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**PORTFOLIO RISK AND  
RETURN PART II**

- A model that estimates expected excess return on a security based on the ratio of the firm's book value to its market value is best described as a:
  - market model.
  - multifactor model.
  - single-factor model.
- The risk-free rate is 5% and the expected market return is 15%. A portfolio manager is estimating a return of 20% on a stock with a beta of 1.5. Based on the SML and the analyst's estimate, this stock is:
  - undervalued.
  - overvalued.
  - properly valued.

- Over a sample period, an investor gathers the following data about three mutual funds.

Mutual Fund	Portfolio Return	Portfolio Standard Deviation	Portfolio Beta
P	13%	18%	1.2
Q	15%	20%	1.4
R	18%	24%	1.8

The risk-free rate is 5%. Based solely on the Sharpe measure, an investor would prefer:

- Fund P.
  - Fund Q.
  - Fund R.
- The beta of Stock A is 1.3. If the expected return of the market is 12%, and the risk-free rate of return is 6%, what is the expected return of Stock A?
    - 13.8%.
    - 14.2%.
    - 15.6%.

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5. Which of the following is the vertical axis intercept for the Capital Market Line (CML)?
- (A) Expected return on the market.
  - (B) Risk-free rate.
  - (C) Expected return on the portfolio.
6. An active manager will most likely short a security with an expected Jensen's alpha that is:
- (A) negative.
  - (B) positive.
  - (C) zero.
7. Which of the following statements about portfolio management is most accurate?
- (A) As an investor diversifies away the unsystematic portion of risk, the correlation between his portfolio return and that of the market approaches negative one.
  - (B) Combining the capital market line (CML) (risk-free rate and efficient frontier) with an investor's indifference curve map separates out the decision to invest from the decision of what to invest in.
  - (C) The security market line (SML) measures systematic and unsystematic risk versus expected return; the CML measures total risk.
8. According to capital market theory, which of the following represents the risky portfolio that should be held by all investors who desire to hold risky assets?
- (A) The point of tangency between the capital market line (CML) and the efficient frontier.
  - (B) Any point on the efficient frontier and to the left of the point of tangency between the CML and the efficient frontier.
  - (C) Any point on the efficient frontier and to the right of the point of tangency between the CML and the efficient frontier.
9. When a risk-free asset is combined with a portfolio of risky assets, which of the following is least accurate?
- (A) The variance of the resulting portfolio is a weighted average of the returns variances of the risk-free asset and of the portfolio of risky assets.
  - (B) The expected return for the newly created portfolio is the weighted average of the return on the risk-free asset and the expected return on the risky asset portfolio.
  - (C) The standard deviation of the return for the newly created portfolio is the standard deviation of the returns of the risky asset portfolio multiplied by its portfolio weight.

10. Which of the following statements about systematic and unsystematic risk is most accurate?
- (A) As an investor increases the number of stocks in a portfolio, the systematic risk will remain constant.
  - (B) The unsystematic risk for a specific firm is similar to the unsystematic risk for other firms.
  - (C) Total risk equals market risk plus firm-specific risk.
11. Portfolios that represent combinations of the risk-free asset and the market portfolio are plotted on the:
- (A) utility curve.
  - (B) capital asset pricing line.
  - (C) capital market line.
12. In the market model, beta measures the sensitivity of an asset's rate of return to the market's:
- (A) excess return.
  - (B) rate of return.
  - (C) risk-adjusted return.
13. Which of the following terms refer to the same type of risk?
- (A) Undiversifiable risk and unsystematic risk.
  - (B) Systematic risk and firm-specific risk.
  - (C) Total risk and the variance of returns.
14. If the risk-free rate of return is 3.5%, the expected market return is 9.5%, and the beta of a stock is 1.3, what is the required return on the stock according to the capital asset pricing model?
- (A) 11.3%.
  - (B) 12.4%.
  - (C) 7.8%.
15. Which of the following is the risk that disappears in the portfolio construction process?
- (A) Unsystematic risk.
  - (B) Systematic risk.
  - (C) Interest rate risk.
16. An equally weighted portfolio of a risky asset and a risk-free asset will exhibit:
- (A) half the returns standard deviation of the risky asset.
  - (B) less than half the returns standard deviation of the risky asset.
  - (C) more than half the returns standard deviation of the risky asset.

