

### Question #1 of 33

Question ID: 1210781

Given a three-factor arbitrage pricing theory APT model, what is the expected return on the Freedom Fund?

- The factor risk premiums to factors 1, 2, and 3 are 10%, 7% and 6%, respectively.
- The Freedom Fund has sensitivities to the factors 1, 2, and 3 of 1.0, 2.0 and 0.0, respectively.
- The risk-free rate is 6.0%.

A) 30.0%.



B) 33.0%.



C) 24.0%.



#### Explanation

The expected return on the Freedom Fund is  $6\% + (10.0\%)(1.0) + (7.0\%)(2.0) + (6.0\%)(0.0) = 30.0\%$ .

(Study Session 16, Module 44.1, LOS 44.c)

#### Related Material

[SchweserNotes - Book 5](#)

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### Question #2 of 33

Question ID: 1210792

A portfolio with a specific set of factor sensitivities designed to replicate the factor exposures of a benchmark index is called a:

A) factor portfolio.



B) arbitrage portfolio.



C) tracking portfolio.



#### Explanation

A tracking portfolio is a portfolio with a specific set of factor sensitivities designed to replicate the factor exposures of a benchmark index. A factor portfolio is a portfolio with a factor sensitivity of one to a particular factor and zero to all other factors. An arbitrage portfolio is a portfolio with factor sensitivities of zero to all factors, positive expected net cash flow, and an initial investment of zero.

(Study Session 16, Module 44.3, LOS 44.f)

#### Related Material

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**Question #3 of 33**




Question ID: 1210779

Michael Paul, a portfolio manager, is screening potential investments and suspects that an arbitrage opportunity may be available. The three portfolios that meet his screening criteria are detailed below:

Portfolio	Expected Return	Beta
X	12%	1.0
Y	16%	1.3
Z	8%	0.9

Which of the following portfolio combinations produces the highest return while maintaining a beta of 1.00?

Portfolio X      Portfolio Y      Portfolio Z

- |                |     |     |   |
|----------------|-----|-----|---|
| <b>A)</b> 100% | 0%  | 0%  |  |
| <b>B)</b> 50%  | 12% | 38% |  |
| <b>C)</b> 25%  | 50% | 25% |  |

**Explanation**

Portfolio Weights			Expected Return	Beta
X	Y	Z		
25%	50%	25%	13.00%	1.13
50%	12%	38%	10.96%	1.00
<b>100%</b>	<b>0%</b>	<b>0%</b>	<b>12.00%</b>	<b>1.00</b>

Portfolio weights of 25%, 50%, and 25% yield the highest return, but at a beta of 1.13. Investing 100% in Portfolio X yields the highest return for this risk level (i.e., beta = 1.00).

(Study Session 16, Module 44.1, LOS 44.b)

**Related Material**

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### Question #4 of 33

Question ID: 1210777

Arbitrage pricing models assume which risk is priced?

A) Systematic.



B) Both systematic and unsystematic.



C) Unsystematic.



#### Explanation

Unsystematic risk can be diversified away. Thus, arbitrage pricing reflects only systematic risk. It is assumed that the portfolio manager will take steps to diversify and reduce risk.

(Study Session 16, Module 44.1, LOS 44.a)

#### Related Material

[SchweserNotes - Book 5](#)

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### Question #5 of 33

Question ID: 1210794

A tracking portfolio is a portfolio with:

A) a factor sensitivity of one to a particular factor in a multi-factor model and zero to all other factors.



B) a specific set of factor sensitivities designed to replicate the factor exposures of a benchmark index.



C) factor sensitivities of zero to all factors, positive expected net cash flow, and an initial investment of zero.



#### Explanation

A tracking portfolio is a portfolio with a specific set of factor sensitivities designed to replicate the factor exposures of a benchmark index. A factor portfolio is a portfolio with a factor sensitivity of one to a particular factor and zero to all other factors. An arbitrage portfolio is a portfolio with factor sensitivities of zero to all factors, positive expected net cash flow, and an initial investment of zero.

