EXAMPLE – 52

3 Months FR

₹/$ = ₹ 72.50

Rate of Interest

India = 10% p.a. Compounded Continuously

US = 8% p.a. Compounded Continuously

Spot Rate = ?

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$$F = S \times \frac{e^{rt}}{e^{rt}}$$

$$₹72.50 = S \times \frac{e^{0.10 \times \frac{3}{12}}}{e^{0.08 \times 3/12}}$$

$$₹72.50 = S \times \frac{e^{0.025}}{e^{0.02}}$$

$$₹72.50 = S \times e^{0.005}$$

$$S = \frac{72.50}{e^{0.005}} = \frac{72.50}{1.00501} = 72.14$$

EXAMPLE – 53

Spot Rate ₹/£ = ₹ 90.45

3 Months FR

₹/£ = ₹ 92.75

Interest Rate

India = 12% Compounded Annually

UK = ?

Effective Rate

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$$₹92.75 = ₹90.45 \times \frac{(1.12)^{3/12}}{(1+r)^{3/12}}$$

$$(1+r)^{3/12} = \frac{₹90.45 \times (1.12)^{3/12}}{92.75}$$

$$(1+r)^{3/12} = 1.00323$$

$$1+r = (1.00323)^{12/3}$$

$$r = [1.0130 - 1] \times 100 = 13\% \text{ P.a.}$$

10.43 % p.a.

EXAMPLE – 54

Spot Rate ₹/$ = ₹ 74.25

9 Months FR

₹/$ = ₹ 75.50

Rate of interest

India = ?

USA = 8% p.a. Effective.

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$$₹75.50 = ₹74.25 \times \frac{(1+r)^{9/12}}{(1.08)^{9/12}}$$

$$\frac{₹75.50 \times (1.08)^{9/12}}{74.25} = (1+r)^{9/12}$$

$$1.07725 = (1+r)^{9/12}$$

$$(1.07795)^{12/9} = 1+r$$

$$1.1043 = 1+r$$

$$r = 10.43\% \text{ p.a.}$$

EXAMPLE – 55 (Imp)

Spot Rate ₹/$ = 71.50

Rate of interest

India = 12% p.a.

USA = 10% p.a.

(i) Calculate 1 year FR

(ii) Calculate premium/discount in $

(iii) Calculate premium/ discount in ₹

Assuming IRP hold good.

$f = S \times \frac{1+r}{1+r}$

$\left(\frac{f}{S}\right) = \frac{1+r}{1+r}$

$\frac{72.80}{71.50} = \frac{1.12}{1.0}$

$= 1.0182 = 1.0182$

$= 1.82\%$ $= 1.82\%$ P.A.

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1 YEAR FR

$f = S \times \frac{1+r}{1+r}$

$= ₹71.50 \times \frac{1.12}{1.10}$

$= ₹72.80$

premium in $

$\text{premium} = \frac{f-S}{S} \times 100$

$= \frac{72.80 - 71.50}{71.50} \times 100$

$= 1.82\%$

Discount in ₹

$\text{Disc. in ₹} = \frac{S-f}{f} \times 100$

$\frac{71.50 - 72.80}{72.80} \times 100 = 1.79\%$ Disc. in ₹

Suppose

Rate of Intt

USA = 15% p.q. ($)

India = 20% p.q. (₹)

Calculate premium in $:

$$\text{premium in \$} = \left[\frac{1.20}{1.15} - 1\right] \times 100 =$$

$$= 4.35\% \text{ p.q.}$$

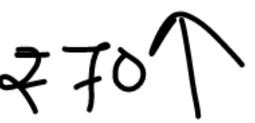
EXAMPLE – 56

Spot Rate ₹/$ = ₹ 70

6 Months FR = ?

Discount in (₹) = 6% p.a.

FR = ?



(Page No. 11)

$$\text{Disc. in ₹} = \frac{S-f}{f} \times 100 \times \frac{12}{6}$$

$$-0.03 = \frac{70-f}{f}$$

$$-0.03f = 70 - f$$

$$0.97f = 70$$

$$f = \frac{70}{0.97} = ₹72.16$$

QUESTION – 36

On April 1, 3 months interest rate in the UK £ and US $ are 7.5% and 3.5% per annum respectively. The UK £/US $ spot rate is 0.7570. What would be the forward rate for US $ for delivery on 30th June?

UK 7.5% p.a

US 3.5% p.a

SR £/$ 0.7570

3 FR

(Study Material & PM)

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3 Month FR using IRP

$$F = S \times \frac{1+r}{1+r}$$

$$F = £0.7570 \times \frac{1.01875}{1.00875}$$

$$= £0.7645$$

QUESTION – 37

On 1st April, 3 months interest rate in the US and Germany are 6.5 per cent and 4.5 per cent per annum respectively. The $/DM spot rate is 0.6560. What would be the forward rate for DM for delivery on 30th June?

(Practice Manual)

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QUESTION – 38

The following table shows interest rates for the United States Dollar and French Franc. The spot exchange rate is 7.05 Franc per Dollar. Complete the missing entries:

	3 Months	6 Months	1 Year
Dollar interest rate (annually compounded)	11 ½ %	12 ¼ %	?
Franc interest rate (annually compounded)	19 ½ %	?	20%
Forward Franc per Dollar	?	?	7.5200
Forward discount per Franc percent per year	?	6.3%	

(Practice Manual)
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QUESTION – 39 (Imp)

The US dollar is selling in India at ₹ 55.50. If the interest rate for 6 months borrowing in India is 10% per annum and the corresponding rate in USA is 4%.

(i) Do you expect that US dollar will be at a premium or at discount in the Indian Forex Market?

(ii) What will be the expected 6-months forward rate for US dollar in India? and

(iii) What will be the rate of forward premium or discount?

(Study Material & PM)

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SR ₹/$ 55.50

India = 10% P.A.

USA = 4% P.A.

① Rate of Intt in USA is less than Rate of Intt in India, hence $ will be at premium as per IRP.

② 6 Months FR using IRP

$$F = S \times \frac{1+r_A}{1+r_B}$$

$$F = ₹55.50 \times \frac{1.05}{1.02} = ₹57.13$$

③ premium in $

$$\text{premium in \$} = \frac{F-S}{S} \times 100 \times \frac{12}{6}$$

$$= \frac{57.13-55.50}{55.50} \times 100 \times \frac{12}{6}$$

$$= 5.87\% \text{ premium in \$}$$

QUESTION – 40

The USD Dollar is selling in India at ₹ 72.50. If the interest rate for a 3 – months borrowing in India is 6% per annum and the corresponding rate in USA is 2.75%.

(i) Do you expect that US dollar will be at a premium or at discount in the Indian Forex Market?

(ii) What will be the expected 3 – months forward rate for US dollar in India?

(iii) What will be the rate of forward premium of discount?

H.W.

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(Exam November - 2019)

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