Subject: Fundamental of Investment

Sem 6

Chapter: Risk and Return

Q① Following are the price and other details of three stocks for the year 2020. Calculate the total Return as well as the return relative for the three stocks:

Stock	opening price	Dividend paid	Ending price
A	30	3.40	34
B	72	4.70	69
C	140	4.80	146

Solution

$$\text{Total Return} = \frac{\text{Cash Payment received during the year} + \text{Price change over the period}}{\text{Price of the investment at the beginning}}$$

$$\text{Return relative} = 1 + \text{Total Return}$$

$$A = \frac{3.40 + (34-30)}{30} = 0.247 \text{ or } 24.7\%$$

Return relative $= 1 + 0.247 = 1.247$

$$B = \frac{4.70 + (69-72)}{72} = 0.024 \text{ or } 2.4\%$$

Return relative $= 1 + 0.024 = 1.024$

$$C = \frac{4.8 + (146-140)}{140} = 0.077 \text{ or } 7.7\%$$

Return relative $= 1 + 0.077 = 1.077$

A earned the highest return

Solution of Q no. 2

(d)

Period	Returns R_i	Deviation $R_i - \bar{R}$	Square of Deviation $(R_i - \bar{R})^2$
1	7	3.6	12.96
2	3	-0.4	0.16
3	9	-12.4	153.76
4	6	2.6	6.76
5	10	6.6	43.56

$$\text{Variance} = \frac{\Sigma (R_i - \bar{R})^2}{N-1} = \frac{217.2}{5-1} = 54.3$$

(e) Standard deviation
= square root of variance
= square root of 54.3
= $\sqrt{54.3}$
= 7.4.1. (Approx)

Ans 2

Q.2 During the past 5 years, the returns of a stock were as follows:

Year	Return
1	0.07
2	0.03
3	-0.09
4	0.06
5	0.10

Compute the following (a) Cumulative wealth Index (b) arithmetic mean (c) Geometric Mean (d) Variance and (e) Standard deviation.

Solution

(a) Cumulative wealth Index

$CWI_5 = 1(1.07)(1.03)(0.91)(1.06)(1.10) = 1.169$

(b) Arithmetic Mean

$\bar{R} = \frac{0.07 + 0.03 - 0.09 + 0.06 + 0.10}{5} = \frac{0.17}{5}$

$= 0.034$ or 3.4%

(c) Geometric Mean

$GM = \{(1.07)(1.03)(0.91)(1.06)(1.10)\}^{1/5} - 1$

$= 0.032$ or 3.2%

(3) You are thinking of acquiring some shares of XYZ Ltd. The rates of return expectations are as follows:

Possible rate of Return	Probability
0.05	0.20
0.10	0.40
0.08	0.10
0.11	0.30

Compute the expected return on the investment:

Solution

Expected Return

$= (0.20)(0.05) + (0.40)(0.10) + (0.10 \times 0.08) + (0.30)(0.11)$

$= 0.091$

$= 9.1\%$

Ans