

Seminar 10
Portfolio Risk and Return

1. The line depicting the risk and return of portfolio combinations of a risk-free asset and any risky asset is the:

- A. Security market line.
- B. Capital allocation line.
- C. Security characteristic line.

2. The portfolio of a risk-free asset and a risky asset has a better risk-return tradeoff than investing in only one asset type because the correlation between the risk-free asset and the risky asset is equal to:

- A. 21.0.
- B. 0.0.
- C. 1.0.

3. With respect to capital market theory, an investor's optimal portfolio is the combination of a risk-free asset and a risky asset with the highest:

- A. Expected return.
- B. Indifference curve. ✓ , B'
- C. Capital allocation line slope.

4. Highly risk-averse investors will most likely invest the majority of their wealth in:

- A. Risky assets.
- B. Risk-free assets. , B'
- C. The optimal risky portfolio.

5. The capital market line, CML, is the graph of the risk and return of portfolio combinations consisting of the risk-free asset and:

- A. Any risky portfolio.
- B. The market portfolio.
- C. The leveraged portfolio. "C"

6. Which of the following statements most accurately defines the market portfolio in capital market theory? The market portfolio consists of all:

- A. Risky assets.
- B. Tradable assets.
- C. Investable assets.

7. With respect to capital market theory, the optimal risky portfolio:

- A. Is the market portfolio.
- B. Has the highest expected return.
- C. Has the lowest expected variance.

8. Relative to portfolios on the CML, any portfolio that plots above the CML is considered:

- A. Inferior.
- B. Inefficient.
- C. Unachievable.

9. A portfolio on the capital market line with returns greater than the returns on the market portfolio represents a(n):

- A. Lending portfolio.
- B. Borrowing portfolio.
- C. Unachievable portfolio.

10. With respect to the capital market line, a portfolio on the CML with returns less than the returns on the market portfolio represents a(n):

- A. Lending portfolio.
- B. Borrowing portfolio.
- C. Unachievable portfolio.

11. Which of the following types of risk is most likely avoided by forming a diversified portfolio?

- A. Total risk.
- B. Systematic risk.
- C. Nonsystematic risk.

12. Which of the following events is most likely an example of nonsystematic risk?

- A. A decline in interest rates.
- B. The resignation of chief executive officer.
- C. An increase in the value of the U.S. dollar.

13. With respect to the pricing of risk in capital market theory, which of the following statements is most accurate?

- A. All risk is priced.
- B. Systematic risk is priced.
- C. Nonsystematic risk is priced.

14. Investors should use a portfolio approach to:

- A. Reduce risk.
- B. Monitor risk.
- C. Eliminate risk.

15. Which of the following is the best reason for an investor to be concerned with the composition of a portfolio?

- A. Risk reduction.
- B. Downside risk protection.
- C. Avoidance of investment disasters.

16. With respect to the formation of portfolios, which of the following statements is most accurate?

- A. Portfolios affect risk less than returns.
- B. Portfolios affect risk more than returns.
- C. Portfolios affect risk and returns equally.

↳ B'

17. Which of the following institutions will on average have the greatest need for liquidity?

- A. Banks.
- B. Investment companies.
- C. Non-life insurance companies.

11. An analyst gathers the following information for the asset allocations of three portfolios:

Portfolio	Fixed Income	Equity	Alternative Assets
1	25%	60%	15%
2	60%	25%	15%
3	15%	60%	25%

Which of the portfolios is *most likely* appropriate for a client who has a high degree of risk tolerance?

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

1. An investor purchased 100 shares of a stock for \$34.50 per share at the beginning of the quarter. If the investor sold all of the shares for \$30.50 per share after receiving a \$51.55 dividend payment at the end of the quarter, the holding period return is *closest* to:

- A. -13.0%.
 B. -11.6%.
 C. -10.1%.

$$r = \frac{30.5 \cdot 100 - 34.5 \cdot 100 + 51.55}{34.5 \cdot 100} = \frac{-390 + 51.55}{3450} = \frac{-338.45}{3450} = -0.101 \rightarrow -10.1\%$$

$P_0 = 34.5$
 $P_1 = 30.5$
 $D = 51.55$

2. An analyst obtains the following annual rates of return for a mutual fund:

Year	Return
2008	14%
2009	-10%
2010	-2%

The fund's holding period return over the three-year period is *closest* to:

- A. 0.18%.
 B. 0.55%.
 C. 0.67%.

$$(1 + 0.14) \cdot (1 - 0.1) \cdot (1 - 0.02) - 1 = 0.0548$$

3. An analyst observes the following annual rates of return for a hedge fund: $\rightarrow \underline{\underline{5.48\%}}$

Year	Return
2008	22%
2009	-25%
2010	11%

The hedge fund's annual geometric mean return is *closest* to:

- A. 0.52%.
 B. 1.02%.
 C. 2.67%.

$$GM = \sqrt[3]{(1 + 0.22) \cdot (1 - 0.25) \cdot (1 + 0.11)} - 1 = 0.00519 \rightarrow \underline{\underline{0.519\%}}$$

7. A portfolio manager creates the following portfolio:

Security	Security Weight	Expected Standard Deviation
1	30%	20%
2	70%	12%

If the correlation of returns between the two securities is 0.40, the expected standard deviation of the portfolio is *closest* to:

- A. 10.7%.
- B. 11.3%.
- C. 12.1%.

$$\sigma^2 = 0,3^2 \cdot 0,2^2 + 0,7^2 \cdot 0,12^2 + 2 \cdot 0,3 \cdot 0,7 \cdot 0,4 \cdot 0,2 \cdot 0,12$$

$$\sigma^2 = 0,014688 \% \%$$

$$\sigma = 0,121 \rightarrow 12,1 \%$$

Use the following data to answer Questions 20 through 23.

