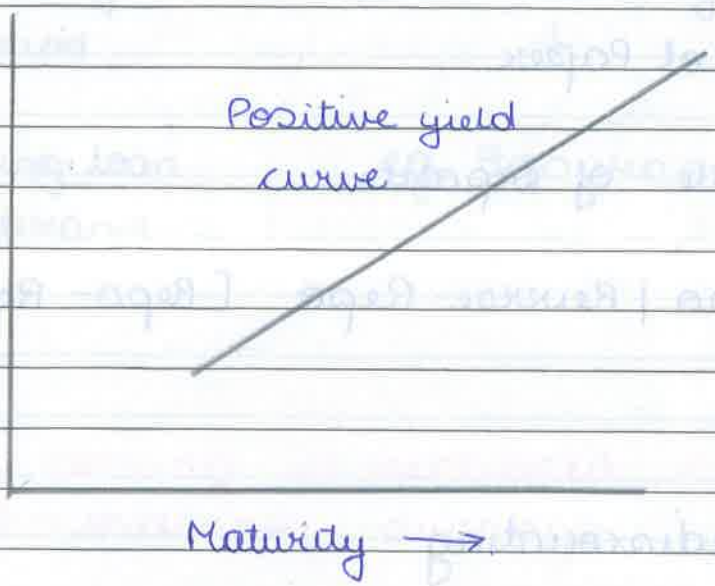
1. Front office
2. Back office
3 Middle office - reporting to mgmt, research

★ Dealing room setup.

★ Forex trading desk.

17th Dec

★ Longer the maturity, higher the yield.



★ Movement of Debts.

→ Forex - Debt → Equity - Derivatives - Real estate - commodities - Money Market - - - -

☆ Various Money Market Products.

1) Call Money | Notice Money | Term Money.

2) Treasury Bills

3) Commercial Paper

4) Certificate of Deposits

5) LAF | Repo | Reverse Repo [Repo - Repurchasing Obligation].

6) CBLO

7) Bills Rediscounting

8) IBPC

9) CMB.

I_4 - Quatery compounding

I_{12} - Monthly compounding.

Annuity - Regular cash flow at regular interval.

★ Two Types of Annuity :

Ordinary → at the end of the period → eg Housing loan insurance or RD.

Due → At the start of the Period → eg Insurance Policy.

Note : If nothing is mentioned, assume it as ordinary annuity.

★ Money Market convention

Actual/365 or Actual/Actual → leap year.

★ Fixed Income Market convention

30/360.

★ Forex Market convention

30/360

Whenever FV is being traded - Clean price
- Dirty price

Call Money → Borrowing Money → 1 day

Notice Money → 2 to 14 days

Term Money → 15 to 364 days.

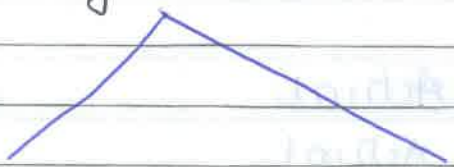
Any bank can maximum lend call money to the extent of 25% of their capital fund.

IMP one question compulsory

★ Treasury Bills

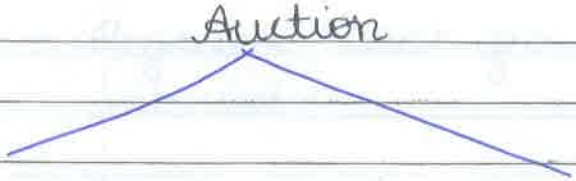
91 day Treasury bill auctioned by RBI.

→ Types of Auction



Price based
Higher the Price ↑.

Yield based
lower the Yield ↑.

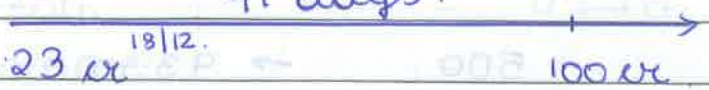


French Auction
↓
Multiple Price
or
Multiple Yield Auction

Dutch Auction
↓
Uniform Price
or
Uniform Yield Auction

eg Your bank have put a bid for 100 cr 91 days T bill at 98.23 and have received the allotment. what is the yield expected by the bank.

Soln.



Yield Rate = ?

$$100 - 98.23 = \frac{1.77}{98.23} \times \frac{365}{91} \times 100 = 7.2274$$

(Rounding off - Min 4 decimals, Max 6 decimals).

Bid for 100 cr T-bill

Expected Yield → 7.25%.

$$= \frac{100,00,00,000}{\left(1 + \frac{7.25}{100} \times \frac{91}{365}\right)} = 98,22,45,575.$$

* How to conduct a auction.

Q. RBI is conducting 3000 cr T bill on 364 day basis (Price based auction). Following banks have bid in the auction.

A	500	→ 93.50	(4)
B	700	→ 93.40	(5)
C	800	→ 93.20	(6)
D	500	→ 93.70	(2)
E	1000	→ 93.80	(1)
F	600	→ 93.20	(6)
G	800	→ 93.40	(5)
H	900	→ 93.60	(3)
I	800	→ 93.70	(2)
J	600	→ 93.80	(1)

1. What is the cut off?
2. Which bank will get allotment in full?
3. Which bank will get allotment partially & how much?
4. For a retail investor, at what price the allotment can be made.