(Study Session 16, Module 44.3, LOS 44.f)

#### Related Material

[SchweserNotes - Book 5](#)




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### Question #6 of 33

Question ID: 1210795

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Identify the *most* accurate statement regarding multifactor models from among the following.

- A) Macroeconomic factor models include explanatory variables such as firm size and the price-to-earnings ratio and fundamental factor models include 
- B) Macroeconomic factor models include explanatory variables such as real GDP growth and the price-to-earnings ratio and fundamental factor models include 
- C) Macroeconomic factor models include explanatory variables such as the business cycle, interest rates, and inflation, and fundamental factor models 

#### Explanation

Macroeconomic factor models include multiple risk factors such as the business cycle, interest rates, and inflation. Fundamental factor models include specific characteristics of the securities themselves such as firm size and the price-to-earnings ratio.

(Study Session 16, Module 44.2, LOS 44.d)




#### Related Material

[SchweserNotes - Book 5](#)

### Question #7 of 33

Question ID: 1210795

A common strategy in bond portfolio management is *enhanced indexing by matching primary risk factors*. This strategy could be implemented by forming:

- A) a portfolio with asset portfolio weights equal to that of the index. 
- B) a portfolio with factor sensitivities that sum to one. 
- C) a portfolio with factor sensitivities equal to that of the index. 

#### Explanation

Enhanced indexing by matching primary risk factors could be implemented by creating a tracking portfolio with the same factor sensitivities as the index but with a different set of bonds. Then any differences in performance between the portfolio and the benchmark index will be the result of bond selection ability and not from different exposures to macroeconomic factors like GDP, inflation, and interest rates.

(Study Session 16, Module 44.3, LOS 44.f)




#### Related Material

[SchweserNotes - Book 5](#)

### Question #8 of 33

Question ID: 1210772

Which of the following is NOT an underlying assumption of the arbitrage pricing theory (APT)?

- A)** A market portfolio exists that contains all risky assets and is mean-variance efficient. 
- B)** There are a sufficient number of assets for investors to create diversified portfolios in which firm-specific risk is eliminated. 
- C)** Asset returns are described by a K factor model. 

#### Explanation

The APT makes no assumption about a market portfolio.

(Study Session 16, Module 44.1, LOS 44.a)

#### Related Material

[SchweserNotes - Book 5](#)

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### Question #9 of 33

Question ID: 1210789

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Assume you are considering forming a common stock portfolio consisting of 25% Stonebrook Corporation (Stone) and 75% Rockway Corporation (Rock). As expressed in the two-factor returns models presented below, both of these stocks' returns are affected by two common factors: surprises in interest rates and surprises in the unemployment rate.

$$R_{\text{Stone}} = 0.11 + 1.0F_{\text{Int}} + 1.2F_{\text{Un}} + \epsilon_{\text{Stone}}$$

$$R_{\text{Rock}} = 0.13 + 0.8F_{\text{Int}} + 3.5F_{\text{Un}} + \epsilon_{\text{Rock}}$$

Assume that at the beginning of the year, interest rates were expected to be 5.1% and unemployment was expected to be 6.8%. Further, assume that at the end of the year, interest rates were actually 5.3%, the actual unemployment rate was 7.2%, and there were no company-specific surprises in returns. This information is summarized in Table 1 below:

Table 1: Expected versus Actual Interest Rates and Unemployment Rates

	Actual	Expected	Company-specific returns surprises
Interest Rate	0.053	0.051	0.0
Unemployment Rate	0.072	0.068	0.0

What is the portfolio's sensitivity to interest rate surprises?

A) 0.85.



B) 0.25.



C) 0.95.



#### Explanation

The portfolio composition is 25% Stonebrook and 75% Rockway. The interest rate sensitivities for Stonebrook and Rockway are 1.0 and 0.8, respectively. Thus, the portfolio's sensitivity to interest rate surprises is:  $(0.25)(1.0) + (0.75)(0.8) = 0.85$ .

