PORTFOLIO MANAGEMENT-TRIAL QUESTIONS

1) **Explain the following terms as used in Portfolio management and give examples and/or furmulas.**
   a) Investment
   b) Speculation
   c) Technical analysis
   d) Fundamental analysis
   e) Common stock
   f) Eurobonds
   g) Diversifiable vs non-diversifiable risk
   h) Municipal bonds
   i) Portfolio
   j) Risk and return trade off
   k) Portfolio theory
   l) Asset allocation
   m) Security selection
   n) CAPM – Markowitz Model
   o) Stock valuation
   p) Optimal portfolio

2. **Consider the two assets A and B for which returns (%) under different conditions of economy are given as below. Find the expected return and risk (as measured by standard deviation of return) of each asset.**

		Returns	
Condition of Economy	Prob.	Stock A	Stock B
Recession	0.10	-18.0	-10.0
Below avg.	0.20	-4.0	2.0
A verage	0.40	12.0	8.0
Above avg.	0.20	24.0	12.0
Boom	0.10	30.0	18.0
	1.00		

3. **What are the different sources of risk?**

Possible <mark>Answer</mark>: The different types of risks are as below (not an exclusive list):

   a) Business Risk
   b) Financial Risk
   c) Interest rate risk
   d) Liquidity risk
   e) Market risk
   f) Event Risk

g) Exchange Rate Risk
h) Purchasing-power risk
i) Tax risk
j) Etc

4. Find the portfolio return and risk

Stock	$E(R_i)$	W_i	Variance (σ_i^2)	Standard Deviation (σ_i)
A	0.12	0.40	0.0064	0.08
B	0.18	0.60	0.0100	0.10

Correlation coefficient between returns of Stocks A and B $= 0.8$

Answer.

Portfolio Return $= 0.40*0.12 + 0.60*0.18 = 0.156 = 15.6\%$

$$\sigma_{port} = \sqrt{\sum_i^n w_i^2 \sigma_i^2 + \sum_{i=1}^n \sum_j^n w_i w_j Cov_{ij}}$$

Portfolio Standard Deviation $= (0.4 \times 0.4 \times 0.08 \times 0.08 + 0.6 \times 0.6 \times 0.10 \times 0.10 + 0.4 \times 0.6 \times 0.8 \times 0.08 \times 0.10 + 0.6 \times 0.4 \times 0.8 \times 0.10 \times 0.08)^{\frac{1}{2}} = (0.0049312)^{\frac{1}{2}} = 0.070223 = 7.02\%$

5. **Explain Markowitz Portfolio Theory?**

Answer.

- Markowitz showed that the variance of the rate of return was a meaningful measure of portfolio risk under a reasonable set of assumptions. He also derived a formula for computing the variance/SD of a portfolio. These formulas for the variance of a portfolio not only indicate the importance of diversifying your investments to reduce the total risk of a portfolio, but also showed how to effectively diversify.
- Markowitz theory achieved the following:
- Markowitz demonstrated that the variance/SD of the rate of return is a meaningful measure of portfolio risk under reasonable assumptions. Derives the expected rate of return for a portfolio of assets and an expected risk measure Shows that the variance of the rate of return is a meaningful measure of portfolio risk
- Derives the formula for computing the variance/SD of a portfolio, showing how to effectively diversify a portfolio

6. **Differentiate between Systematic and Unsystematic risk.**
Answer.

Systematic Risk:

- Only systematic risk remains in the market portfolio and is the variability in all risky assets caused by macroeconomic variables

- Systematic risk can be measured by the standard deviation of returns of the market portfolio and can change over time

- Beta measures an asset' s systematic risk Unsystematic Risk:

It is specific to the company or industry. It is also known as "specific risk", this risk is specific to individual stocks. Like business risk and financial risk. Unsystematic risk is uncorrelated with systematic risk. The part of an asset's risk that is not correlated with the market portfolio
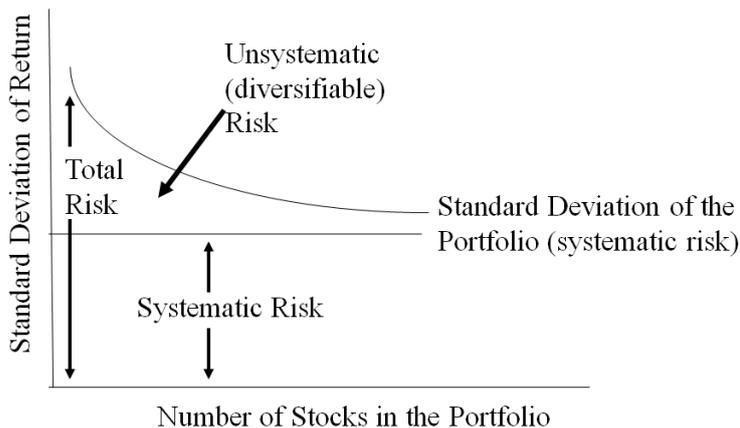
7. **How diversification can reduce Unsystematic Risk of a given portfolio?**

Ans.

Diversification and the Elimination of Unsystematic Risk:

The purpose of diversification is to reduce the standard deviation of the total portfolio This assumes that imperfect correlations exist among securities As the number of securities added to a portfolio increases, the average covariance for the portfolio declines

8. **What is the meaning of Capital Asset Pricing Model?**

Answer.

Asset pricing theory helps us to understand the cross-sectional differences in expected returns for a given set of assets. It offers a framework to identify and measure risk as well as assign rewards for risk bearing.

• The Capital Asset Pricing Model (CAPM) indicates what should be the expected or required rates of return on risky assets. It helps to value an asset by providing an appropriate discount rate to use in dividend valuation models. It can be used to compare an estimated rate of return to the required rate of return implied by CAPM for over/under valued securities CAPM will allow you to determine the required rate of return for any risky asset. This helps to value an asset by providing an appropriate discount rate to use in dividend valuation models

Major Assumptions:

All investors are Markowitz efficient investors who want to target points on the efficient

frontier. Investors can borrow or lend any amount of money at the risk-free rate of return (RFR).

All investors have homogeneous expectations; that is, they estimate identical probability distributions for future rates of return. All investors have the same one-period time horizon such as one-month, six months, or one year.

All investments are infinitely divisible, which means that it is possible to buy or sell fractional shares of any asset or portfolio. There are no taxes or transaction costs involved in buying or selling assets. There is no inflation or any change in interest rates, or inflation is fully anticipated.

Capital markets are in equilibrium. This means that we begin with all investments properly priced in line with their risk levels.

9. **How Risk-Free Asset can influence portfolio expected risk and return prospective?**

Answer.

Risk-Free Asset:

- An asset with zero standard deviation
- Zero correlation with all other risky assets
- Provides the risk-free rate of return (RFR)
- Will lie on the vertical axis of a portfolio graph
- The existence of a risk-free asset resulted in deriving a capital market line (CML) that became the relevant frontier
- The covariance of the risk-free asset with any risky asset or portfolio will always equal zero. Similarly the correlation between any risky asset and the risk-free asset would be zero.
- Combining a Risk-Free Asset with a Risky Portfolio Expected return: the weighted average of the two returns is a linear relationship.
- Therefore, the standard deviation of a portfolio that combines the risk-free asset with risky assets is the linear proportion of the standard deviation of the risky asset portfolio.

10. How do you select securities for investment?

Portfolio Asset Selection based on three fundamental characteristics:
- Diversification to avoid unsystematic risk
- Diversification should be on the correlation between the different securities
- The correlation should be negative

11. Why does investment theory talk about an Optimal Portfolio?

Answer.

Optimal Portfolio: Higher Indifference curve Gives Higher level of utility
Portfolio in which the risk-reward combination is such that it yields the maximum returns (provides the highest utility) possible under the current and anticipated circumstances. Thus, an optimal portfolio is the portfolio that considers the investor's own greed and/or how risk averse he/she. Although Markowitz Theory of Optimal Portfolio is quantitative, Individual investor's optimal portfolio is subjective.