Sol:

		French Auction	Dutch Auction
G	1000	93.60	93.60
J	600	93.80	93.60
	1600		
D	500	93.70	93.60
I	800	93.70	93.60
	2900		
H	100	93.60	93.60
	3000		

∴ Cut off → 93.60

→ Winners benefit.

→ Retail investors are issued allotment at the average price from institutional bid.

$$= \frac{1000 \times 93.80 + 1300 \times 93.70 + 100 \times 93.60}{3000}$$

$$= 93.75$$

* Repo Transaction

eg. Bank A undertakes a Repo transaction for Rs 10 crore against Govt security, 8.65% G-Sec, 2023, Maturity 4th April. When the market rate is 104.10. Repo is undertaken between 19.12 to 27.12 for 9 days @ 7.25%.

Incomplete

(a) 1st leg (b) 2nd leg.

1. What is the 1st leg settlement amount? (How much amt has been borrowed).

a) 1st Leg

Current Market Price / Clean Price → 104.10.

Accrued interest

(5th Oct to 18th Dec)

26
30
18
74 days.

365 - 8.65
74 - ?

$= \frac{74 \times 8.65}{365} =$ ____

→ No of units provided as security. $\frac{10 \text{ crore}}{100} =$ ____.

*

Bank B borrowed _____ from bank A for 9 days at _____ %.

Interest for Repo period = $\frac{10,58,78,056 \times 7.25 \times 9}{36500}$

= 189,275

Liability Bank B has to pay to Bank A at the end of Repo term = 10,60,67,331

ii) 2nd leg

$\frac{83 \times 8.65}{360}$ = 1994.306

Q What is the price at the end of the Repo fixed for security by bank A.

7/1/18

Chap: Treasury Exchange Rates

* Guidelines for issuing license as per RBI.

AD category 1 → 1) Net worth → Min 200 cr.
2) Last 3 yrs Profit Making
3) CRAR min 12 %.
4) Gross NPA should not be more than 10 % & Net NPA not more than 5 %.

AD category 2 → Limited Authority can buy/sell foreign exchange for travel purpose.

AD category 3 → Specific license only for special organisation
→ EXIM bank, ECGC, LIC.

* Bank A/c

1) Nostro A/c. → "Our A/c"

It means a foreign currency account maintained at foreign centre.

eg: BOI having an A/c at JPMorgan in NY.

2) Vostro A/c.

Account in home currency at Home centre by a foreign bank

eg DBS have an A/c in INR with BOI, Mumbai.

3) Nostro A/c → Their Account with you.
Your Account with them.

eg Saraswat bank having an A/c with BOI, NY.

★ Types of Transaction.

① Merchant Transaction → Customer transaction

② Cover Transaction → Opposite to Merchant Transaction.

③ Proprietory Trading Transaction
- For the purpose of buying & selling & making profit.

④ Arbitrage transaction
Making profit through price discrimination in two markets.

⑤ Funding Transaction
It is undertaken to meet the account need.

⑥ Borrowing / Lending
Borrow / lend funds from abroad just to take advantage of interest.

★ Difference between direct & Indirect Rate.

★ Exchange Rate.

		8/1/2018	Delivery
Spot	→	T+2	10/1/18
Tom	→	T+1	9/1/18.
TOD/Ready/Cash	→	T+0	8/1/18.
Forward	→	Beyond T+2	Beyond 10th

★ Direct or Foreign currency Quote.

		B	S.
Spot	→ USD/INR	63.37	- 38

→ Features of Direct Rate.

1. Foreign currency is constant
   Home currency fluctuates

2. Buy low
   Sell High.

3. Spread → Selling Rate − Buying Rate.
   Spread is always in term of Home currency.

4. Profit = Spread × Volume.

★ Indirect Rate.

	S	B
GBP/USD	1.3450	55

→ Features of Indirect rate

1. Home currency constant
   Foreign currency fluctuates

2. Buy More
   Sell less.

Selling GBP → Buy USD 1.3455
Buying ~~USD~~ GBP → Sell USD 1.3450

USD		SR	BR.
100	=	1.6325	- 28

* Indirect rate is quoted in 4 currencies at this moment → EUR, GBP, AUD, NZD.

* IBR → Inter bank rate.

* TTB → Telegraphic Transfer Buying
  TTS → Telegraphic Transfer Selling.

Q. Pratha has received an inward remittance (purchase transaction) of USD 25,000. What rate will you quote to her? What will be your cover rate? What will be your notional profit from the transaction?

Exchange rate on 8/1/2018.

USD/INR → 63.37 - 38
GBP/USD → 1.3512 - 15
EUR/USD → 1.2048 - 52
USD/JPY → 110.48 - 52
USD/CHF →
Exp Margin → 0.25% - 0.25%.

