

3.01 Portfolio Risk And Return Part I

Question 1

The European Central Bank (ECB) will raise, maintain, or lower interest rates. Three investments will react differently to the ECB decision. Each scenario is equally likely to occur, and each investment has an expected return of 5%.

Expected Return Based on Bank Action (%)			
Investment	Raise	Maintain	Lower
A	10	0	5
B	0	10	5
C	10	5	0

Which combination of investments has the lowest expected portfolio standard deviation?

- A. A and B
- B. A and C
- C. B and C

Question 2

An analyst researches a portfolio that holds two securities, Stock A and Stock B, and collects the following data:

	Expected Standard Deviation (σ)	Asset Weights
Stock A	0.17	0.25
Stock B	0.08	0.75

The analyst determines that the correlation coefficient (ρ) between Stock A and Stock B is 0.65. The expected variance of the portfolio is *closest* to:

- A. 0.0087
- B. 0.0120
- C. 0.0153

Question 3

An analyst researches a portfolio that holds two stocks, Stock A and Stock B. The following data is collected:

	Expected Standard Deviation (σ)	Asset Weights
Stock A	0.25	0.80
Stock B	0.20	0.20

If the portfolio's expected standard deviation is 0.22, then the covariance between Stock A and Stock B is *closest* to:

- A. 0.02
- B. 0.04
- C. 0.13

Question 4

If an investor wants a portfolio with the highest return possible and the same risk as the global minimum variance portfolio, then the investor most appropriately:

- A. combines the risk-free asset and the optimal risky portfolio.
- B. lends the optimal risky portfolio and buys the risk-free asset.
- C. borrows the risk-free asset and buys the global minimum variance portfolio.

Question 5

An analyst calculates the following correlations among three stocks:

Stock	Return (%)	X	Y	Z
X	3.50	1.00		
Y	3.50	0.00	1.00	
Z	3.50	-0.20	0.33	1.00

If the stocks are paired to form equally weighted portfolios, which pair of stocks would *most likely* demonstrate the benefit from diversification?

- A. X and Y
- B. Y and Z
- C. X and Z

Question 6

A portfolio manager buys only two stocks, Stock X and Stock Y, for a new portfolio. The manager determines that the correlation coefficient between Stock X and Stock Y is 0.35. The manager also compiles the following investment statistics:

	Expected standard deviation (σ)	Asset weights
Stock X	0.25	0.60
Stock Y	0.15	0.40

The expected standard deviation of the portfolio is *closest* to:

- A. 18%
- B. 21%
- C. 23%

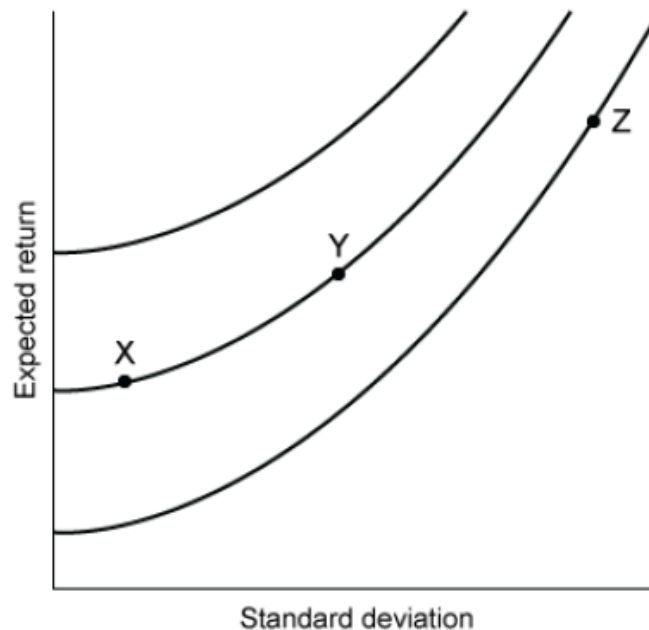
Question 7

Two investors with different levels of risk aversion have different portfolios on the capital allocation line. Of these two portfolios, the portfolio with the lower expected return is *most likely* the:

- A. optimal risky portfolio with the lowest level of risk aversion.
- B. optimal investor portfolio with the highest level of risk aversion.
- C. global minimum variance portfolio with the highest level of risk aversion.