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17. The expected market premium is 8%, with the risk-free rate at 7%. What is the expected rate of return on a stock with a beta of 1.3?
- (A) 10.4%.  
 (B) 16.3%.  
 (C) 17.4%.
18. Which of the following statements about risk is NOT correct?
- (A) The market portfolio has only systematic risk.  
 (B) Total risk = systematic risk - unsystematic risk.  
 (C) Unsystematic risk is diversifiable risk.
19. The expected rate of return is 1.5 times the 16% expected rate of return from the market. What is the beta if the risk free rate is 8%?
- (A) 2.  
 (B) 3.  
 (C) 4.
20. For an investor to move further up the Capital Market Line than the market portfolio, the investor must:
- (A) borrow and invest in the market portfolio.  
 (B) diversify the portfolio even more.  
 (C) reduce the portfolio's risk below that of the market.
21. Which is NOT an assumption of capital market theory?
- (A) There is no inflation.  
 (B) There are no taxes or transaction costs.  
 (C) Investments are not divisible.
22. The market model of the expected return on a risky security is best described as a(n):
- (A) two-factor model.  
 (B) single-factor model.  
 (C) arbitrage-based model.
23. A stock has a beta of 1.55 and an expected return of 17.3%. If the risk-free rate is 8%, the expected market risk premium is:
- (A) 12.0%.  
 (B) 14.0%.  
 (C) 6.0%.

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24. Which of the following is least likely an assumption underlying the capital asset pricing model?
- Investors are rational.
  - Tax rates are constant over the investment horizon.
  - All investors have the same expectations of return and risk for each security.
25. All portfolios that lie on the capital market line:
- contain the same mix of risky assets unless only the risk-free asset is held.
  - have some unsystematic risk unless only the risk-free asset is held.
  - contain at least some positive allocation to the risk-free asset.
26. A portfolio to the right of the market portfolio on the capital market line (CML) is created by:
- fully diversifying.
  - holding both the risk-free asset and the market portfolio.
  - holding more than 100% of the risky asset.
27. Given the following data, what is the correlation coefficient between the two stocks and the Beta of stock A?
- standard deviation of returns of Stock A is 10.04%
  - standard deviation of returns of Stock B is 2.05%
  - standard deviation of the market is 3.01%
  - covariance between the two stocks is 0.00109
  - covariance between the market and stock A is 0.002
- | Correlation Coefficient | Beta (stock A) |
|-------------------------|----------------|
| (A) 0.6556              | 2.20           |
| (B) 0.5296              | 0.06           |
| (C) 0.5296              | 2.20           |
28. Which of the following statements regarding the Capital Asset Pricing Model is least accurate?
- It is useful for determining an appropriate discount rate.
  - It is when the security market line (SML) and capital market line (CML) converge.
  - Its accuracy depends upon the accuracy of the beta estimates.
29. If the standard deviation of the market's returns is 5.8%, the standard deviation of a stock's returns is 8.2%, and the covariance of the market's returns with the stock's returns is 0.003, what is the beta of the stock?
- 0.05.
  - 0.89.
  - 1.07.

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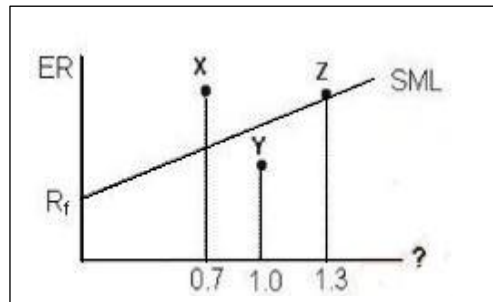
30. If a stock's beta is equal to 1.2, its standard deviation of returns is 28%, and the standard deviation of the returns on the market portfolio is 14%, the covariance of the stock's returns with the returns on the market portfolio is closest to:
- (A) 0.024.
  - (B) 0.600.
  - (C) 0.168.
31. Mason Snow, CFA, is considering two stocks: Bahre (with an expected return of 10% and a beta of 1.4) and Cubb (with an expected return of 15% and a beta of 2.0). Snow uses a risk-free rate of 7% and estimates that the market risk premium is 4%. Based on capital market theory, Snow should conclude that:
- (A) only Bahre is underpriced.
  - (B) neither security is underpriced.
  - (C) only Cubb is underpriced.
32. Given a beta of 1.25 and a risk-free rate of 6%, what is the expected rate of return assuming a 12% market return?
- (A) 31%.
  - (B) 13.5%.
  - (C) 10%.
33. An analyst collected the following data for three possible investments. Alpha Corporation has a beta of 1.6, Omega Company has a beta of 1.2, and Lambda, Inc. has a beta of 0.5.
- The expected return on the market is -3% and the risk-free rate is 4%. Assuming that capital markets are in equilibrium, which stock has the highest expected return?
- (A) Alpha.
  - (B) Omega.
  - (C) Lambda.
34. Bruce Johansen, CFA, is fully invested in the market portfolio. Johansen desires to increase the expected return from his portfolio. According to capital market theory, Johansen can meet his return objective by:
- (A) owning the risky market portfolio and lending at the risk-free rate.
  - (B) allocating a higher proportion of the portfolio to higher risk assets.
  - (C) borrowing at the risk-free rate to invest in the risky market portfolio.

