

## Study Session 18 Sample Questions

### Portfolio Management Capital Market Theory: Basic Concepts

#### 1A. The Investment Setting

1. Assume that the nominal return on U.S. government T-bills was 10% during 20X2, when the rate of inflation was 6%. The real risk-free rate of return on these T-bills was:
- A. 10%
  - B. 6%
  - C. 3.77%
  - D. 0%

#### Answer

**C.**

Calculating the real risk-free rate of return

$$\text{RRFR} = \left[ \frac{(1 + \text{Nominal Risk Free Rate of Return})}{(1 + \text{Rate of Inflation})} \right] - 1$$

$$\begin{aligned} &= [(1 + (0.10)/1 + 0.06)] - 1 \\ &= 0.0377 = 3.77\% \end{aligned}$$

#### *Reference*

*Investment Analysis and Portfolio Management, 6<sup>th</sup> edition, Frank K. Reilly and Keith C. Brown (Dryden, 2000)*

*Study Session 18 2003, Capital Market Theory: Basic Concepts, LOS: 1.A, b*

2. The relationship between risk and return is such that:
- A. investors increase their required rates of return as perceived risk increases
  - B. investors decrease their required rates of return as perceived risk increases
  - C. investors increase their required rates of return as perceived risk decreases
  - D. investors decrease their required rates of return as perceived risk decreases

### **Answer**

#### **A.**

#### The relationship between risk and return

The relationship between risk and return is such that investors increase their required rates of return as perceived risk increases.

#### *Reference*

*Investment Analysis and Portfolio Management, 6<sup>th</sup> edition, Frank K. Reilly and Keith C. Brown (Dryden, 2000)*

*Study Session 18 2003, Capital Market Theory: Basic Concepts, LOS: 1.A, d*

3. If a firm increases its financial risk by selling a large bond issue that increases its financial leverage:
- A. investors will perceive its common stock as less risky and the stock will move up the SML
  - B. investors will perceive its common stock as riskier and the stock will move down the SML
  - C. investors will perceive its common stock as riskier and the stock will move up the SML
  - D. investors will perceive its common stock as less risky and the stock will move down the SML

### Answer

C.

#### Financial leverage

If a firm increases its financial risk by selling a large bond issue that increases its financial leverage, investors will perceive its common stock as riskier and the stock will move up the SML.

#### *Reference*

*Investment Analysis and Portfolio Management, 6<sup>th</sup> edition, Frank K. Reilly and Keith C. Brown (Dryden, 2000)*

*Study Session 18 2003, Capital Market Theory: Basic Concepts, LOS: 1.A, f*

## **B. The Asset Allocation Decision**

1. When individuals believe they have sufficient income and assets to cover their expenses while maintaining a reserve for uncertainties, they are most likely in the \_\_\_\_\_ phase of the investment life cycle.
  - A. gifting
  - B. consolidation
  - C. accumulation
  - D. spending

### Answer

A.

#### The gifting phase of the investment life cycle

When individuals believe they have sufficient income and assets to cover their expenses while maintaining a reserve for uncertainties, they are in the *gifting* phase of the investment life cycle.

*Reference*

*Investment Analysis and Portfolio Management, 6<sup>th</sup> edition, Frank K. Reilly and Keith C. Brown (Dryden, 2000)*

*Study Session 18 2003, The Asset Allocation Decision, LOS: 1.B, a*

2. When setting investor objectives in the investment policy statement, expressing goals only in terms of returns can:
- A. lead to inappropriate investment practices by the portfolio manager, such as the use of low-risk investment strategies
  - B. distort the expected outcome
  - C. lead to inappropriate investment practices by the portfolio manager, such as the use of high-risk investment strategies
  - D. lead to a misleading outcome

**Answer**

**C.**

**Setting investor objectives in the investment policy statement**

When setting investor objectives in the investment policy statement, expressing goals only in terms of returns can lead to inappropriate investment practices by the portfolio manager, such as the use of high-risk investment strategies.

*Reference*

*Investment Analysis and Portfolio Management, 6<sup>th</sup> edition, Frank K. Reilly and Keith C. Brown (Dryden, 2000)*

*Study Session 18 2003, The Asset Allocation Decision, LOS: 1.B, c*

3. Asset allocation is important in determining overall investment performance because it:
- A. helps determine the expected return of the portfolio
  - B. determines most of the portfolio's returns over time
  - C. helps determine the standard deviation of the portfolio
  - D. helps determine the covariance of the portfolio

## Answer

**B.**

### Asset allocation

Asset allocation is important in determining overall investment performance because it determines most of the portfolio's returns over time.