A financial planner has created the following data to illustrate the application of utility theory to portfolio selection:

Investment	Expected Return	Expected Standard Deviation
1	18%	2%
2	19%	8%
3	20%	15%
4	18%	30%

20. A risk-neutral investor is *most likely* to choose:

→ PREFERS HIGHEST RETURN

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

21. If an investor's utility function is expressed as $U = E(r) - \frac{1}{2}A\sigma^2$ and the measure for risk aversion has a value of -2 , the risk-seeking investor is *most likely* to choose:

→ PREFERS HIGHEST RISK

- A. Investment 2.
- B. Investment 3.
- C. Investment 4.

Use the following data to answer Questions 9 and 10.

A portfolio manager creates the following portfolio:

Security	Security Weight	Expected Standard Deviation
1	30%	20%
2	70%	12%

9. If the standard deviation of the portfolio is 14.40%, the correlation between the two securities is equal to:

A. -1.0.

B. 0.0.

C. 1.0.

$$0,1440^2 = 0,3^2 \cdot 0,2^2 + 0,7^2 \cdot 0,12^2 + 2 \cdot \text{corr} \cdot 0,3 \cdot 0,7 \cdot 0,2 \cdot 0,12$$

$$0,01008 = 0,01008 \text{ corr}$$

$$\text{corr} = 1$$

10. If the standard deviation of the portfolio is 14.40%, the covariance between the two securities is equal to:

A. 0.0006.

B. 0.0240.

C. 1.0000.

$$\text{corr} = \frac{\text{COV}}{\sigma_1 \cdot \sigma_2}$$

$$1 = \frac{\text{COV}}{0,2 \cdot 0,12} \rightarrow \underline{\underline{0,0240}}$$

Use the following data to answer Questions 26 through 28.

A portfolio manager creates the following portfolio:

Security	Expected Annual Return	Expected Standard Deviation
1	16%	20%
2	12%	20%

26. If the portfolio of the two securities has an expected return of 15%, the proportion invested in security 1 is:

$$0,15 = w_1 \cdot 0,16 + (1 - w_1) \cdot 0,12$$

$$0,15 = 0,16w_1 + 0,12 - 0,12w_1$$

$$0,03 = 0,04w_1$$

$$w_1 = 0,75$$

$$w_1 + w_2 = 1$$

$$w_2 = 1 - w_1$$

- A. 25%.
- B. 50%.
- C. 75%.**

27. If the correlation of returns between the two securities is -0.15 , the expected standard deviation of an equal-weighted portfolio is *closest* to:

- A. 13.04%.**
- B. 13.60%.
- C. 13.87%.

$$\sigma^2 = 0,5^2 \cdot 0,2^2 + 0,5^2 \cdot 0,2^2 + 2 \cdot (-0,15) \cdot 0,5 \cdot 0,5 \cdot 0,2 \cdot 0,2$$

$$\sigma^2 = 0,014 \% \rightarrow \sigma = 0,13038$$

28. If the two securities are uncorrelated, the expected standard deviation of an equal-weighted portfolio is *closest* to:

- A. 14.00%.
- B. 14.14%.**
- C. 20.00%.

$$\sigma^2 = 0,5^2 \cdot 0,2^2 + 0,5^2 \cdot 0,2^2 + 2 \cdot 0 \cdot 0,5 \cdot 0,5 \cdot 0,2 \cdot 0,2$$

$$\sigma^2 = 0,02 \% \rightarrow \sigma = 0,1414 \rightarrow 14,14 \%$$

Use the following data to answer Questions 11 through 14.

An analyst observes the following historic geometric returns:

Asset Class	Geometric Return
Equities	8.0%
Corporate Bonds	6.5%
Treasury Bills	2.5%
Inflation	2.1%

REAL RETURN

$$\frac{1+0,08}{1+0,021} - 1 = 0,0578 \rightarrow 5,8 \%$$

$$\frac{1+0,065}{1+0,021} - 1 = 0,0431 \rightarrow 4,3 \%$$

$$\frac{1+0,025}{1+0,021} - 1 = 0,0039 \rightarrow 0,39 \%$$

11. The real rate of return for equities is closest to:

- A. 5.4%.
- B. 5.8%.**
- C. 5.9%.

12. The real rate of return for corporate bonds is closest to:

- A. 4.3%.**
- B. 4.4%.
- C. 4.5%.

13. The risk premium for equities is closest to:

- A. 5.4%.
- B. 5.5%.**
- C. 5.6%.

$$8 - 2,5 = 5,5 \% \quad \times$$

14. The risk premium for corporate bonds is closest to:

- A. 3.5%.
- B. 3.9%.
- C. 4.0%.**

$$6,5 - 2,5 = 4 \%$$