Question 8

The following diagram shows indifference curves for a single investor:



It is *most likely* that for this investor, Investment:

- A. Y has greater utility than Investment X.
- B. Z has greater utility than Investment X.
- C. Y has greater utility than Investment Z.

Question 9

A minimum variance portfolio is best described as the attainable portfolio that always has the:

- A. least risk for a given level of return.
- B. least risk of any attainable portfolio.
- C. greatest possible return for a given level of risk.

Question 10

The existence of a positive risk-return relationship is representative of what type of investor behavior?

- A. Risk-averse
- B. Risk-neutral
- C. Risk-seeking

Question 11

A manager, acting on a client's behalf, may choose from three investments:

	Expected Return	Expected Standard Deviation (σ)
Fund 1	0.08	0.08
Fund 2	0.07	0.07
Fund 3	0.08	0.07

Which investment is *most appropriate* for a risk-averse client?

- A. Fund 1
- B. Fund 2
- C. Fund 3

Question 12

A wealth advisor is looking for an investment from among the following portfolios:

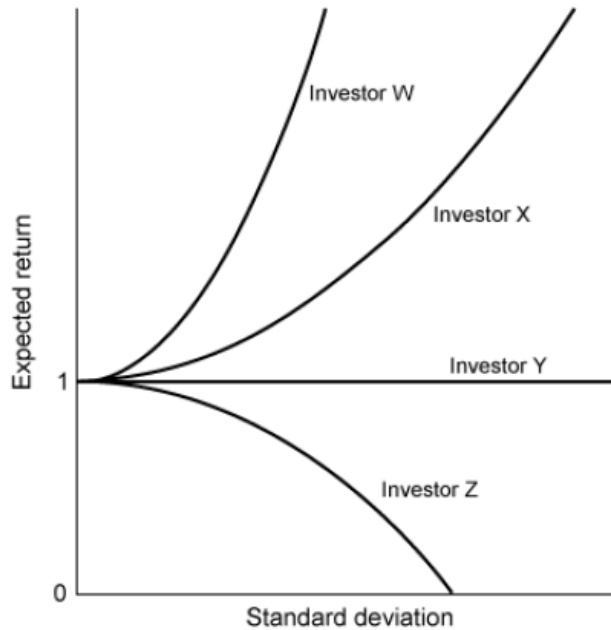
	Expected Return	Expected Standard Deviation (σ)
Portfolio A	0.140	0.230
Portfolio B	0.135	0.220
Portfolio C	0.130	0.260

The *most appropriate* portfolio for a risk-neutral investor is:

- A. Portfolio A.
- B. Portfolio B.
- C. Portfolio C.

Question 13

The following diagram shows indifference curves for investors with different risk aversions:



It is *most likely* that:

- A. Investor W is less risk averse than Investor X.
- B. Investor Y is more risk averse than Investor X.
- C. Investor W is more risk averse than Investor Z.

Question 14

According to investor utility theory, if the risk-free rate is 2%, then all investors (regardless of risk aversion) *most likely* have:

- A. zero utility for the risk-free asset.
- B. different utility for the risk-free asset.
- C. the same utility for the risk-free asset.

Question 15

Information concerning two assets that compose a portfolio is shown below:

	Weight	Standard deviation
A	25%	25%
B	75%	35%

If the portfolio's variance is 0.07, the covariance between the two assets is *best described* as:

- A. negative.
- B. zero.
- C. positive.

Question 16

A manager may choose from the following investments:

	Expected Return	Expected Standard Deviation (σ)
Fund 1	0.10	0.10
Fund 2	0.12	0.13
Fund 3	0.14	0.12

Which investment would be the *most appropriate* choice for a risk-seeking client?

- A. Fund 1
- B. Fund 2
- C. Fund 3

Question 17

An analyst reviews the following information on equity classes:

	Correlation Matrix			
	US equity	European equity	Japanese equity	Indian equity
US equity	1.00			
European equity	0.74	1.00		
Japanese equity	0.67	0.59	1.00	
Indian equity	0.61	0.55	0.47	1.00

The analyst wishes to form a portfolio using only US equity and one of the other equity classes shown above. If the portfolio is equally weighted between the two classes, which would reduce the portfolio's risk the most if included in the portfolio?

- A. Indian equity
- B. European equity
- C. Japanese equity

Question 18

The average risk and covariance of assets are constant in an equally weighted portfolio. As the number of assets increases, the portfolio risk *most likely*:

- A. decreases.
- B. remains constant.
- C. increases .