35. The market portfolio in Capital Market Theory is determined by:
- (A) a line tangent to the efficient frontier, drawn from any point on the expected return axis.
  - (B) a line tangent to the efficient frontier, drawn from the risk-free rate of return.
  - (C) the intersection of the efficient frontier and the investor's highest utility curve.
36. Charlie Smith holds two portfolios, Portfolio X and Portfolio Y. They are both liquid, well-diversified portfolios with approximately equal market values. He expects Portfolio X to return 13% and Portfolio Y to return 14% over the upcoming year. Because of an unexpected need for cash, Smith is forced to sell at least one of the portfolios. He uses the security market line to determine whether his portfolios are undervalued or overvalued. Portfolio X's beta is 0.9 and Portfolio Y's beta is 1.1. The expected return on the market is 12% and the risk-free rate is 5%. Smith should sell:
- (A) both portfolios X and Y because they are both overvalued.
  - (B) portfolio Y only.
  - (C) either portfolio X or Y because they are both properly valued.
37. An investor believes Stock M will rise from a current price of \$20 per share to a price of \$26 per share over the next year. The company is not expected to pay a dividend. The following information pertains:
- $R_F = 8\%$
  - $ER_M = 16\%$
  - Beta = 1.7
- Should the investor purchase the stock?
- (A) No, because it is overvalued.
  - (B) No, because it is undervalued.
  - (C) Yes, because it is undervalued.
38. The stock of Mia Shoes is currently trading at \$15 per share, and the stock of Video Systems is currently trading at \$18 per share. An analyst expects the prices of both stocks to increase by \$2 over the next year and neither company pays dividends. Mia Shoes has a beta of 0.9 and Video Systems has a beta of (-0.3). If the expected market return is 15% and the risk-free rate is 8%, which trading strategy does the CAPM indicate for these two stocks?

Mia Shoes	Video Systems
(A) Buy	Buy
(B) Buy	Sell
(C) Sell	Buy

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39. Consider the following graph of the Security Market Line (SML). The letters X, Y, and Z represent risky asset portfolios and an analyst's forecast for their returns over the next period. The SML crosses the y-axis at 0.07.



The expected market return is 13.0%.

Using the graph above and the information provided, the analyst most likely believes that:

- (A) Portfolio X's required return is greater than its forecast return.  
 (B) Portfolio Y is undervalued.  
 (C) the expected return for Portfolio Z is 14.8%.
40. According to the capital asset pricing model (CAPM):
- (A) an investor who is risk averse should hold at least some of the risk free asset in his portfolio.  
 (B) all investors who take on risk will hold the same risky-asset portfolio.  
 (C) a stock with high risk, measured as standard deviation of returns, will have high expected returns in equilibrium.
41. An analyst has estimated the following:
- Correlation of Bahr Industries returns with market returns = 0.8
  - Variance of the market returns = 0.0441
  - Variance of Bahr returns = 0.0225
- The beta of Bahr Industries stock is closest to:
- (A) 0.77.  
 (B) 0.57.  
 (C) 0.67.
42. The expected rate of return is 2.5 times the 12% expected rate of return from the market. What is the beta if the risk-free rate is 6%?
- (A) 3.  
 (B) 5.  
 (C) 4.