(Study Session 16, Module 44.2, LOS 44.d)

#### Related Material

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#### Question #10 of 33

Question ID: 1210774

Which of the following does NOT describe the arbitrage pricing theory (APT)?

A) There are assumed to be at least five factors that explain asset returns.



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**B)** It requires a weaker set of assumptions than the CAPM to derive.



**C)** It is an equilibrium-pricing model like the CAPM.



### Explanation

APT is a k-factor model, in which the number of factors, k, is assumed to be a lot smaller than the number of assets; no specific number of factors is assumed.

(Study Session 16, Module 44.1, LOS 44.a)

### Related Material

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## Question #11 of 33

Question ID: 1210798

Janice Barefoot, CFA, has been managing a portfolio for a client who has asked Barefoot to use the Dow Jones Industrial Average (DJIA) as a benchmark. In her second year, Barefoot used 29 of the 30 DJIA stocks. She selected a non-DJIA stock in the same industry as the omitted DJIA stock to replace that stock. Compared to the DJIA, Barefoot placed a lower weight on the communication stocks and a higher weight on the other stocks still in the portfolio. Over that year, the non-DJIA stock in the portfolio had a positive and higher return than the omitted DJIA stock. The communication stocks had a negative return while all of the other stocks had a positive return. The portfolio managed by Barefoot outperformed the DJIA. Based on this we can say that the return from factor tilts and asset selection were:

**A)** positive and negative respectively.



**B)** both positive.



**C)** negative and positive respectively.



### Explanation

Since the communications stocks had a negative return while all the other stocks had a positive return, Barefoot's underweighting of those stocks produced a positive tilt return. Since the asset chosen to replace the DJIA stock outperformed the omitted stock, the asset selection return was positive.

(Study Session 16, Module 44.3, LOS 44.f)

### Related Material

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## Question #12 of 33

Question ID: 1210790

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Assume you are considering forming a common stock portfolio consisting of 25% Stonebrook Corporation (Stone) and 75% Rockway Corporation (Rock). As expressed in the two-factor returns models presented below, both of these stocks' returns are affected by two common factors: surprises in interest rates and surprises in the unemployment rate.

$$R_{\text{Stone}} = 0.11 + 1.0F_{\text{Int}} + 1.2F_{\text{Un}} + \epsilon_{\text{Stone}}$$

$$R_{\text{Rock}} = 0.13 + 0.8F_{\text{Int}} + 3.5F_{\text{Un}} + \epsilon_{\text{Rock}}$$

Assume that at the beginning of the year, interest rates were expected to be 5.1% and unemployment was expected to be 6.8%. Further, assume that at the end of the year, interest rates were actually 5.3%, the actual unemployment rate was 7.2%, and there were no company-specific surprises in returns. This information is summarized in Table 1 below:

*Table 1: Expected versus Actual Interest Rates and Unemployment Rates*

	<b>Actual</b>	<b>Expected</b>	<b>Company-specific returns surprises</b>
Interest Rate	0.053	0.051	0.0
Unemployment Rate	0.072	0.068	0.0

What is the predicted return for Stonebrook if the return unexplained by the model was -1%?

**A)** 10.68%.



**B)** 1.40%.



**C)** 12.00%



**Explanation**



The actual return uses the unemployment and interest rate surprises as follows:

The returns for a stock that are correlated with surprises in interest rates and unemployment rates can be expressed using a two-factor model as:

$$R_i = a_i + b_{i,1}F_{Int} + b_{i,2}F_{Un} + \varepsilon_i$$

where:

$R_i$  = the return on stock  $i$

$a_i$  = the expected return on stock  $i$

$b_{i,1}$  = the factor sensitivity of stock  $i$  to unexpected changes in interest rates

$F_{Int}$  = unexpected changes in interest rates (the interest factor) =  $.053 - .051 = .002$

$b_{i,2}$  = the factor sensitivity of stock  $i$  to unexpected changes in the unemployment rate

$F_{Un}$  = unexpected changes in the unemployment rate (the unemployment rate factor) =  $.072 - .068 = .004$

$\varepsilon_i$  = a mean-zero error term that represents the part of asset  $i$ 's return not explained by the two factors.