Sol^n: It is a purchase transaction

Buying rate / Cover rate → 63.37
Margin 0.20% .12674
63.24326

Rounding Off 63.2425

Rate → 63.2425
Cover Rate (Market Rate) → 63.37.

Notional Profit = (Cover rate - Merchant Rate) × Volume
= (63.37 - 63.2425) × 25000
= 0.1275 × 25000.
= 3187.50

Rounding off.

63.24
63.2425 | 63.24326.
63.2450 ↓
63.2475
63.25

In Buying rate, we will take lower rate.

a] An importer has approached you to retire a bill for USD 1,25,000. what rate will you quote to him? What will be your cover rate & notional profit?

→ It is a selling transaction

∴ Cover rate = 63.38
(+) Margin 0.25% = 0.15845 (63.38 × 0.25%)
63.53845

Rounding off = ~~63.53~~ 63.54

∴ Quote rate = 63.54

Notional Profit = (Quote rate - cover rate.) × Volume.
= (63.54 - 63.38) × 1,25,000
= 0.16 × 1,25,000
= 20,000

When USD is inside → Indirect
USD is outside → Direct

☆ Cross Rate transaction

Q] A customer of your bank has received an inward remittance of EUR 30,000. What will be your cover rate? What rate will you quote to him & what will be the notional profit?

Sol^n. It is a purchase transaction.

USD/INR → 63.37 - 638
EUR/USD → 1.2048 - 1.2052

Direct & Indirect	Buying Rate L X L	Selling Rate H X H
	63.37 X 1.2048 = 76.348176.	
Margin 0.201.	76.348176 .152696	
	76.195480	
Rounding off.	76.1950.	

Notional Profit = (76.348176 - 76.1950) X 30,000

= 4595.

Q. An importer is asked to retire a bill for JPY 25 mio. What rate will you as quote to him? What will be your cover rate? What will be your notional profit?

Soln: It is a sale transaction

Rates.

USD|INR → 63.37 - 38. } Direct Rates.
USD|JPY → 110.48 - 52.

Buying Rate	Selling Rate
Low INR	High INR.
High Fcy.	Low Fcy.

$= \frac{63.38}{110.48} \times 100$

(In case of JPY, rate is to be quoted for 100 JPY instead of 1 JPY)

= 57.367849

∴ We will pay :- 57.367849 x 25 mio
= 14341962

57.367849
Margin 0.25% .143420
57.511269.

Rounding off = 57.5125.

Notional Profit =

* Indirect to Indirect Cross Rate.

GBP/EUR.

GBP/USD → 1·3512 - 15
EUR/USD → 1·2048 - 52

BR	SR
1·3512	1·3515
1·2052	1·2048.

★ Proprietary Transaction

Q As a dealer you are bullish on JPY & you purchase 500 mio JPY at 57·40 per 100 JPY. Later in the day market turned volatile & you cover your position when

USD/INR → 63·37 - 38
USD/JPY → 110·48 - 52

What is your gain / loss from the transaction?

Sol?

Purchased 500 Mio JPY
Pay to Market → INR 28,70 00 000

Buying rate = $\frac{63.37}{110.52} \times 500$ mio

= 0.55338038 × 500 mio
= 28 6690192.

Loss = 309808.

Loss from the transaction = 309808.

Because we are not quoting directly, we have to take the value.

14/1/18

Q] Customer has received inward remittance of CHF 25000/-

a) What rate will you quote to your customer ?
b) What amount credit to customer ?
c) What will be your cover rate?
d) What will be the notional profit?

Exchange rate on 16/8.

USD/INR → 63.70 - 71.
USD/JPY → 110.86 - 90
USD/CHF → 0.9820 - 24
EUR/USD → 1.1984 - 86.
GBP/USD → 1.3524 - 28
Ex Margin → 0.25%.

Soln: It is a purchase transaction

① Buy CHF 25000

② USD/INR → 63·70 - 71
USD/CHF → 9820 - 24.

③ D x D (Cross rate between direct & direct).

④ Buying rate → INR Low
CHF High.

$= \frac{63.70}{0.9824} = 64.84121$ (cover rate).

⑤ Market will pay INR = 64·84121 x 25,000
= INR 1,62,1,030

⑥ Ex Margin = $\frac{64.84121}{1621030} \times 0.25\%$.
= 0·16210.

⑦ Cover Rate - Exchange Margin = 64·84121 - 0·16210
= 64·67911

⑧ Rounding off → 64·6775.

⑨ 64·6775 x 25000 = 16,16,937.

⑩ Notional Profit = [1621030 - 1616937]
= 4093

Q Customer desire to retire a EUR bill 1,20,000/- against JPY.

a) What rate will you quote to your customer?
b) What amount of JPY debited to customer?
c) What will be your cover rate?
d) What will be the notional profit?

Sol^n) Sell EUR 1,20,000 against JPY.

2) USD/JPY → 110·86 - 90
EUR/USD → 1·1984 - 86.