### *Reference*

*Investment Analysis and Portfolio Management, 6<sup>th</sup> edition, Frank K. Reilly and Keith C. Brown (Dryden, 2000)*

*Study Session 18 2003, The Asset Allocation Decision, LOS: 1.B, e*

## **C. Selecting Investments in a Global Market**

1. Which statement is **FALSE** regarding the trading of securities and bonds in the U.S. and other markets?
  - I. Prior to 1970, the securities traded in the U.S. stock and bond markets comprised about 65% of all the securities available in world capital markets
  - II. By 1998, U.S. bonds and equities accounted for 42.3% of the total securities market versus 47.3% for nondollar bonds and stocks
  - III. If you consider only the stock and bond market, the U.S. proportion of this combined market is 47% in 1998
  
- A. I only
- B. II only
- C. III only
- D. None of the above

## Answer

**D.**

### Comparison of the relative size of the U.S. market with other global stock and bond markets

The relative size of the U.S. market with other global stock and bond markets is as follows:

- Prior to 1970, the securities traded in the U.S. stock and bond markets comprised about 65% of all the securities available in world capital markets
- By 1998, U.S. bonds and equities accounted for 42.3% of the total securities market versus 47.3% for non-dollar bonds and stocks
- If you consider only the stock and bond market, the U.S. proportion of this combined market is 47% in 1998

#### *Reference*

*Investment Analysis and Portfolio Management, 6<sup>th</sup> edition, Frank K. Reilly and Keith C. Brown (Dryden, 2000)*

*Study Session 18 2003, Selecting Investments in a Global Market, LOS: 1.C, b*

2. An analysis of domestic returns for the U.S. bond markets ranks fourth out of six countries. When the impact of exchange rates is considered, the U.S. is the lowest out of six. This means that the:
  - A. exchange rate effect for a U.S. investor who invested in foreign bonds was always negative (i.e. the U.S. dollar was weak)
  - B. exchange rate effect for a U.S. investor who invested in foreign bonds was always positive (i.e. the U.S. dollar was strong)
  - C. exchange rate effect for a U.S. investor who invested in foreign bonds was always positive (i.e. the U.S. dollar was weak)
  - D. exchange rate effect for a U.S. investor who invested in foreign bonds was always negative (i.e. the U.S. dollar was strong)

#### Answer

C.

### Domestic returns for the U.S. bond markets

An analysis of domestic returns for the U.S. bond markets ranks fourth out of six countries. When the impact of exchange rates is considered, the U.S. is the lowest out of six. This means that the exchange rate effect for a U.S. investor who invested in foreign bonds was always positive (i.e. the U.S. dollar was weak).

#### *Reference*

*Investment Analysis and Portfolio Management, 6<sup>th</sup> edition, Frank K. Reilly and Keith C. Brown (Dryden, 2000)*

*Study Session 18 2003, Selecting Investments in a Global Market, LOS: 1.C, d*

3. Adding a security that has a low correlation to an existing portfolio will:
- A. lower the overall variability of the portfolio
  - B. increase the overall variability of the portfolio
  - C. make the portfolio more risky
  - D. ensure the portfolio achieves a good rate of return

### Answer

**A.**

### Variability of portfolios

Adding a security that has a low correlation to an existing portfolio will lower the overall variability of the portfolio.

#### *Reference*

*Investment Analysis and Portfolio Management, 6<sup>th</sup> edition, Frank K. Reilly and Keith C. Brown (Dryden, 2000)*

*Study Session 18 2003, Selecting Investments in a Global Market, LOS: 1.C, d*

**D. An Introduction to Portfolio Management**

1. Consider the following information:

The possible rate of return for a portfolio for an investment is shown below.

Probability	Possible rate of return
0.25	0.09
0.25	0.11
0.25	0.13
0.25	0.16

The expected rate of return for the investment is as follows:

- A. 12.25%
- B. 2.25%
- C. 4%
- D. 3.25%

**Answer**

**A.**

**Calculating Expected rate of return**

$$\begin{aligned}\text{Expected rate of return} &= \sum (\text{Probability} \times \text{Possible rate of return}) \\ &= (0.25 \times 0.09 + 0.25 \times 0.11 + 0.25 \times 0.13 + 0.25 \times 0.16) \\ &= 0.0225 + 0.0275 + 0.0325 + 0.04 \\ &= 0.1225 = 12.25\%\end{aligned}$$

**Reference**

*Investment Analysis and Portfolio Management, 6<sup>th</sup> edition, Frank K. Reilly and Keith C. Brown (Dryden, 2000)*

*Study Session 18 2003, An Introduction to Portfolio Management, LOS: 1.D, b*



2. Consider the information below relating to the monthly rates of return for two companies X and Y over a period of 4 months:

	X	Y
	Rate of return %	Rate of Return %
Date		
Month 1	-4.76	-4.75
Month 2	5.34	7.65
Month 3	12.09	6.98
Month 4	-2.98	9.65

The covariance per month between the two companies is equal to:

- A. 17.95
- B. 2.42
- C. 4.88
- D. 71.78

**Answer**

**A.**

Calculating covariance

**Step 1**

First you need to calculate the expected rate of return for the 4 months:

$$\bar{X}: [5.34 + 12.09 - 4.76 - 2.98] / 4 = 2.42$$

$$\bar{Y}: [7.65 + 6.98 + 9.65 - 4.75] / 4 = 4.88$$

## Step 2

Now, we use the table below to compute the covariance as follows:

Date	Return (1)	Return (2)	Return - Expected (3)	Return – Expected (4)	(3) x (4)
Month 1	-4.76	-4.75	-7.18	-9.63	69.14
Month 2	5.34	7.65	2.92	2.77	8.09
Month 3	12.09	6.98	9.67	2.10	20.31
Month 4	-2.98	9.65	-5.40	4.77	-25.76
Covariance					71.78

## Step 3

Covariance per month =  $71.78/4 = 17.95$

### Reference

*Investment Analysis and Portfolio Management, 6<sup>th</sup> edition, Frank K. Reilly and Keith C. Brown (Dryden, 2000)*

*Study Session 18 2003, An Introduction to Portfolio Management, LOS: 1.D, b*

3. Consider the following information relating to two assets:

$$E(R_1) = 0.3$$

$$E(R_2) = 0.3$$

$$E(\theta_1) = 0.2$$

$$E(\theta_2) = 0.2$$

The weights of each asset in the portfolio are:

$$W_1 = 0.5$$

$$W_2 = 0.5$$

The correlation coefficient is  $r_{1,2} = 1.00$

The covariance of the portfolio is equal to:

- A. 0.2
- B. 1.0
- C. 0.06
- D. 0.04

**Answer**

**D.**

Calculating covariance in a two asset portfolio

$$\text{Cov}_{i,j} = r_{ij} \sigma_i \sigma_j$$

$$\text{Cov}_{1,2} = 1.00 \times 0.2 \times 0.2 = 0.04$$

*Reference*

*Investment Analysis and Portfolio Management, 6<sup>th</sup> edition, Frank K. Reilly and Keith C. Brown (Dryden, 2000)*

*Study Session 18 2003, An Introduction to Portfolio Management, LOS: 1.D, h*

**E. An Introduction to Asset Pricing Models**

1. The market portfolio is:
  - A. a completely diversified portfolio, which means that most of the risk unique to individual assets in the portfolio is diversified away
  - B. a portfolio in which both systematic and unsystematic risk has been diversified away
  - C. the portfolio that all investors invest their funds in
  - D. a completely diversified portfolio, which means that all the risk unique to individual assets in the portfolio is diversified away

**Answer****D.****The market portfolio**

The market portfolio is a completely diversified portfolio, which means that all the risk unique to individual assets in the portfolio is diversified away.

*Reference*

*Investment Analysis and Portfolio Management, 6<sup>th</sup> edition, Frank K. Reilly and Keith C. Brown (Dryden, 2000)*

*Study Session 18 2003, An Introduction to Asset Pricing Models, LOS: 1.E, b*

2. The existence of a risk-free asset results in the derivation of:
- A. the security market line (SML)
  - B. the characteristic line
  - C. the efficient frontier
  - D. the capital market line (CML)

**Answer****D.****The CML**

The existence of a risk-free asset results in the derivation of the capital market line (CML).

*Reference*

*Investment Analysis and Portfolio Management, 6<sup>th</sup> edition, Frank K. Reilly and Keith C. Brown (Dryden, 2000)*

*Study Session 18 2003, An Introduction to Asset Pricing Models, LOS: 1.E, d*

3. The CAPM is an:
- A. equilibrium model that predicts the expected return on a stock given the expected return on the market and the stock's correlation coefficient
  - B. equilibrium model that predicts the expected return on a stock given the expected return on the market and the stock's covariance
  - C. equilibrium model that predicts the expected return on a stock given the expected return on the market and the stock's beta coefficient
  - D. equilibrium model that predicts the expected return on a stock given the expected return on the market and the stock's standard deviation

**Answer**

**C.**

**The relationship between SML and CAPM**

The CAPM is an equilibrium model that predicts the expected return on a stock given the expected return on the market and the stock's beta coefficient.

*Reference*

*Investment Analysis and Portfolio Management, 6<sup>th</sup> edition, Frank K. Reilly and Keith C. Brown (Dryden, 2000)*

*Study Session 18 2003, An Introduction to Asset Pricing Models, LOS: 1.E, f*