

Multiple choice Questions(20 points)

1. Differences between hedge funds and mutual funds are that

- A. hedge funds are only subject to minimal SEC regulation.
- B. hedge funds are typically open only to wealthy or institutional investors.
- C. hedge fund managers can pursue strategies not available to mutual funds such as short selling, heavy use of derivatives, and leverage.
- D. hedge funds are commonly structured as private partnerships.
- E. hedge funds are only subject to minimal SEC regulation, are typically open only to wealthy or institutional investors, fund managers can pursue strategies not available to mutual funds such as short selling, heavy use of derivatives, and leverage, and are commonly structured as private partnerships.

2. According to modern portfolio theory, the idea that investors with different indifference curves will hold

the same portfolio of risky securities is a result of

- A. diminishing marginal utility of income
- B. covariance
- C. the separation theorem
- D. the normal distribution assumption

3. In a portfolio consisting of the risk free asset and/or a risky asset, what is the expected return if you borrow 25% of your net worth by selling short the risk free asset and invest the rest in the risky asset, given the following?

$$R_m = .15 \quad R_f = .05 \quad \sigma_m = .2 \quad \text{Beta} = 1$$

- A. .2
- B. .1875
- C. .175

Essay Question

Question 1

DEF Aggressive Growth Fund has a NAV of \$9.12. If there is a 5 percent front end load for investments of \$30,000 and up, how many shares can an investor who is depositing \$50,000 purchase? (3 points)

Question 2

You are considering investing \$1,000 in a T-bill that pays a rate of return of 0.05 and a risky portfolio, P, constructed with 2 risky securities, X and Y. The weights of X and Y in P are 0.60 and 0.40, respectively. X has an expected rate of return of 0.17 and a variance of 0.01, and Y has an expected rate of return of 0.10 and a variance of 0.0081. If you want to form a portfolio with an expected rate of return of 0.10, what percentages of your money must you invest in the T-bill?

$X_1$  and  $Y_1$  respectively if you keep  $X$  and  $Y$  in the same proportions to each other as in portfolio  $P$ ? (7 Points)

Question 3

Given an optimal risky portfolio with expected return of 0.11 and standard deviation of 0.22 and a risk free rate of 0.03, what is the slope of the best feasible CAL? (5 Points)

18. Which of the following is an assumption of the CAPM?
- A. Single investors can affect the market by their buying and selling decisions.
  - B. There is no inflation.
  - C. Investors prefer capital gains over dividends.
  - D. Different investors have different probability distributions.
19. Which of the following statements about the difference between the SML and the CML is TRUE? The
- A. intercept of the CML is the origin while the intercept of the SML is RF.
  - B. CML consists of efficient portfolios, while the SML is concerned with all portfolios or securities.
  - C. CML could be downward sloping while that is impossible for the SML.
  - D. CML and the SML are essentially the same except in terms of the securities represented.
20. The risk-free rate is 7 percent. The expected market rate of return is 15 percent. If you expect a stock with a beta of 1.3 to offer a rate of return of 12 percent, you should:
- A. buy the stock because it is overpriced.
  - B. sell short the stock because it is overpriced.
  - C. sell the stock short because it is underpriced.
  - D. buy the stock because it is underpriced.
  - E. none of the above, as the stock is fairly priced.
21. A covered call position is
- A. the simultaneous purchase of the call and a put on the same stock at same price.
  - B. the purchase of a share of stock with a simultaneous sale of a put on that stock.
  - C. the short sale of a share of stock with a simultaneous sale of a call on that stock.
  - D. the purchase of a share of stock with a simultaneous sale of a call on that stock.
  - E. the simultaneous purchase of a call and sale of a put on the same stock same price.

First, let's calculate the load fee that the investor will have to pay:

$$\text{Load fee} = 5\% \times \$50,000 = \$2,500$$

This means that the investor will have \$47,500 available for investment after paying the load fee.

Now, let's calculate the number of shares that can be purchased:

$$\text{Number of shares} = \text{Amount available for investment} / \text{NAV}$$

$$\text{Number of shares} = \$47,500 / \$9.12$$

$$\text{Number of shares} \approx 5,207.24$$

Therefore, the investor can purchase approximately 5,207.24 shares of the DEF aggressive growth fund with an investment of \$50,000 after paying the 5% load fee.

Question 4

(15 points)

Stock	RETURN	SD	CORRELATION
A	0.11	0.2	0.4
B	0.095	0.11	
T.BILL	0.035		DEGREE OF RISK AVERSE
			$A=5.5$

Answer the below questions using the above table

1. WHAT IS THE OPTIMAL WEIGHT FOR (A) PORTFOLIO CONSIST OF A AND B (3 points)
2. WHAT IS THE OPTIMAL WEIGHT FOR (B) PORTFOLIO CONSIST OF A AND B (3 points)
3. WHAT IS THE RETURN OF THE OPTIMAL PORTFOLIO? (2 points)
4. WHAT IS THE STANDARD DEVIATION OF THE OPTIMAL PORTFOLIO? (3 points)
5. WHAT IS THE WEIGHT OF THE RISKY ASSETS IN THE COMPLETE OPTIMAL PORTFOLIO? (2 points)
6. WHAT IS THE STANDARD DEVIATION OF THE COMPLETE OPTIMAL PORTFOLIO? (2 points)

X, and Y, respectively if you keep X and Y in the same proportions to each other as in portfolio P? (7 Points)