3) Direct x Indirect → High x High

4) Buying rate / cover rate = 110·86 x 1·1986
= 132·92474

5) Market will pay JPY = 132·92474 x 1,20,000.
= 15950968·8 ≈ 15950969.

6) Exchange Margin = 132·92474 x 0·25/.
= 0·33231

7) Cover + Exchange Margin = 132·92474 + 0·33231
= 133·25705

8) Rounding off → 133·2575

9) → JPY - 133·2575 x 120000
= 15990900

10) Notional Profit = 15990900 - 15950969
= 39931 JPY

* Forward Rates | Forward contract

Hedging
↓
① Forward contract
② Futures
③ Options

* Factors influencing the exchange rate movement

1. Demand | Supply
2. Balance of Trade | Balance of Payment of any country
   ↓
   Export-Import
   ↓
   Current A/c deficit
3. Inflation Rate
4. Interest Rate differential
5. GDP growth
6. Stable Government
7. Central Bank Intervention
   → Methods of Intervention
   1) Devaluation
   2) Depreciation

Interest rate Parity Theory - Fischer

Q Spot rate → USD 63.50
USD/INR rate → 1% pa
INR rate → 6% pa
Forward rate = ?

$$\text{Forward rate} = \frac{\text{Spot rate } (1 + \text{INR Int rate})}{(1 + \text{USD int rate})}$$

$$= \frac{63.50\,(1.06)}{(1.01)} = 66.85$$

Forward rate = Spot rate + Forward Margin

Forward Margin depends upon interest rate differential.

The currency which has higher interest rate will depreciate against the currency which has lower interest rate & vice versa.

Spot	USD/INR → 63.50-51	GBP/USD - 1.3540-44
Jan	10-11	1MF 5-4
Feb 28/2	34-35	2MF 9-8
Mar 30/3	60-61	3MF 13-12 ↓
Apr 30/4	90-91	
May 31/5	1.15-1.16 ↑	

USD is at premium
INR is at discount
Hence premium is to be added to spot rate.

GBP is at discount
USD is at premium
discount is subtracted from the rate.

A contract which expires on a particular date is known as European option.

6] Your exporter customer wants to book a forward contract for USD 1 lakh for delivery at 30/4/2018. your exchange margin is 0.25%.

i) What rate will you quote?
ii) what will be your cover rate?
iii) What will be the notional profit?

Sol^n: It is a forward purchase contract, European option.

① FPC (EO)

② Maturity → 30/4/2018.

③ Forward rate = Spot rate + Forward Margin
= 63.50 + 0.90 [from chart]
= 64.40 → [Market rate is cover rate].

Cover rate = 64.40

④ Exchange Margin = 0.1610 [64.40 × 0.25%]

64.2390

⑤ Rounding off → 64.2375

⑥ Notional Profit = [64.40 − 64.2375] × 1,00,000

= 0.1625 × 1,00,000

= 16250

Q] Your customer wants to book a forward contract for US $1 lakh for delivery at 25/3/18. Your exchange margin is 0.25%.

i) What rate will you quote?
ii) What will be your cover rate?
iii) What will be the notional profit?

Sol^n: It is a purchase contract, European option.
Maturity = 25/3/2018.

March (30 days) = 63.60 (Mar) − 63.34 (Feb) = 0.26.

	Days		Rate
March	30	×	0.26
	24		?

$= \frac{24 \times 0.26}{30} = 0.208$

Spot → 63.50
upto Feb .34
1st March 63.84
.2080
Market rate 64.0480
(+) Exch Margin .16012
63.88788.
Rounding off 63.8875.

Notional profit = [64.0480 − 63.8875] × 1,00,000
= 0.1605 × 1,00000
= 16050

Q. Importer wants to book a forward contract for USD 2,50,000 for delivery on 31/5/2018.

i) What rate will you quote to customer?
ii) What will be your cover rate?
iii) What will be your notional profit?

Soln ① It is a forward selling contract (European option).

② Maturity = 31/5/2018.

③ Forward rate = Spot rate + Forward Margin
= 63.51 + 1.16
= 64.67 → cover rate.

④ Cover rate = 64.67
⑤ Exch Margin @ 0.25% = 0.161675
64.831675

⑤ Rounding off → 64.8325

⑥ Notional Profit = [64.8325 - 64.67] × 2,50,000
= 0.1625 × 2,50,000
= Rs 40625

★ American Option forward Contract

2/4/17 → USD/INR → 66.25 - 26.
Spot over April end S/A 31 - 32
May end M 58 - 59
June end J 79 - 80
July end J 104 - 105
Aug end A 130 - 131
Exchange Margin → 5p/8p : ps

Q. Importer wants to book a contract of USD 1,00,000. Delivery June 2017.

Exporter wants to book a contract of USD 1,00,000. Delivery on July 2017.

i) What rate will you quote?
ii) What will be your cover rate?
iii) What is the Notional Profit?

Sol°.