Thus the actual return is:  $0.11 + (1.0)(0.002) + (1.2)(0.004) - 0.01 = 0.1068$  or 10.68%

(Study Session 16, Module 44.2, LOS 44.d)

#### Related Material

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#### Question #13 of 33

Question ID: 1210773

The Arbitrage Pricing Theory (APT) has all of the following characteristics *EXCEPT* it:

**A)** assumes that arbitrage opportunities are available to investors.



**B)** is an equilibrium pricing model.



**C)** assumes that asset returns are described by a factor model.



#### Explanation

The APT assumes that *no* arbitrage opportunities are available to investors.

(Study Session 16, Module 44.1, LOS 44.a)

#### Related Material

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### Question #14 of 33

Question ID: 1210784

A multi-factor model that uses unexpected changes (surprises) in macroeconomic variables (e.g., inflation and gross domestic product) as the factors to explain asset returns is called a:

**A)** macroeconomic factor model.



**B)** fundamental factor model.



**C)** statistical factor model.



#### Explanation

Macroeconomic factor models use unexpected changes (surprises) in macroeconomic variables as the factors to explain asset returns. One example of a factor in this type of model is the unexpected change in gross domestic product (GDP) growth. In fundamental factor models, the factors are characteristics of the stock or the company that have been shown to affect asset returns, such as book-to-market or price-to-earnings ratios. A statistical factor model identifies the portfolios that best explain the historical cross-sectional returns or covariances among assets. The returns on these portfolios represent the factors.

(Study Session 16, Module 44.2, LOS 44.d)

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### Question #15 of 33

Question ID: 1210776

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Marcie Deiner is an investment manager with G&G Investment Corporation. She works with a variety of clients who differ in terms of experience, risk aversion and wealth. Deiner recently attended a seminar on multifactor analysis. Among other things, the seminar taught how the assumptions concerning the Arbitrage Pricing Theory (APT) model are different from those of the Capital Asset Pricing Model (CAPM). One of the examples used in the seminar is below.

$$E(R_i) = R_f + f_1 B_{i,1} + f_2 B_{i,2} + f_3 B_{i,3}, \text{ where: } f_1 = 3.0\%, f_2 = -40.0\%, \text{ and } f_3 = 50.0\%.$$

Beta estimates for Growth and Value funds for a three factor model			
	Factor 1	Factor 2	Factor 3
Betas for Growth	0.5	0.7	1.2
Betas for Value	0.2	1.8	0.6

For the model used as an example in the seminar, if the T-bill rate is 3.5%, what are the expected returns for the Growth and Value Funds?

$$E(R_{\text{Growth}}), \quad E(R_{\text{Value}})$$

A) 37.0%      -37.9%



B) 33.5%      -41.4%



C) 3.1%      -3.16%



#### Explanation

$$E(R_{\text{Growth}}) = 0.035 + 0.03(0.5) - 0.4(0.7) + 0.5(1.2) = 0.035 + 0.015 - 0.28 + 0.6 = 0.37 \text{ or } 37.0\%$$

$$E(R_{\text{Value}}) = 0.035 + 0.03(0.2) - 0.4(1.8) + 0.5(0.6) = 0.035 + 0.006 - 0.72 + 0.30 = -0.379 \text{ or } -37.9\%$$

(Study Session 16, Module 44.1, LOS 44.a)

#### Related Material

SchweserNotes - Book 5

Assume you are attempting to estimate the equilibrium expected return for a portfolio using a two-factor arbitrage pricing theory (APT) model. Assume that you have estimated the risk premium for factor 1 to be 0.02, and the risk premium for factor 2 to be 0.03. The sensitivity of the portfolio to factor 1 is -1.2 and the portfolio's sensitivity to factor 2 is 0.80. Given a risk-free rate equal to 0.03, what is the expected return for the asset?

A) 3.0%.



