Sample Midterm Questions
Foundations of Financial Markets
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1. Security A has a higher equilibrium price volatility than security B. Assuming all else is equal, the equilibrium bid-ask spread of A would be expected to be:

   (a) Greater than B

   (b) Less than B

   (c) Equal to B

   (d) It is impossible to tell

2. Security A has a higher trading volume than security B. Assuming all else is equal, the equilibrium bid-ask spread of A would be expected to be:

   (a) Greater than B

   (b) Less than B

   (c) Equal to B

   (d) It is impossible to tell

3. If you can get 7.75% return on in 10 years from your local bank, would it be wise to invest in a 10 year, $1000 par value zero coupon bond that costs $475? (Assume both are equally risky)

   (a) Yes, the YTM is greater

   (b) No, the YTM is less

   (c) Can't tell from information given

4. What is the expected return on a two asset portfolio, where you invest 150% of your net worth in A, with a mean return of 10%, and borrow 50% of your net worth by selling short B, which has a mean return of 6%

   (a) 8%

   (b) 18%

   (c) 120%

   (d) 12%

   (e) None of the above

5. A riskfree security pays a dividend of 200$ after one year, 400$ after two years, 800$ after three years, and thereafter it never pays dividends again. The riskfree interest rate is 3%. What is the current price of the security:

   (a) 1203.3

   (b) 1303.3

   (c) 1345.2

   (d) 1400

6. According to portfolio theory, which of the following is *not* true?

   (a) All systematic risk can be diversified away

   (b) All non-systematic risk can be diversified away

   (c) Diversification lowers the potential risk of the portfolio

7. Suppose you have a two asset portfolio with $\sigma_1 = .05$ and $\sigma_2 = .08$. Assume the correlation coefficient of returns on the two assets is -1.0. Assuming you must hold positive amounts of both securities, what fraction of the portfolio should you hold in asset 2 to reduce the risk of the portfolio to zero.

   (a) .62

   (b) .5

   (c) .42

   (d) .38

8. Which of the following statements about short selling a risk-free security is true:

   (a) It is impossible to short sell risk-free securities

   (b) Even combined with other securities, the short sale makes no sense

   (c) This transaction is in principle equivalent to borrowing money

   (d) This transaction is in principle equivalent to lending money

9. If a Treasury bill pays 5%, which of the following would definitely not be chosen by a risk averse investor: (assume that investors cannot form portfolios.)

   (a) An asset paying 10%, with probability .6 or 2% with probability .4

   (b) An asset paying 10% with probability .4 or 2% with probability .6

   (c) An asset paying 10% with probability .2 or 3.75% with probability. 8

   (d) An asset paying 10% with probability .3 or 3.75% with probability .7

10. Which of the following is true about risk averse investor?

    (a) They care only about risk

    (b) They care only about returns

    (c) They might hold a risky security as part of a portfolio even if its expected return is less than the risk-free rate

    (d) They prefer a risk-free security to a risky security

11. A portfolio consisting of two risky securities that have a correlation of zero has a minimum variance portfolio that has a standard deviation equal to

    (a) The weighted average of the standard deviations of the two securities

    (b) -1

    (c) 0

    (d) Greater than 0

12. Assume $\sigma_1 = 10\%$ and $\sigma_2 = 30\%$. Under what circumstances will a portfolio allocation of 25% in asset 1 and 75% in asset 2 produce a σ for the combined portfolio equal to 25%

    (a) $\rho = 0$

    (b) $\rho = 1$

    (c) $\rho = -1$

    (d) None of the above

13. Which of the following is not possible when two securities are positively correlated:

    (a) Asset A's mean return is negative while asset B's is positive

    (b) Asset A's return is sometimes below its mean when asset B's is above its mean

    (c) Asset A's mean return is negative while asset B's mean return is also negative

    (d) All are possible

14. Suppose Kim and Susan care only about the mean and standard deviation of their portfolio return. Kim is less risk averse than Susan. Suppose that Susan holds the tangency portfolio. Which portfolio might Kim hold?

    (a) The riskfree asset

    (b) The tangency portfolio

    (c) The tangency portfolio leveraged by the risk-free asset

    (d) None of the above

15. Assume the variance of IBM is .16 and the variance of Microsoft is .25. If the variance of an equally weighted portfolio of these stocks is .0525, then the covariance between these stock is:

    (a) .10

    (b) .20

    (c) .25

    (d) -.10

16. John and Jim are both risk averse and only care about the mean and standard deviation of their portfolio return. They agree on the opportunity set available. There are N risky assets and a riskless asset. Which of the following statements is correct?

    (a) John and Jim must hold the same portfolio of all assets.

    (b) John and Jim may hold completely different portfolios of risky assets.

    (c) When choosing between 2 portfolios, John and Jim always prefer the one with the lowest standard deviation.

    (d) John holds any two risky assets in the same ratio as Jim does in his portfolio.

17. Suppose that among the many stocks in the market there are two securities, A and B, with the following characteristics: A has mean .08 and $\sigma = .4$ and B has mean .13 and $\sigma = .6$. If the correlation between these two is $\rho = -1$, and if it is possible to borrow and lend at the risk-free rate, R_f, then the equilibrium risk-free rate must be:

    (a) 8%

    (b) 10%

    (c) 13%

    (d) any R_f is possible

18. Which of the following best explains a decline in a dealer's inventory:

    (a) bid price and offer price are too high

    (b) bid price is too high and offer price is too low

    (c) bid price is too low and offer price is too high

    (d) bid price and offer price are too low

19. A security can be in one of four states next year:
    i) a good state with a return of 35% (this happens with probability = 0.30);
    ii) a normal state with a return of 15% (this happens with probability = 0.50); and
    iii) a bad state with a return of 0% (this happens with probability = 0.15).
    iv) a disaster state with a return of -50% (this happens with probability = 0.05).
    What are, respectively, the mean rate of return and the standard deviation of the rate of return?

    (a) $E(R) = 0.175$; $\sigma = 0.16$

    (b) $E(R) = 0.155$; $\sigma = 0.19$

    (c) $E(R) = 0.155$; $\sigma = 0.16$

    (d) $E(R) = 0.175$; $\sigma = 0.15$

    (e) $E(R) = 0.155$; $\sigma = 0.034$

20. What is the effective annual rate corresponding to an APR of 40% with weekly compounding?

    (a) 34.23%

    (b) 52.12%

    (c) 42.88%

    (d) 48.95%

ANSWERS

1. A
2. B
3. B
4. D
5. B
6. A
7. D
8. C
9. C
10. C
11. D
12. B
13. D
14. C
15. D
16. D
17. B
18. D
19. B
20. D