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43. In extending the 3-factor model of Fama and French, the additional factor suggested by Carhart that is often used is:
- (A) GDP growth.
  - (B) price momentum.
  - (C) market-to-book value.
44. The slope of the capital market line (CML) is a measure of the level of:
- (A) excess return per unit of risk.
  - (B) expected return over the level of inflation.
  - (C) risk over the level of excess return.
45. In equilibrium, an inefficient portfolio will plot:
- (A) below the CML and below the SML.
  - (B) below the CML and on the SML.
  - (C) on the CML and below the SML.
46. In the context of the capital market line (CML), which of the following statements is CORRECT?
- (A) Firm-specific risk can be reduced through diversification.
  - (B) Market risk can be reduced through diversification.
  - (C) The two classes of risk are market risk and systematic risk.
47. In Fama and French's multifactor model, the expected return on a stock is explained by:
- (A) excess return on the market portfolio, book-to-market ratio, and price momentum.
  - (B) firm size, book-to-market ratio, and excess return on the market portfolio.
  - (C) firm size, book-to-market ratio, and price momentum.
48. The correlation of returns on the risk-free asset with returns on a portfolio of risky assets is:
- (A) negative.
  - (B) positive.
  - (C) zero.
49. Which of the following is the most accurate description of the market portfolio in Capital Market Theory? The market portfolio consists of all:
- (A) equity securities in existence.
  - (B) risky and risk-free assets in existence.
  - (C) risky assets in existence.

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50. An investor's wealth is approximately 50% in bonds and broad-based equities and 50% in shares of a company she founded. Which of the following measures of risk-adjusted returns is least appropriate for this investor's portfolio?
- (A) M-squared.  
 (B) Sharpe ratio.  
 (C) Jensen's alpha.
51. A stock that plots below the Security Market Line most likely.
- (A) is overvalued.  
 (B) has a beta less than one.  
 (C) is below the efficient frontier.
52. When the market is in equilibrium, all:
- (A) assets plot on the CML.  
 (B) assets plot on the SML.  
 (C) investors hold the market portfolio.
53. Which of the following is an assumption of the Capital Asset Pricing Model (CAPM)?
- (A) Investors with shorter time horizons exhibit greater risk aversion.  
 (B) No investor is large enough to influence market prices.  
 (C) There are no margin transactions or short sales.
54. For a security with a beta of 1.10 when the risk-free rate is 5%, and the expected market risk premium is 5%, what is the expected rate of return on the security according to the CAPM?
- (A) 10.5%.  
 (B) 15.5%.  
 (C) 5.5%.
55. A stock's abnormal rate of return is defined as the:
- (A) actual rate of return less the expected risk-adjusted rate of return.  
 (B) expected risk-adjusted rate of return minus the market rate of return.  
 (C) rate of return during abnormal price movements.
56. An analyst wants to determine whether Dover Holdings is overvalued or undervalued, and by how much (expressed as percentage return). The analyst gathers the following information on the stock:
- Market standard deviation = 0.70
  - Covariance of Dover with the market = 0.85

- Dover's current stock price ( $P_0$ ) = \$35.00
- The expected price in one year ( $P_1$ ) is \$39.00
- Expected annual dividend = \$1.50
- 3-month Treasury bill yield = 4.50%.
- Historical average S&P 500 return = 12.0%.

Dover Holdings stock is:

- (A) overvalued by approximately 1.8%.
- (B) undervalued by approximately 1.8%.
- (C) undervalued by approximately 2.1%.

57. Based on Capital Market Theory, an investor should choose the:

- (A) market portfolio on the Capital Market Line.
- (B) portfolio that maximizes his utility on the Capital Market Line.
- (C) portfolio with the highest return on the Capital Market Line.

58. Which of the following is least likely considered a source of systematic risk for bonds?

- (A) Purchasing power risk.
- (B) Market risk.
- (C) Default risk.

59. Consider a stock selling for \$23 that is expected to increase in price to \$27 by the end of the year and pay a \$0.50 dividend. If the risk-free rate is 4%, the expected return on the market is 8.5%, and the stock's beta is 1.9, what is the current valuation of the stock? The stock:

- (A) is correctly valued.
- (B) is overvalued.
- (C) is undervalued.