66.25	66.56	66.83	67.04	67.29	67.55
66.26	66.58	66.85	67.06	67.31	67.57
2/4	4/4	30/4	31/5	30/6	3/7	31/8

66.90 (66.85+5p) — 67.11 [67.06+5p]

rate = 67.11.
Cover rate = 67.06.
Notional Profit = [(67.66 × 1,00,000) - (67.11 × 1,00,000)]
= 5000 USD

→ Buying contract

67.04	67.29
67.06	67.31
30|6	31|7
1|7	31|7
67.04	67.29
− 0.05	− 0.05
66.99	67.24

1) Quote rate = 66.99
2) Cover rate = 67.04
3) Profit = 5000

★ Holgate's Principle [American option].

Types of contract	Premium	Discount
Forward Purchase contract	Assumption: Early delivery paying to customer at minimum premium	Assumption: late delivery received max discount.
Forward Sale contract	Assumption is late delivery paying charge at maximum premium	Assumption: Early delivery. Pay Minimum discount.

2/4 → 4/4.

GBP/USD.		1·3664 - 68
5/4 to 4/5	1 MF	5 - 4
5/5 to 4/6	2 M	11 - 10
5/6 to 4/7	3 M	17 - 16
5/7 to 4/8	4M	23 - 22

Going left to right, rate is falling, hence it is at discount.

GBP is at discount, USD is at premium.

	1·3664	1·3659	1·3653	1·3647	1·3641
	1·3668	1·3654	1·3658	1·3652	1·3646
Spot	4/4	1MF	2MF	3MF	4MF

Book a GBP/USD forward contract for GBP 1,00,000 for del 4MF for exporter and delivery 3MF for Importer.

a) For delivery 4MF

1·3646	1·3641
- 0·0002	- 0·0002
1·3645	1·3639

for exporter take lower rate to quote.

b) 3 months forward

	1.3658	1.3652
Adding +	0.0002	0.0002
	1.3660	1.3654.

↓

Take higher rate for importer to quote. (selling transaction)

2] Your importer customer has asked to book a GBP 1,00,000 contract against INR for delivery 3MF.

You have to provide.
1) Quote rate
2) Cover rate.
3) Notional Profit.

Sol^n ① Type of contract → Forward sale contract (A.O).

② Delivery → 3MF → 5/6 to 4/7.

③ Amt → GBP 1,00,000 against INR.

Rates.

P D
USD/INR → 4/7.
D P
GBP/USD → 5/6.

{As per Holgate Principle}

Premium Ex margin

USD/INR = 66.29 + 0.80 + (4×26÷30) 5p = 67.143

Spot rate → 4 days of July

GBP/USD = 1.3668 - 0.010 + 0.0002. = 1.3660.
(↓ disc for 2 MF; ↓ Margin)

Quote rate = ~~1.3668-0.010~~.
= 67.1433 × 1.3660
= 91.7177 → Rounding off → [91.72].

Cover rate = [67.1433 - 0.05] × [1.3660 - 0.02] × 100000
= 67.0933 × 1.3658 × 1,00,000
= 916360 → Pay to Market.

Notional profit = [91.72 × 100000] - [9360 × 100000]
= 9172000 - 9163602
= 8398.

2/4/17 → USD/INR → 66.25 - 26.

S/A	End	31 - 32
	M	68 - 59
	J	79 - 80
	J	104 - 105
	A	130 - 131 ↑

Ex Margin 20%.

EUR/USD	11664	- 68.
5/4 to 4/5	4	- 5
5/5 to 4/6	8	- 9
5/6 to 4/7	12	13
5/7 to 4/8.	16	17 ↑

Q. Your exporter customer customer has asked you to book a EUR 1,00,000 against INR for delivery 3MF.

Find 1) Quote rate
2) Cover rate
3) Notional Profit.

Sol: Type of contract → Forward Purchase Contract (A·O).

Del → 3MF → 5/6 to 4/7.

Amt → EUR 1,00,000 against INR.

Currencies → USD (P) / INR (D). → Early delivery → 5/6 (as per Holgate Principle)
EUR (P) / USD (D). → Early delivery → 5/6.

USD/INR = 66·25 + 0·58 + 5/30 × 21p = 66·8650.

EUR/USD = 1·1664 + 0·0008
= 1·1672.

EUR/INR = 1·1672 × 66·8650
= 78·04483.

Cover rate = 78·04483 − 0·15609
= 77·89874.

Rounding off = 77·8975.

Notional Profit = (78.04483 × 100000) - (77.8975 × 100,000)
= 78.04483 - 7789750
= 14733 Rs

* Changes in Forward contract.

Q. Exporter → Del → March 2018
USD 100000 @ 64.10.

① Delivery during the period
② Cancel the contract
→ on due date
→ Before the due date
→ After the due date.
→ Before Automatic cancellation

After maturity date, banks will automatically cancel the contracts on 3rd working day.

③ Early delivery

④ Late delivery (Extension of the contract)
- Before the due date
- After the due date.

Forward purchase contract are cancelled at TT selling rate (Telegraphic Transfer)

Forward Sale contract are cancelled at TT buying rate.

