

Q&A: Portfolio Risk Management & Ethics

Question 1: To what does the term *unsystematic* or *nonsystematic* refer?

Answer 1: Unsystematic risks are those that are unique to a single company, industry, or stock. Here are some examples:

- **Business risk:** The risk of a business going bankrupt or, in other words, its speculative nature
- **Financial risk:** The risk associated with the capital structure of a company
 - For example, the more a firm uses debt financing for expansion purposes, the higher its return on equity (ROE) will be because the financial leverage is based on a smaller amount of equity.
- **Default risk:** The risk that a company may default on its financial obligations like interest payments to bond holders
 - Note that default risk does not apply to stocks.
- **Country risk:** Risks in international investments that are particular to a country's economic and political system
 - The United States is often regarded as having the lowest country risk, whereas some Latin American and Middle Eastern countries are thought to have high country risks.

Question 2: What are some examples of investment return objectives?

Answer 2: Common investment return objectives include the following:

- **Capital preservation:** The objective is primarily a return of principal as opposed to return on principal; however, the investment must earn a return that is at least high enough to offset the eroding effects of inflation.
- **Capital appreciation:** This is a growth-inclined objective. At a minimum, it must earn a nominal rate exceeding the rate of inflation for the period.
- **Current income:** The objective is to generate income from the invested principal, such as investing in bonds to receive periodic interest payments.
- **Total return:** The objective is to generate both capital gains and the reinvestment of any dividends or interest payments.

Question 3: What does the term *required rate of return* mean?

Answer 3: The required rate of return is a minimum return that an investor desires. It is composed of three components:

Q&A: Portfolio Risk Management & Ethics

- **The real risk-free rate of interest:** This refers often to the risk associated with extremely safe investments such as U.S. Treasury Bills. This rate is determined by the supply and demand for funds in the economy.
- **An inflation premium:** This is an addition to the real risk-free rate to help compensate the investor for inflationary concerns in the economy.
- **A risk premium:** This is the additional return compensation that an investor requires for the uncertainty (risk) associated with a particular investment. Risk premium addresses the risk exposures associated with business, financial, exchange rate, and country risk.

Question 4: What is the difference between the real and nominal risk-free rate, and how is each computed?

Answer 4: The real risk-free rate is the price charged between the exchange of current and future goods by investors in the economy. The inflation premium, as an adjustment to the real risk-free rate, makes up the nominal risk-free rate.

Mathematically:

$$\text{Nominal Risk-free Rate} = [(1 + \text{Real Risk-free Rate}) (1 + \text{Inflation Rate})] - 1$$

Note: The nominal risk-free rate is often approximated by adding the real risk-free rate to the inflation rate.

Based on the nominal risk-free rate presented:

$$\text{Real Risk-free Rate} = [(1 + \text{Nominal Risk-free Rate}) / (1 + \text{Inflation Rate})] - 1$$

Question 5: How is the expected rate of return for a portfolio calculated?

Answer 5: The expected rate of return for a portfolio of risky assets is the weighted average of returns on the individual assets multiplied by their respective portfolio weight. Mathematically, this can be expressed as $E(R_p) = w_1E(R_1) + w_2E(R_2)$, for a two-asset portfolio.

Where:

$E(R_p)$ = Expected rate of return

w = weighted average

$E(R_n)$ = Expected return of an individual security

Q&A: Portfolio Risk Management & Ethics

Example:

Stock	A	B
Expected return	11%	14%
% in portfolio	40%	60%

$$E(R_p) = (.4 * .11) + (.6 * .14) = 12.8\%$$

Question 6: What is the modern portfolio theory, and what are its key assumptions?

Answer 6: In his Nobel Prize winning work in 1959, Harry Markowitz proved mathematically what investors had wisely assumed for decades. Using statistical analysis, Markowitz demonstrated that by combining stocks that have a low covariance with each other (like stocks of companies from different, unrelated industries), an investor can indeed reduce the unsystematic risk in his portfolio. This process is commonly referred to as *diversification*. The assumptions behind this theory (also known as the Markowitz theory) are as follows:

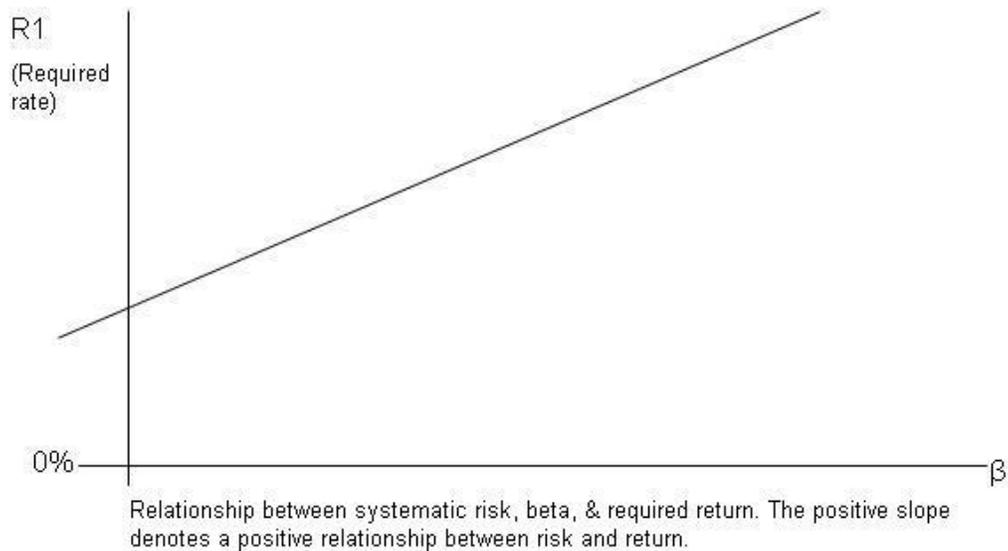
- Investors look at investments opportunity as a probability distribution of expected returns over a given time period.
- Investors aim at maximizing their utility in their investments.
- Portfolio risk is measured as the variance of expected returns.
- Investment decisions are made solely based on the expected return and risk of each investment.
- Given two investments with equal expected returns, investors prefer the one with the lower risk. Conversely, when offered two investments with equal risk, investors prefer the one with the higher return.

Question 7: To what does the term *beta* refer?

Answer 7: Beta measures the volatility of a stock or portfolio relative to the volatility of the market. As a point of reference, beta for risk-free assets is zero (0), whereas the beta for the market is one (1).

Here is an example of the relationship between systematic risk, beta, and required return:

Q&A: Portfolio Risk Management & Ethics



Question 8: To what does the term *security market line* (SML) refer?

Answer 8: SML refers to a plotted relationship between expected return and systematic risk. The SML equation is as follows:

$$ER = RFR + [E(RMKT) - RFR] \text{ beta}$$

Where:

RFR = Risk-free rate
RMKT = Market rate

Assumptions under this theory are as follows:

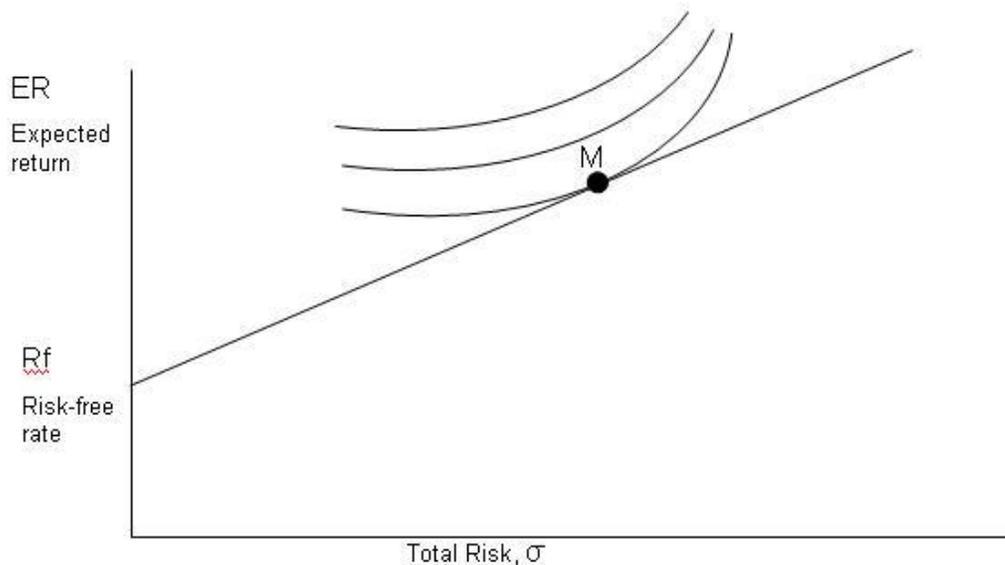
- Movement along the SML demonstrates a change in risk level and characteristics of an investment.
- Changes in the SML slope depict a change in the risk attitudes of investors.
- Parallel shifts in the SML demonstrate changing market conditions.

Question 9: What constitutes the optimal portfolio for an investor?

Q&A: Portfolio Risk Management & Ethics

Answer 9: The optimal portfolio for an investor is the highest indifference curve that is tangent to the efficient frontier. An indifference point is reached when the risk and return of two investments makes an investor indifferent between them. In other words, the optimal portfolio gives the investor the greatest possible utility.

Here is a graphical example:



"M" lies at the point of tangency between the efficient frontier and the curve with the lowest point of tangency. The graph shows that investors have different utility curves with more or less amounts of risk.

Question 10: What is the constant dividend growth model, and when is it used?

Answer 10: The constant dividend growth model assumes that the growth rate of dividends remains constant. As such, it is an appropriate analysis tool for companies that have dividends growing at a constant rate. It aims at setting a maximum price that an investor ought to pay for a stock.

Its formula is as follows:

The Constant Dividend Growth Model:

Q&A: Portfolio Risk Management & Ethics

$$V = \frac{D_1}{k-g}$$

Where:

- V = Price (value) of the stock
- D1 = Dividend paid at period 1
- k = Investor's required rate of return
- g = Dividend expected growth rate