60. What is the expected rate of return on a stock that has a beta of 1.4 if the market risk premium is 9% and the risk-free rate is 4%?

- (A) 13.0%.
- (B) 16.6%.
- (C) 11.0%.

61. Which of the following is an assumption of capital market theory? All investors:

- (A) have multiple-period time horizons.
- (B) see the same risk/return distribution for a given stock.
- (C) select portfolios that lie above the efficient frontier to optimize the risk-return relationship.

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62. Which of the following is NOT an assumption of capital market theory?

- (A) The capital markets are in equilibrium.
- (B) Investors can lend at the risk-free rate, but borrow at a higher rate.
- (C) All assets are infinitely divisible.

63. Level I CFA candidate Adeline Bass is a member of an investment club. At the next meeting, she is to recommend whether or not the club should purchase the stocks of CS Industries and MG Consolidated. The risk-free rate is at 6% and the expected return on the market is 15%. Prior to the meeting, Bass gathers the following information on the two stocks:

	CS Industries	MG Consolidated
Current Market Value	\$25	\$50
Expected Market value in one Year	\$30	\$55
Expected Dividend	\$1	\$1
Beta	1.2	0.80

Bass should recommend that the club:

- (A) purchase both stocks.
- (B) purchase CS only.
- (C) purchase MG only.

64. The beta of stock D is -0.5. If the expected return of Stock D is 8%, and the risk-free rate of return is 5%, what is the expected return of the market?

- (A) +3.0%.
- (B) -1.0%.
- (C) +3.5%.

65. The slope of the characteristic line is used to estimate:

- (A) a risk premium.
- (B) risk aversion.
- (C) beta.

66. A portfolio of options had a return of 22% with a standard deviation of 20%. If the risk-free rate is 7.5%, what is the Sharpe ratio for the portfolio?

- (A) 0.147.
- (B) 0.725.
- (C) 0.568.

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67. In the context of the CML, the market portfolio includes:
- (A) 12-18 stocks needed to provide maximum diversification.
  - (B) all existing risky assets.
  - (C) the risk-free asset.
68. What is the required rate of return for a stock with a beta of 1.2, when the risk-free rate is 6% and the market risk premium is 12%?
- (A) 13.2%.
  - (B) 15.4%.
  - (C) 20.4%.
69. Portfolios on the capital market line:
- (A) are perfectly positively correlated with each other.
  - (B) each contain different risky assets.
  - (C) include some positive allocation to the risk-free asset.
70. Which of the following statements about the security market line (SML) is least accurate?
- (A) Securities plotting above the SML are undervalued.
  - (B) The independent variable in the SML equation is the standard deviation of the market portfolio.
  - (C) The SML measures risk using the standardized covariance of the stock with the market.
71. The following information is available for the stock of Park Street Holdings:
- The price today ( $P_0$ ) equals \$45.00.
  - The expected price in one year ( $P_1$ ) is \$55.00.
  - The stock's beta is 2.31.
  - The firm typically pays no dividend.
  - The 3-month Treasury bill is yielding 4.25%.
  - The historical average S&P 500 return is 12.5%.
- Park Street Holdings stock is:
- (A) overvalued by 1.1%.
  - (B) undervalued by 1.1%.
  - (C) undervalued by 3.7%.

72. An analyst determines that three stocks have the following characteristics:

Stock	Beta	Estimated Return
X	1.0	10%
Y	1.6	16%
Z	2.0	16%

If the risk-free rate is 4% and the expected return on the market is 10%, which of the following statements is most accurate?

- (A) Stock X is undervalued.
- (B) Stock Y is overvalued.
- (C) Stock Z is properly valued.

73. James Franklin, CFA, has high risk tolerance and seeks high returns. Based on capital market theory, Franklin would most appropriately hold:

- (A) a high-beta portfolio of risky assets financed in part by borrowing at the risk-free rate.
- (B) a high risk biotech stock, as it will have high expected returns in equilibrium.
- (C) the market portfolio as his only risky asset.

74. The expected rate of return is twice the 12% expected rate of return from the market. What is the beta if the risk-free rate is 6%?

- (A) 2.
- (B) 3.
- (C) 4.

