

Derivatives

Question 1

From the following data for certain stock, find the value of a call option:

Price of stock now = Rs. 80

Exercise price = Rs. 75

Standard deviation of continuously compounded
annual return

= 0.40

Maturity period = 6 months

Annual interest rate = 12%

Given

Number of S.D. from Mean, (z) Area of the left or right (one tail)

0.25 0.4013

0.30 0.3821

0.55 0.2912

0.60 0.2743

$e^{0.12 \times 0.05} = 1.0060$

$\ln 1.0667 = 0.0645$

Question 2

A Inc. and B Inc. intend to borrow \$200,000 and \$200,000 in ¥ respectively for a time horizon

of one year. The prevalent interest rates are as follows :

Company	¥ Loan	\$ Loan
A Inc	5%	9%
B Inc	8%	10%

The prevalent exchange rate is \$1 = ¥120.

They entered in a currency swap under which it is agreed that B Inc will pay A Inc @ 1% over the ¥ Loan interest rate which the later will have to pay as a result of the agreed currency swap whereas A Inc will reimburse interest to B Inc only to the extent of 9%.

Keeping the exchange rate invariant, quantify the opportunity gain or loss component of the ultimate outcome, resulting from the designed currency swap.