B) 2.4%.



C) 5.0%.



#### Explanation

The general form of the two-factor APT model is:  $E(R_{\text{Port}}) = R_F = \lambda_1\beta_1 + \lambda_2\beta_2$ , where the  $\lambda$ 's are the factor risk premiums and the  $\beta$ 's are the portfolio's factor sensitivities. Substituting the appropriate values, we have:

$$R_{\text{Port}} = 0.03 + 0.02(-1.2) + 0.03(0.80) = 3.0\%$$

(Study Session 16, Module 44.1, LOS 44.c)

#### Related Material

SchweserNotes - Book 5

### Question #17 of 33

Question ID: 1210775

One of the assumptions of the arbitrage pricing theory (APT) is that there are no arbitrage opportunities available. An arbitrage opportunity is:

A) an investment that has an expected positive net cash flow but requires no initial investment.



B) a factor portfolio with a positive expected risk premium.



C) a portfolio with factor exposures that sum to one.



#### Explanation

One of the three assumptions of the APT is that there are no arbitrage opportunities available to investors among these well-diversified portfolios. An arbitrage opportunity is an investment that has an expected positive net cash flow but requires no initial investment.

All factor portfolios will have positive risk premiums equal to the factor price for that factor. An arbitrage opportunity does not necessarily require a return equal to the risk-free rate, and the factor exposures for an arbitrage portfolio are all equal to zero.

(Study Session 16, Module 44.1, LOS 44.a)



#### Related Material

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**Question #18 of 33**

Question ID: 1210793

A portfolio with a factor sensitivity of one to a particular factor in a multi-factor model and zero to all other factors is called a(n):

- A) factor portfolio. 
- B) tracking portfolio. 
- C) arbitrage portfolio. 

**Explanation**

A factor portfolio is a portfolio with a factor sensitivity of one to a particular factor and zero to all other factors. An arbitrage portfolio is a portfolio with factor sensitivities of zero to all factors, positive expected net cash flow, and an initial investment of zero. A tracking portfolio is a portfolio with a specific set of factor sensitivities designed to replicate the factor exposures of a benchmark index.

(Study Session 16, Module 44.3, LOS 44.f)

**Related Material**




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**Question #19 of 33**

Question ID: 1210769

Which of the following is NOT an assumption necessary to derive the arbitrage pricing theory (APT)?

- A) A large number of assets are available to investors. 
- B) The priced factors risks can be hedged without taking short positions in any portfolios. 
- C) Asset returns are described by a k-factor model. 

**Explanation**

APT does not prohibit short positions.

(Study Session 16, Module 44.1, LOS 44.a)

**Related Material**

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**Question #20 of 33**

Question ID: 1210787

Summer Vista decides to develop a fundamental factor model. She establishes a proxy for the market portfolio, and then considers the importance of various factors in determining stock returns. She decides to use the following factors in her model:

- Changes in payout ratios.
- Credit rating changes.
- Companies' position in the business cycle.
- Management tenure and qualifications.

Which of the following factors is *least appropriate* for Vista's factor model?

- A) Management tenure and qualifications. 
- B) Companies' position in the business cycle. 
- C) Changes in payout ratios. 

**Explanation**

Fundamental factors are factors measured by characteristics of the companies themselves, like price-to-earnings (P/E) ratios or growth rates. Macroeconomic factors are economic influences on security returns. A company's position in the business cycle is dependent on the cycle itself, and cannot be accurately measured by looking at a company's fundamentals – business cycle is a macroeconomic factor. Payout ratios and management tenure are pieces of company-specific data suitable for use in a fundamental factor model.

(Study Session 16, Module 44.2, LOS 44.d)

**Related Material**




[SchweserNotes - Book 5](#)

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**Question #21 of 33**

Question ID: 1210796

The Real Value Fund is designed to have zero exposure to inflation. However its current inflation factor sensitivity is 0.30. To correct for this, the portfolio manager should take a:

- A) 30% short position in the inflation tracking portfolio. 
- B) 30% short position in the inflation factor portfolio. 
- C) 30% long position in the inflation factor portfolio. 

