DAFFODIL INSTITUTE OF INFORMATION TECHNOLOGY (DIIT)

Third Year, Sixth Semester

BBA (Honours) in Tourism and Hospitality Management (THM)

Fundamentals of Finance

Chapter -2

Concepts of Risk and Return

Formula for Concepts of Risk and Return

1. When probabilities of the returns are known

Expected Return $(\bar{X}) = \Sigma (X_i \times P_i)$

Where,

X_i = Net Cash Inflows

P_i = Probabilities

2. When probabilities of the returns are unknown

$$\text{Expected Return } (\bar{X}) = \frac{\Sigma Xi}{n}$$

Where,

X_i = Net Cash Inflows

n = Number of Years

3. When probabilities of the returns are known

$$\text{Standard deviation } (\sigma) = \sqrt{(x_i - \bar{x})^2 \times p_i}$$

Where,

X_i = Net Cash Inflows

$\bar{X}$ = Expected Returns

P_i = Probabilities

4. When probabilities of the returns are unknown

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{(x_i - \bar{x})^2}{n-1}}$$

Where,

X_i = Net Cash Inflows

$\bar{X}$= Expected Returns

n = Number of Years

5. Portfolio Return $(R_{p)} = \Sigma (W_x \times \bar{X}) + (W_y \times \bar{Y})$

Where,

W_i = Weight of individual security in the portfolio.

$\bar{X}_i$ = Expected return of individual security in the portfolio.

$\bar{Y}_i$ = Expected return of individual security in the portfolio.

6. Portfolio standard deviation $(\sigma_p) = \sqrt{\Sigma (w_x^2 \times \sigma_x^2) + (w_y^2 \times \sigma_y^2)}$

[If Covariance and Correlation Coefficient is not given]

7. Portfolio standard deviation $(\sigma_p) = \sqrt{\Sigma(w_x^2 \times \sigma_x^2) + (w_y^2 \times \sigma_y^2) + 2(w_x \times w_y) \times COV_{x,y}}$

[If Covariance is given]

8. Portfolio standard deviation $(\sigma_p) =$

$$\sqrt{\Sigma (w_x^2 \times \sigma_x^2) + (w_y^2 \times \sigma_y^2) + 2 \times (\sigma_x \times \sigma_y) \times (w_x \times w_y) \times COR_{x,y}}$$

[If Correlation Coefficient is given]

9. Portfolio standard deviation (σ_p)

$$= \sqrt{\Sigma(w_x^2 \times \sigma_x^2) + (w_y^2 \times \sigma_y^2) + (w_z^2 \times \sigma_z^2) + (2 \times w_x \times w_y \times COV_{x,y}) + (2 \times w_y \times w_z \times COV_{yz}) + (2 \times w_x \times w_z \times COV_{x,z})}$$

[If there are three projects]

10. When probabilities of the returns are known

Covariance $(COV_{x,y} = \Sigma (X_i-\bar{X}) (Y_i-\bar{Y}) P_i$

11. When probabilities of the returns are unknown

Covariance $(COV_{x,y}) = \frac{\Sigma (Xi-\bar{X}) (Yi-\bar{Y})}{n-1}$

12. Coefficient of Variation (CV) = $\frac{\text{Standard Deviation } (\sigma)}{\text{Expected return}(\bar{X})}$

13. Variance $(\sigma^2) = (x_i - \bar{x})^2 \times p_i$

14. Correlation of coefficient $(COR_{x,y}) = \frac{COVxy}{\sigma x \times \sigma y}$

15. Portfolio Beta $(\beta_p) = \Sigma (W_x \times \beta_x) + (W_y \times \beta_y)$

Where,

βp = Portfolio beta.

W_x = Weight of individual security in the portfolio

β_x = Beta of individual security in the portfolio.

16. Total Return (TR) = $\frac{CF+(PE-PB)}{PB}$

Where,

CF= Cash Flows during the Period

PE= Ending Price/ Ending Value

PB= Beginning Price/ Beginning Value

17. Relative Return (RR)/ Holding Period Return (HPR)= $\frac{CF+PE}{PB}$

18. Range of Return= Highest Return- Lowest Return

19. Weight of Stocks (W_i)= $\frac{\text{Investment in individual security}}{\text{Total Investment}}$

20. Capita Asset Pricing Model (CAPM)

$E(R) = R_f + (R_m - R_f) \beta$

Where,

E(R) = Required Rate of Return

R_m = Return on Market

R_f = Risk Free Rate of Return

β = The Beta Coefficient for the Asset