Question 19

A manager prepares risk and return information for three different funds:

	Expected Return	Expected Standard Deviation (σ)
Fund 1	0.15	0.17
Fund 2	0.20	0.20
Fund 3	0.25	0.23

If an investor's risk aversion is 8, then the fund with the highest utility for that investor is *most likely*?

- A. Fund 1
- B. Fund 2
- C. Fund 3

Question 20

Under modern portfolio theory, which of the following *best describes* the global minimum variance portfolio?

- A. A portfolio on the efficient frontier
- B. An unachievable portfolio with the lowest risk
- C. The lowest risk portfolio on the capital allocation line

Question 21

Portfolios along the capital allocation line are *most likely* to:

- A. include the optimal risky portfolio and the risk-free asset.
- B. include only risky assets below the optimal risky portfolio.
- C. be created by borrowing and lending the global minimum variance portfolio.

Question 22

If two risky assets that are less than perfectly correlated are combined to form a portfolio, then *most likely* the:

- A. portfolio's risk cannot be less than the risk of the least risky asset.
- B. assets must be negatively correlated to obtain the benefit of reduced risk.
- C. portfolio's risk is less than the weighted average risk of the assets for a given return.

Question 23

A portfolio on the capital allocation line is *most likely* a combination of the risk-free asset and:

- A. the optimal risky portfolio.
- B. the maximum return portfolio.
- C. the global minimum variance portfolio.

Question 24

An analyst builds portfolios from only risky assets. If the analyst is interested in portfolios that have the highest expected return for a given level of risk, then the analyst would *most appropriately* consider portfolios on the:

- A. efficient frontier.
- B. security market line.
- C. capital allocation line.

Question 25

The global minimum-variance portfolio is *best described* as being:

- A. unattainable without including a risk-free rate.
- B. the portfolio with the lowest return on the efficient frontier.
- C. the point of tangency between the efficient frontier and the capital allocation line.

Question 26

A two-asset portfolio has the following characteristics:

Security	Expected Standard Deviation	Security's Portfolio Weight
Stock A	9%	80%
Stock B	10%	20%

If the correlation coefficient of returns between the two securities is 0.6, then the portfolio's expected variance is *closest* to:

- A. 0.0073
- B. 0.0085
- C. 0.0855

Question 27

A portfolio consists of two assets:

Asset	Expected standard deviation (%)	Asset weight (%)
A	15	75
B	8	25

If the expected standard deviation of the portfolio is 10%, then the two assets can be *best described* as having:

- A. no correlation.
- B. positive correlation.
- C. negative correlation.

Question 28

A manager constructs a new portfolio using a treasury bond and a stock. The manager obtains the following information:

	Expected Annual Return	Expected Variance
Treasury Bond	0.04	0.01
Stock	0.12	0.04

The expected correlation coefficient between the stock and treasury bond is 0.25. If the portfolio's expected return is 9%, its expected standard deviation will be *closest* to:

- A. 5.4%
- B. 13.9%
- C. 17.6%

Question 29

An analyst researches a portfolio that holds two emerging market stocks, Stock A and Stock B. The following data are collected:

	Expected Standard Deviation (σ)	Asset Weights
Stock A	0.10	0.60
Stock B	0.20	0.40

If the expected portfolio standard deviation is 10%, then Stock A and Stock B can *best* be described as having:

- A. no correlation.
- B. a positive correlation.
- C. a negative correlation.

Question 30

According to utility theory, which of the following best explains why an indifference curve of a risk-averse investor becomes steeper as risk increases?

- A. A negative risk-return relationship
- B. Decreasing marginal utility of return
- C. The convexity of the efficient frontier

Question 31

Under modern portfolio theory, the efficient frontier *most accurately* represents portfolios:

- A. of risk-free and risky assets with the lowest risk for a given expected return.
- B. preferred by risk-averse investors below the global minimum-variance portfolio.
- C. in the investment opportunity set with the highest expected return for a given level of risk.

Question 32

In determining the optimal portfolio for an investor, which of the following factors is best determined for each investor?

- A. risk aversion.
- B. risk-free rate of lending.
- C. investment opportunity set.

Question 33

In a two-asset portfolio, the factor that most directly impacts portfolio risk is:

- A. the expected return of each asset.
- B. the probability that each asset's returns will be negative.
- C. how closely returns of the portfolio's assets move together.