In case of extension of forward contract which is also known as roll over, FERAI says that cancel the old contract at applicable rate and re-book a new contract for extended period.

28/1/18 ★ Forward contracts

① Exporter has booked a FC for USD 1,00,000 @ 64.20 for delivery 31/3/18.

Possibilities (Any 1 will come in exam).
① Delivery on 31/3/18.
② Delivers USD before 31/3/18 → Early delivery (@28/2/18).
Extension or Roll over ← ③ USD is proposed to be delivered on 30/4/18.
④ Not in a position to deliver USD due to order cancellation → cancellation.

★ Cancellation
1) Cancellation on a due date
2) Cancellation before due date.
3) Cancellation after due date.

Automatic cancellation on 3rd working day

Cancellation before Automatic cancellation.

Forward selling contract → TT buying
Forward Purchase contract → TT Selling

Sol^n @ USD/INR → 63·20-21
Ex Margin → 5p.
TTB = 63·15
TTS = 63·26.

It is a forward purchase contract.
FPC cancelled at TTS rate → 63·26.

1) Cancellation on due date:
Customer sells USD 1,00,000 @ 64·20 to the bank under FC.

Bank pays	64,20,000·
Amt Bank receives	63,26,000
	94,000

Bank will pay to the customer net difference of 94000 and the contract will be cancelled on the due date.

2. Cancellation before due date.

In case the customer comes to you for cancellation of forward contract after the due date but before the third working day. Bank will cancel the contract at appropriate rates ie FSC at TTB rate & FPC at TTS rate. The profit if any in favor of the customer will not be paid to the customer, however loss if any will be recovered from the customer.

31/1/18.
USD/INR → 63.20 - 21
S on Feb 20 - 21.
S on Mar 45 - 46.

FSC → TTB/ Forward rate for applicable date.
FPC → TTS/ Forward rate for applicable date.

31/3/2018 → 63.21
.46
.05 → Margin
63.72.

Bank pays = (64.20 - 63.72)
= 0.48 × 100,000
= 48000

Q. Importer has booked a forward contract for USD 1,00,000 @ 64.20 for delivery on 31/3/2018.

On 31/1/18, when the market rates are as below, he approaches you with a request to cancel the contract. What will be the net gain/loss to the importer.

Rates
@ USD/INR → 63.20 - 21.
S on Feb 20 - 21.
S on Mar 45 - 46
Ex Margin → .05

Sol^n: It is a forward sale contract.
FSC cancelled at TTB/Forward rate.

63.20 (spot rate)
.45 (Forward Margin)
63.65
.05 (Ex. Margin)
63.60
↓
Cancel the contract @ 63.60
Recover the difference = 64.20 - 63.60 = .60

0.60 × 100000 = 60,000

∴ Importer will pay 60,000 to the bank.

3 Extension

a. Importer has booked a Forward contract for USD 100,000 @ 64.20 for delivery 31/01/18. On the due date he requests the bank to extend the contract upto 31/03/18.

Two stages of cancellation
i) Cancel the old contract
ii) Book a fresh contract.

Sol^n: i) Cancel the old contract

FSC → TTB → 63.20
.05
63.15

Difference = 1.05 x 100,000
= 105,000 → Amt recovered from customer.

2) Book a fresh contract.

Forward Rate = Spot rate + Forward Margin + Ex Margin
= 63.21 + 0.46 + 0.05
= 63.72

★ Forward Rate Agreement (FRA) / SWAPs

Rates ↗ Buy Rate

3M → (6.25) - (6.30) → Lending Rate.
6M → 6.75 - 6.80
12M → 7.25 - 7.30

Q. Bank A on 1/1/18 borrowed 100 cr for 3mths @6.25.
∴ Repayment Amt = 100 cr + Int
= 101.5625 cr on 1/4/18.

Bank A lends 100 cr for 6 mths to Bank C for 6 mths @ 6.75.
∴ Bank will receive = 103.3750 on 1/7/18.

Difference between Repayment & Lending.
= 101.5625 - 103.3750
= 1.8125 cr for 3 Mths.

∴ Interest for 3 Mths on Rs 101.5625 = 1.8125

Return = $\frac{1.8125}{101.5625} \times 100 \times \underset{\text{↗ Quarter in a year.}}{(4)} = 7.1385$

IMP Q. A 6 year zero coupon bond pays to the holder 6.40% p.a return while a 7 yr zero coupon bond pays 6.75% returns to the holder.

What is the yield to the investor in the 7th year?

Soln Assume FV → 100.