75. Portfolios that plot on the security market line in equilibrium:

- (A) have only systematic (beta) risk.
- (B) must be well diversified.
- (C) may be concentrated in only a few stocks.

76. What is the risk measure associated with the CML?

- (A) Beta.
- (B) Market risk.
- (C) Standard deviation.

77. In equilibrium, investors should only expect to be compensated for bearing systematic risk because:

- (A) individual securities in equilibrium only have systematic risk.
- (B) nonsystematic risk can be eliminated by diversification.
- (C) systematic risk is specific to the securities the investor selects.

78. Which type of risk is positively related to expected excess returns according to the CAPM?
- (A) Diversifiable.
  - (B) Unique.
  - (C) Systematic.
79. Which of the following measures produces the same portfolio rankings as the Sharpe ratio but is stated in percentage terms?
- (A) Jensen's alpha.
  - (B) M-squared.
  - (C) Treynor measure.
80. Beta is least accurately described as:
- (A) a measure of the sensitivity of a security's return to the market return.
  - (B) a standardized measure of the total risk of a security.
  - (C) the covariance of a security's returns with the market return, divided by the variance of market returns.
81. A portfolio manager is constructing a new equity portfolio consisting of a large number of randomly chosen domestic stocks. As the number of stocks in the portfolio increases, what happens to the expected levels of systematic and unsystematic risk?

Systematic risk	Unsystematic risk
(A) Decreases	Increases
(B) Increases	Remains the same
(C) Remains the same	Decreases

82. A higher Sharpe ratio indicates:
- (A) a higher excess return per unit of risk.
  - (B) a lower risk per unit of return.
  - (C) lower volatility of returns.
83. A portfolio's excess return per unit of systematic risk is known as its:
- (A) Jensen's alpha.
  - (B) Sharpe ratio.
  - (C) Treynor measure.

84. An analyst has developed the following data for two companies, PNS Manufacturing (PNS) and InCharge Travel (InCharge). PNS has an expected return of 15% and a standard deviation of 18%. InCharge has an expected return of 11% and a standard deviation of 17%. PNS's correlation with the market is 75%, while InCharge's correlation with the market is 85%. If the market standard deviation is 22%, which of the following are the betas for PNS and InCharge?

Beta of PNS	Beta of In Charge
(A) 0.61	0.66
(B) 0.66	0.61
(C) 0.92	1.10

85. An analyst estimated the following for three possible investments.

Security	Current Price	Forecast Price in One Year	Annual Dividend	Beta
Alpha Inc.	25.00	31.00	2.00	1.6
Lambda Inc.	10.00	10.80	0	0.5
Omega Inc.	105.00	110.00	1.00	1.2

Given an expected return on the market of 12% and a risk-free rate of 4%, which of the three securities is correctly priced based on the analyst's estimates?

- (A) Lambda.
- (B) Alpha.
- (C) Omega.

86. Which of the following statements regarding the Sharpe ratio is most accurate? The Sharpe ratio measures:

- (A) excess return per unit of risk.
- (B) peakedness of a return distribution.
- (C) total return per unit of risk.

87. Beta is a measure of:

- (A) company-specific risk.
- (B) total risk.
- (C) systematic risk.

88. One of the assumptions underlying the capital asset pricing model is that:

- (A) each investor has a unique time horizon.
- (B) only whole shares or whole bonds are available.
- (C) there are no transactions costs or taxes.



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89. When comparing portfolios that plot on the security market line (SML) to those that plot on the capital market line (CML), a financial analyst would most accurately state that portfolios that lie on the SML:
- (A) are not necessarily priced at their equilibrium values, while portfolios on the CML are priced at their equilibrium values.
  - (B) are not necessarily well diversified, while portfolios on the CML are well diversified.
  - (C) have only systematic risk, while portfolios on the CML have both systematic and unsystematic risk.
90. A plot of the expected returns and standard deviations of each possible portfolio that combines a risky asset and a risk-free asset will be:
- (A) a straight line.
  - (B) convex to the origin.
  - (C) a curve that approaches an upper limit.
91. Given the following information, what is the required rate of return on Bin Co?
- inflation premium = 3%
  - real risk-free rate = 2%
  - Bin Co. beta = 1.3
  - market risk premium = 4%
- (A) 16.7%.
  - (B) 7.6%.
  - (C) 10.2%.

