AFM UPDATES-SESSION 4

MCQ BASED QUESTION

QUESTION 1 – FOREX

If the bid-ask spread on Euro is 0.30 and the middle rate is Rs./Euro : 41.50, then the Rs./Euro quote is:

A. 41.50/65
B. 41.35/65
C. 41.40/75

ANSWER:

B is correct.

Bid rate = 41.50 – 0.30/2 = 41.35
Ask rate = 41.50 + 0.30/2 = 41.65

QUESTION 2 – PORTFOLIO MANAGEMENT

Betas of two stocks are 0.73 and 1.20 respectively. If the standard deviation of the market returns is 15.49%, the covariance between the two stock's return is

A. $210.20(\%)^2$
B. $288.20(\%)^2$
C. $175.20(\%)^2$

ANSWER:

A is correct.

According to the single index model

$$COV(R_pR_q) = \alpha_p\alpha_q\sigma_m^2$$
$$= 0.73\times1.20\times(15.49)^2$$
$$= 210.2(\%)^2$$

QUESTION 3 – MUTUAL FUNDS

The following information is available for a portfolio-

Return of portfolio	=	20.125%
SD of portfolio returns	=	21.63%
Return on market index	=	15.5%
SD of market index	=	14.42%
Risk free rate of return	=	7.5%

You are required to calculate net selectivity of portfolio.

A. 1%
B. .75%
C. 0.625%

ANSWER:

C is correct.

Return from net selectivity $= \left(Rp - \left(R_F + \left(R_m - R_F \right) \right) \times \frac{\sigma p}{\sigma m} \right)$

$= 20.125 - \left(75 + (15.5 - 7.5) \times \frac{21.63}{14.42} \right)$

= 20.125- 7.5+8×1.5= 0.625%

QUESTION 4 – BOND VALUATION

AAA bond of Attire Co. of face value of Rs.100 and coupon of 10% is currently selling in the market at Rs.100. The bond presently has 4 years to maturity. What is the percentage change in the price of the bond, if there is 100 BP increase in the market interest rate, when the coupon is paid annually?

A. Decreases by 1.90%
B. Decreases by 2.90%
C. Decreases by 3.17%

ANSWER:

C is correct.

YEAR	COUPON	PVIF	W	WX
1	10	0.909091	9.090909091	9.090909
2	10	0.826446	8.26446281	16.52893
3	10	0.751315	7.513148009	22.53944
4	110	0.683013	75.13148009	300.5259

B0=100 348.6852

Duration= Total wx/B0= 348.6852/100= 3.49

Modified duration= 3.49/1.1= 3.17

So if interest rates rise by 100bp it means price will decrease by 3.17%

QUESTION 5 – EQUITY VALUATION

Consider the following information related to XYZ Ltd.

EPS for the next year as predicted by industry analysts = Rs. 15

Number of outstanding shares = 2,00,000

Market capitalization of XYZ = 540 lakhs

Earnings growth rate for the next year as per analyst expectations 25%

The Trailing PE ratio of XYZ is:

A. 18
B. 22.5
C. Cannot be determined

ANSWER:

B is correct.

Given E1 = 15
Which contain a growth of 25%
Therefore E0 = 15/1.25
= 12
Therefore current earnings = 2 lakhs × 12
= 24 lakhs
Therefore Trailing PE ratio = Market cap / Current earnings
= 540/24
= 22.5

QUESTION 6 –FOREX

An American investor is considering to invest in an Indian security with a beta of 1.20 and standard deviation of returns 8%. The holding period of investment will be one year. The current rupee- dollar exchange rate is Rs.46/$. The expected depreciation of rupee against dollar is 6% with a standard deviation of 10%. The expected return from the market portfolio in India is 15% and the correlation between the return on security and the exchange rate is 0.10. The risk free rate of return in India is 8%.

You are required to calculate the expected return and risk for the US investor.

	Expected return (Approx)	Risk(Approx)
A.	8.35%	$129(\%)^2$
B.	9.41%	$180(\%)^2$
C.	10.25%	$150(\%)^2$

ANSWER:

B is correct.

Expected return from the security $= R_f + \beta(R_m - R_f)$
$= 0.08 + 1.20\ (0.15 - 0.08)$
$= 16.4\%$

Let the rupee-dollar exchange rate after one year will be x

$$\therefore \quad \frac{\frac{1}{46} - \frac{1}{x}}{\frac{1}{46}} = 0.06$$

$$\text{or,} \quad \frac{1}{46} - \frac{1}{x} = 0.06 \times \frac{1}{46}$$

$$\text{or,} \quad \frac{1}{x} = \left[\frac{1}{46} - 0.06 \times \frac{1}{46}\right] = \frac{1}{46} \times 0.94$$

$$\text{or,} \quad x = \frac{46.00}{0.94} = 48.94$$

Suppose, the US investor invested $ 100 in the Indian security

∴ Amount invested in rupees = 100 × 46 = Rs.4600

∴ The value of investment after one year = 4600 (1.164) = Rs.5354.40

$$\therefore \text{ Value of investment in terms of dollar} = \frac{5354.40}{48.94} = \$109.41$$

$$\therefore \quad \$ \text{ return of investment} = \frac{109.41 - 100}{100} = 9.41\%$$

$$\therefore \quad \text{Expected return to US investor} = 9.41\%$$

$$\text{Variance of return} = (8)^2 + (10)^2 + 2 \times 0.10 \times 8 \times 10$$
$$= 180(\%)^2$$

$$\text{Total risk of investment} = 180(\%)^2 .$$

QUESTION 7 – IRRM AND RM

A particular portfolio having VaR of 50,000 at 97.5% confidence level implies that there is a

A. 2.5% probability of portfolio's value falling by less than 50,000
B. 2.5% probability of portfolio's value rising by more than 50,000
C. 2.5% probability of portfolio's value falling by more than 50,000

ANSWER:

C is correct.

97.5% VaR of 50,000 means -

1st interpretation -There is 97.5% probability that portfolio will either gain or if it losses, maximum loss would be 50,000 with a 2.5% chance of being exceeded.

2nd interpretation - In 2.5% of the worst circumstances, loss would be at least 50,000.