$6 \rightarrow 100(1.0640)^6 = 145.0941$

$7 \rightarrow 100(1.0675)^7 = 157.9702$

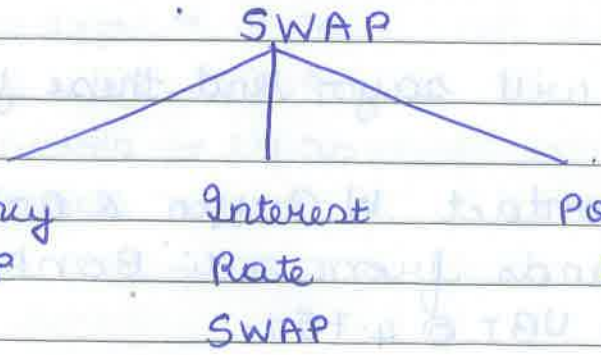
12.8761

$$\text{Yield} = \frac{12.8761}{145.0941} \times 100 = 8.87\%$$

★ SWAPs

↓

Exchange of cash flows



→ Currency SWAP

Exporter → Invoicing in USD

↓

Machine → JPY.

eg SBI offers INR loan @ 10%. as against that USD loans are available @ 5%.

Citi Bank, NY are giving INR loan @ 12%.
" " USD loan @ 3%.

Pr Ex Rate
USD|INR → 64.

Mukesh Ambani wants to acquire a company in US for USD 100 Mio (rate 5%).

W. Buffen wants to invest in a company in India for 640cr (rate 12%).

Union bank of India brings two people together. It will ask Mukesh to borrow 640cr from SBI.
∴ cost will come to 10%.

Union bank will say - lend these funds at 11.75%.

UBI will contact W. Buffen & ask him to borrow funds from Citi Bank @ 3% & lend it to UBI @ 4.75%.
∴ W. Buffen will make profit of 1.75%.

MA →	1.75	WB	1.75
	.10		0.10
	1.85		1.85

UBI = 0.15 + 0.15 = 0.30

18/2/18

✱ Overnight Index Swap (OIS)

① Bank A → Fixed deposits @ Fixed Rate lending at floating Rate.

Either accept floating Rate Deposit.
& lend fixed rate.

OR

Alternatively → sell fixed
Buy floating.

Bank A → OIS → Bank B.
Notional value Rs 100 cr.

① lend at fixed rate → 7.50% to bank B.
from Monday 12/2 to 20/2.

② Borrow at floating rate → MIBOR from Bank B from 12/2 to 20/2.

12/2 → 7.60
13/2 → 7.80
14/2 → 6.90
15/2 → 7.20
16/2 → 7.10
20/2 → 8.20

② Bank A to receive on Rs 100 cr @ 7.50% for 9 days

$$= \frac{100 \times 9 \times 7.50}{36500} = 18,49,315.$$

② To pay 100 cr @ 7.60% for 1 day interest will become → 2,08,219 12/2.

12/2	To pay 100 cr @ 7.60%	→	2,08,219
13/2	100.208219 @ 7.80%	→	2,13,743
14/2.	100.0421962 @ 6.90%	→	1,89,121
15/2	100.0611083 @ 7.20%	→	1,97,381.
16/2	100.0808464 @ 7.10% (4 days)	→	77811.
20/2	100.1587175 @ 8.20		225014
	Total		18,12,189

∴ Pay to bank = ₹ 18,12,189.

Net Amt = 1849315 − 1812189
= 37,126.

★ Interest Rate Swap (IRS)

Q A corporate has applied for a 100 cr loan from a bank for 3 mths starting from 4th mth from now. However the company's finance officer feels that interest rate may rise & enters into a FRA 3/6 @ 7.85%.

Bank has sanctioned the corporate loan at LIBOR + 6% with LIBOR of 4mth 1st day as reference rate.

LIBOR works out to be 1.20%, what will be the gain/loss to the corporate?

→ Corporate will be reqd to pay

$$= \frac{0.65 \times 100 \text{ cr} \times 3}{1200} = 16,25,000.$$

$$\left\{ \begin{array}{l} 6 + 1.20 \\ = 7.20 - 7.85 \\ = 0.65 \end{array} \right\}$$

* Bonds

Bonds issued by Govt.
Debentures issued by corporates.

Bond is a financial instrument used by government, corporates, banks & financial institutions to borrow funds from the investors.

Bonds issued by corporates are termed as debentures & in normal course corporates will have to provide charge in their asset in the form of collateral to the investor. Hence corporate bonds are termed as debentures which are secured in nature.

→ Features of bonds.

★ Types of Yields

1. Coupon Yield / Nominal Yield → 10% quarterly.
2. Effective Yield → 10.38%.

$$\left[\left(1+\frac{R}{n}\right)^{n}-1\right] \times 100$$

3. Current Yield.

$$\text{Current Yield} = \frac{\text{Current Income}}{\text{Current Investment}}$$

Q. A bond of face value Rs 10,000 with a coupon rate 10.50% was purchased for Rs 10,650/- What is the current yield to the investor?

$$\frac{1050}{10650} \times 100 = 9.86\%$$

4. Real Yield to investor

Coupon Rate = 10%.
Interest Rate = 6%.
Real Yield = ?