**Explanation**

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To hedge inflation, the fund should take a 30% short position in the inflation factor portfolio. This short position will fully offset the fund's positive exposure to inflation. Tracking portfolios are typically used for active asset selection and have multiple factor exposures which would prevent them from adequately hedging the inflation exposure of the fund.

(Study Session 16, Module 44.3, LOS 44.f)

#### Related Material

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### Question #22 of 33

Question ID: 1210785

The macroeconomic factor models for the returns on Omni, Inc., (OM) and Garbo Manufacturing (GAR) are:

$$R_{OM} = 20.0\% + 1.0(F_{GDP}) + 1.4(F_{QS}) + \varepsilon_{OM}$$

$$R_{GAR} = 15.0\% + 0.5(F_{GDP}) + 0.8(F_{QS}) + \varepsilon_{GAR}$$

What is the expected return on a portfolio invested 60% in Omni and 40% in Garbo?

A) 20.96%.



B) 18.0%.



C) 19.96%.



#### Explanation

In the macroeconomic model, the intercept is the expected return. The expected return of the portfolio is the weighted average of the expected return of the 2 stocks:

$$R_P = [(0.6)(20.0\%) + (0.4)(15.0\%)] = 18\%$$

(Study Session 16, Module 44.2, LOS 44.d)

#### Related Material

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### Question #23 of 33

Question ID: 1210791

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Janice Barefoot, CFA, has managed a portfolio where she used the Dow Jones Industrial Average (DJIA) as a benchmark. In the past two years the average monthly return on her portfolio has been higher than that of the DJIA. To get a measure of active return per unit of active risk Barefoot should compute the:

- A)** Sharpe ratio, which is the standard deviation of the differences between the portfolio and benchmark returns divided into the average of those differences. 
- B)** information ratio, which is the standard deviation of the differences between the portfolio and benchmark returns divided by the average of those differences. 
- C)** information ratio, which is the average excess portfolio return over the benchmark divided by the standard deviation of the differences between the 

### Explanation

The information ratio is the measure of active return per unit of active risk. If we let  $X = (\text{monthly portfolio return} - \text{the benchmark return})$ , then the information ratio = (the average of  $X$  / the standard deviation of  $X$ ). It is similar to the Sharpe ratio, which defines the random variable  $Y$  as  $Y = (\text{monthly portfolio return} - \text{the risk-free rate})$ . The Sharpe ratio = (the average of  $Y$  / the standard deviation of the portfolio return) = the standard deviation of  $Y$  if the risk-free rate is constant.

(Study Session 16, Module 44.3, LOS 44.e)

### Related Material

[SchweserNotes - Book 5](#)

## Question #24 of 33

Question ID: 1210780

Given a three-factor arbitrage pricing theory (APT) model, what is the expected return on the Premium Dividend Yield Fund?

- The factor risk premiums to factors 1, 2 and 3 are 8%, 12% and 5%, respectively.
- The fund has sensitivities to the factors 1, 2, and 3 of 2.0, 1.0 and 1.0, respectively.
- The risk-free rate is 3.0%.

- A)** 50.0%.
- B)** 33.0%.
- C)** 36.0%.

### Explanation

The expected return on the Premium Dividend Yield Fund is  $3\% + (8.0\%)(2.0) + (12.0\%)(1.0) + (5.0\%)(1.0) = 36.0\%$ .

(Study Session 16, Module 44.1, LOS 44.c)

  
  
  
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## Related Material

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### Question #25 of 33

Question ID: 1210797

Janice Barefoot, CFA, has been managing a portfolio for a client who has asked Barefoot to use the Dow Jones Industrial Average (DJIA) as a benchmark. In her first year Barefoot managed the portfolio by choosing 29 of the 30 DJIA stocks. She selected a non-DJIA stock in the same industry as the omitted stock to replace that stock. Compared to the DJIA, Barefoot has placed a higher weight on the financial stocks and a lower weight on the other stocks still in the portfolio. Over that year, the non-DJIA stock in the portfolio had a negative return while the omitted DJIA stock had a positive return. The portfolio managed by Barefoot outperformed the DJIA. Based on this we can say that the return from factor tilts and asset selection were:

- A) both positive.
- B) positive and negative respectively.
- C) negative and positive respectively.



#### Explanation

Since the replacement of the asset obviously had a negative effect, the tilting towards financial stocks must have been positive to not only compensate for the loss but produce a portfolio return greater than the DJIA.

(Study Session 16, Module 44.3, LOS 44.f)

## Related Material

[SchweserNotes - Book 5](#)

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### Question #26 of 33

Question ID: 1210778

Diversification can reduce:

- A) macroeconomic risks.
- B) unsystematic risk.
- C) systematic risk.



#### Explanation

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Systematic risk reflects factors that have a general effect on the security markets as a whole, and cannot be diversified away. Macroeconomic risk comes in many forms, and it is usually considered systematic risk. Unsystematic risk can be reduced through diversification.

(Study Session 16, Module 44.1, LOS 44.a)

#### Related Material

[SchweserNotes - Book 5](#)

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#### Question #27 of 33

Question ID: 1210801

In the context of multi-factor models, investors with lower-than-average exposure to recession risk (e.g. those without labor income) can earn a risk premium for holding dimensions of risk unrelated to market movements by creating equity portfolios with:

- A) greater-than-average exposure to the recession risk factor.
- B) greater-than-average market risk exposure.
- C) less-than-average exposure to the recession risk factor.



#### Explanation

Multifactor models allow us to capture other dimensions of risk besides overall market risk. Investors with unique circumstances different than the average investor may want to hold portfolios tilted away from the market portfolio in order to hedge or speculate on factors like recession risk, interest rate risk or inflation risk. An investor with lower-than-average exposure to recession risk can earn a premium by creating greater-than-average exposure to the recession risk factor. In effect, he earns a risk premium determined by the average investor by taking on a risk he doesn't care about as much as the average investor does.

(Study Session 16, Module 44.3, LOS 44.g)

#### Related Material

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#### Question #28 of 33

Question ID: 1210788

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Assume you are considering forming a common stock portfolio consisting of 25% Stonebrook Corporation (Stone) and 75% Rockway Corporation (Rock). As expressed in the two-factor returns models presented below, both of these stocks' returns are affected by two common factors: surprises in interest rates and surprises in the unemployment rate.

$$R_{\text{Stone}} = 0.11 + 1.0F_{\text{Int}} + 1.2F_{\text{Un}} + \epsilon_{\text{Stone}}$$

$$R_{\text{Rock}} = 0.13 + 0.8F_{\text{Int}} + 3.5F_{\text{Un}} + \epsilon_{\text{Rock}}$$

Assume that at the beginning of the year, interest rates were expected to be 5.1% and unemployment was expected to be 6.8%. Further, assume that at the end of the year, interest rates were actually 5.3%, the actual unemployment rate was 7.2%, and there were no company-specific surprises in returns. This information is summarized in Table 1 below:

Table 1: Expected versus Actual Interest Rates and Unemployment Rates

	Actual	Expected	Company-specific returns surprises
Interest Rate	0.053	0.051	0.0
Unemployment Rate	0.072	0.068	0.0

What is the expected return for Stonebrook in the absence of surprises?

A) 11.0%.



B) 13.2%.



C) 13.0%.



#### Explanation

The expected return for Stonebrook is simply the intercept return ( $a_i$ ) of 0.11, or = 11.0%.

(Study Session 16, Module 44.2, LOS 44.d)

#### Related Material

[SchweserNotes - Book 5](#)

#### Question #29 of 33

Question ID: 1210771

Which of the following is not an assumption of the arbitrage pricing theory (APT)?

A) Returns on assets can be described by a multi-factor process.



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**B)** The market contains enough stocks so that unsystematic risk can be diversified away.