$$\text{Real Yield} = \left[\frac{(1+CR)}{(1+IR)}-1\right] \times 100$$

$$= \left[\frac{(1+10\%)}{(1+6\%)}-1\right] \times 100 = 3.77\%.$$

★ Yield to Maturity

$$YTM = \frac{n \times C + (FV - CMP)}{n\left(\frac{FV + CMP}{2}\right)}$$

OR

$$YTM = \frac{n \times C + (FV - CMP)}{n(0.4FV + 0.6(CMP))}$$

Q. CMP → FV → 10,000
CR → 7%.
Tenure = 5 yrs
MR = 8%.

Sol^n:

	Coupon Payment	
1	$700/(1.08)^1$	648.15
2	$700/(1.08)^2$	600.14
3	$700/(1.08)^3$	555.68
4	$700/(1.08)^4$	514.52
5	$700/(1.08)^5$	476.41
		2794.89

$$FV = \frac{10,000}{(1.08)^5} = 6805.85$$

Q. A bond of FV ₹10,000 with a coupon rate of 8.650% & tenure of 5yrs is available at CMP of 10,830. What is your YTM?

Soln: $YTM = \frac{n \times C + (FV - CMP)}{n(0.4FV + 0.6(CMP))}$

$= \frac{5 \times 0.0865 + (10,000 - 10830)}{5[(0.4 \times 10,000) + (0.6 \times 10830)]}$

$= 6.71\%$

IMP Q. You are a holder of a bond, FV = ₹10,000, which is going to pay 50 semiannual coupon of ₹800 each. Current Market rate = 10%. At what rate will you be able to sell the bond in the market?

Soln: $YTM = \frac{800[(1-0.05)^{50}-1]}{0.05 \times (1.05)^{50}} + \frac{1000}{(1.05)^{50}}$

$= \frac{800 \times 10.4674}{0.5 \times 11.4674} + \frac{10,000}{11.4674}$

$= 14604.74 + 872.04$

$= 15476.78$ or 1469.9441

NDTL - Net Demand & Time Liability

23/3/18 - Assignment → Foreign Exchange Problem/Transaction [20 Marks]

Sundaram

11/3/18.

* Classification, Valuation & Accounting Aspect of Banks fixed income Portfolio

Valuation → FIFO
LIFO
WAP [Weighted Average]

→ SLR
1) GSec.
2) SDL - State Development loan.
3) PSU Bonds replaced by CG/SG.
4) T Bills.
5) Gold.

→ NonSLR → Max 10% of Previous Year's Portfolio.
1) Bank Deposits
2) CIDI
3) Equity
4) MF Investments
5) Debentures

→ Held to Maturity (HTM → Banking Books
→ Available for Sale (AFS) } Trading books
→ Held for Trading (HFT) }

→ 90 days.

where the investment of tax saving bond of TSS can be ~~under~~ held under HTM to an extent of 25%, maximum 3%.

Bank can transfer to AFS category only one in a year preferably at the start of the year.

Any security held under HTM category sold by the bank in profit than that profit cannot be used for distribution of dividends. It will be transferred to capital reserve known as Investment Fluctuation Reserve (IFR).

Securities under AFS when sold at the profit, the profit will be transferred to P&L which can be used for any purpose, including distribution of dividends.

In case of AFS, the security purchased are held in the books of the bank at book value on the last day of the financial year ie 31st March, the market price of the security is higher than the book value, no provision is required. However, if the market price is lower than the book value then the difference between market price & book value has to be provided by the bank by debiting their P&L.

* Strategies allotted by the bank.

In interest rate scenarios, where interest rates are going down banks will earn lower interest on loans. Hence instead of lending further they would prefer to park their funds in investment portfolio. If they are certain then interest rate are bound to go down then they would park it

under AFS long term & if they are not sure then they would park the funds in AFS short term or HTM portfolio.

In case of interest rate rising scenario, bank will prefer to lend more funds than parking in investment. Hence they will reduce their investment portfolio considerably. To meet their SLR requirements if they have to invest then they will park it under HTM short term.

★ Shifting among categories

★ Important Questions

→ Money Market
1) T Bill
2) Commercial Paper
3) OIS (Overnight Index Swap)
4) Repo
5) Forex BIS | S/B
6) Arbitrage

→ Capital Markets
1) Bonds
2) Duration | Modified Duration

→ Forex Market.
1) Exchange Arithmetic → cross currency.
2) Forward contracts
3) FRA's
4) SWAPs

CG Sec → Central Govt Securities.

1) Cross currency - spot
2) Forward Contract Booking / Cancellation / Extention / Early Delivery.

Banks should create a capital reserve (IFR) which should be minimum 5% of AFS / HFT ~~should be minimum~~ Portfolio. In case of AFS/HFT ie trading portfolio, the valuation is done on Mark to Market (MTM) basis.

★ Valuation of Quoted Securities.

CG Sec
SDL
PSU Bond
} FIMMDA (Fixed Income Money Market Dealers Association).

In case of listed shares → last price traded will be used.

In case of unlisted shares → Avg price traded during the year will be used

★ Forex Valuation

FEDAI rates → FCNR, RAC, EEFC — Non Position

Bank holds → Forex Positions

SPOT

Nostro Balance

cash / Tom / spot Transaction