**C)** Security returns are normally distributed.



#### Explanation

APT does not require that security returns be normally distributed.

(Study Session 16, Module 44.1, LOS 44.a)

#### Related Material

[SchweserNotes - Book 5](#)

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### Question #30 of 33

Question ID: 1210770

Which of the following is an equilibrium-pricing model?

**A)** Macroeconomic factor model.



**B)** Fundamental factor model.



**C)** The arbitrage pricing theory (APT).



#### Explanation

The APT is an equilibrium-pricing model; multi-factor models are "ad-hoc," meaning the factors in these models are not derived directly from an equilibrium theory. Rather they are identified empirically by looking for macroeconomic variables that best fit the data.

(Study Session 16, Module 44.1, LOS 44.a)

#### Related Material

[SchweserNotes - Book 5](#)

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### Question #31 of 33

Question ID: 1210800

A portfolio manager uses a two-factor model to manage her portfolio. The two factors are confidence risk and time-horizon risk. If she wants to bet on an unexpected increase in the confidence risk factor (which has a positive risk premium), but hedge away her exposure to time-horizon risk (which has a negative risk premium), she should create a portfolio with a sensitivity of:

**A)** 1.0 to the confidence risk factor and -1.0 to the time-horizon factor.



**B)** -1.0 to the confidence risk factor and 1.0 to the time-horizon factor.



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C) 1.0 to the confidence risk factor and 0.0 to the time-horizon factor.



### Explanation

She wants to create a confidence risk factor portfolio, which has a sensitivity of 1.0 to the confidence risk factor and 0.0 to the time horizon factor. Because the risk premium on the confidence risk factor is positive, an unexpected increase in this factor will increase the returns on her portfolio. The exposure to the time-horizon risk factor has been hedged away, because the sensitivity to that factor is zero.

(Study Session 16, Module 44.3, LOS 44.g)

### Related Material

[SchweserNotes - Book 5](#)

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## Question #32 of 33

Question ID: 1210799

Rob Tanner, portfolio manager at Alpha Inc. meets his old college friend Del Torres for lunch. Torres excitedly tells Tanner about his latest work with tracking and factor portfolios. Torres says he has developed a tracking portfolio to aid in speculating on oil prices and is working on a factor portfolio with a specific set of factor sensitivities to the Russell 2000.

Did Torres correctly describe tracking and factor portfolios?

	<u>Tracking</u>	<u>Factor</u>	
A) No	No		
B) No	Yes		
C) Yes	No		

### Explanation

Torres reversed the concepts and is thus incorrect on both counts. A factor portfolio is a portfolio with a factor sensitivity of 1 to a particular factor and zero to all other factors. It represents a pure bet on one factor, and can be used for speculation or hedging purposes. A tracking portfolio is a portfolio with a specific set of factor sensitivities. Tracking portfolios are often designed to replicate the factor exposures of a benchmark index like the Russell 2000.

(Study Session 16, Module 44.3, LOS 44.f)

### Related Material

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### Question #33 of 33

Question ID: 1210783

Portfolios A and B have an expected return of 4.4% and 5.3% respectively. Assume that a one-factor APT model is appropriate and the factor sensitivities of portfolios A and B are 0.8 and 1.1 respectively. The risk-free rate and factor risk premium are *closest* to:

	<u>Risk Free Rate</u>	<u>Factor Risk Premium</u>	
A)	3.00%	2.00%	
B)	2.00%	3.00%	
C)	2.50%	3.00%	

#### Explanation

Expected return = risk free rate + factor sensitivity x risk premium

For portfolio A:  $0.044 = R_f + 0.8\lambda$  Hence  $R_f = 0.044 - 0.8\lambda$

Substituting  $R_f = (0.04 - 0.8\lambda)$  for portfolio B,  $0.053 = (0.044 - 0.8\lambda) + 1.1\lambda$

$\lambda = 0.03$  or 3% and  $R_f = 2\%$ .

(Study Session 16, Module 44.1, LOS 44.c)

#### Related Material

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