T. Bill

Question 3

Given an optimal risky portfolio with expected return of 0.11 and standard deviation of 0.22 and risk free rate of 0.03, what is the slope of the best feasible CAL? (5 Points)

weight risk assets

$$\frac{R_b - R_f}{\sigma / \text{NAR}}$$

$$= \frac{0.11 - 0.03}{(0.22)^2} = \frac{0.08}{0.0484} = 1.652892$$

To find the optimal weight for a portfolio consisting of stocks A and B, we can use the formula for the weight of stock A in the optimal portfolio:

$$W(A) = [(E(r_A) - r_f) / (A * \sigma_A^2 + B * \sigma_B^2 + 2 * A * B * \sigma_A * \sigma_B * \rho_{AB})]$$

where  $W(A)$  is the weight of stock A in the portfolio,  $E(r_A)$  is the expected return of stock A,  $r_f$  is the risk-free rate,  $A$  is the degree of risk aversion,  $\sigma_A$  and  $\sigma_B$  are the standard deviations of stocks A and B, respectively,  $\rho_{AB}$  is the correlation coefficient between the two stocks, and  $B = 1 - A$ .

Plugging in the values given, we get:

$$W(A) = [(0.11 - 0.035) / (5.5 * 0.2^2 + (1 - 5.5) * 0.11^2 + 2 * 5.5 * (1 - 5.5) * 0.2 * 0.11 * 0.4)]$$

$$W(A) = 0.436 \text{ (rounded to three decimal places)}$$

Therefore, the optimal weight for stock A in the portfolio is 0.436.



1 E 12 1)  
2 C 13 C  
3 B 14 B  
4 A 15 B  
5 B 16 B  
6 A 17 C  
7 B 18 B 2)  
8 D 19 B  
9 D 20 B  
10 a 21 D  
11 E

1	E	19		1) food fee	$5\% \times \$5000 = 2,500$
2	C	13	C	Number of Books = $\frac{47,000}{21,12}$	
3	B	14	B	Number of Books = $5,207.24$	
4	A	15	B	Purchase approximately 5,207.24	
5	B	16	B	growth food and material Savings after paying	
6	A	17	C	5%	
7	B	18	B	2) $0.40 - 0.60 \times 0.17 + 0.14 \times 0.10 + \text{weight}$	
8	D	19	B	of T-bill $\times 0.05$	
9	D	20	B	weight of T-bill = $(0.60 - 0.60 \times 0.17 -$	
10	A	21	D	$0.14 \times 0.10) / 0.05$	
11	E			= $0.20$	

weight of X =  $0.60 \times (1 - 0.20) = 0.48$   
 weight of Y =  $0.14 \times (1 - 0.20) = 0.38$

3)

$$E(r) = r_f + \text{slope} \times \sigma$$

$$\text{slope} = (0.11 - 0.03) / 0.22$$

$$\text{slope} = 0.08 / 0.22$$

$$= 0.3636$$

$$E(r) =$$

$$0.03 + (0.3636 \times 0.22)$$

$$= 0.03 + 0.08$$

$$= 0.11$$

$$= 11\%$$

$$= 0.11$$

- B. 75.38
- C. 71.33
- D. 35.77

13. You purchase one IBM March 100 put contract for 100 dollars and a put premium of \$6. What is the maximum profit that you could gain from this strategy?

- A. 10,600
- B. 10,000
- C. 9400
- D. no enough information

14. Buyers of put options anticipate the value of the underlying asset will \_\_\_\_\_, and sellers of call options anticipate the value of the underlying asset will \_\_\_\_\_.

- A. increase, decrease
- B. decrease, decrease
- C. increase, increase
- D. decrease, increase

15. you bought a call option for 120 dollars and pay a premium of 8 dollars the market price is 125 dollars your pay off is zero and your profit is minus 3dollars

- A. True
- B. False

16. All are advantages of ETF fund except

- A. ETFs are cheaper than mutual funds
- B. Sold short and purchased on margin
- C. Must be bought for fee + bid-ask spread incurred
- D. Continuous trading
- E. Potential tax advantage

17. The divisor for the Dow Jones Industrial Average (DJIA) is most likely to increase if a stock in the DJIA:

- A. is removed and replaced
- B. has a stock split.
- C. has a reverse split.
- D. none of the any

C. systematic risk and no unsystematic risk

8. What is the expected return of a zero-beta security?

- A. Market rate of return.
- B. Zero rate of return.
- C. Negative rate of return.
- D. Risk-free rate of return.

9. According to CAPM, the expected rate of return of a portfolio with a beta of 1.0 and an alpha of 0

- A. Between  $r_m$  and  $r_f$
- B. The risk-free rate,  $r_f$
- C.  $B(r_m - r_f)$
- D. The expected return on the market,  $r_m$

10. ----- choice can be divided into two independent tasks: (1) Determination of the optimal risky portfolio, which is a purely mathematical problem, and (2) the personal choice of the best mix of the optimal risky portfolio and the risk-free asset, which depends on a person's degree of risk aversion

- A. Separation property
- B. Portfolio management
- C. CAPM
- D. Asset allocation

11. Investors' Choice Fund had NAV per share of \$37.25 on January 1, 2009. On December 31 of the same year the fund's rate of return for the year was 17.3%. Income distributions were \$1.14 and the fund had capital gain distributions of \$1.35. Without considering taxes and transactions costs, what ending NAV would you calculate for Investors' Choice?

- A. \$41.20
- B. \$33.88
- C. \$43.69
- D. \$42.03
- E. \$46.62

12. Old Economy Traders opened an account to short-sell 500 shares of Internet Dreams at \$30 per share. The initial margin requirement was 55%. A year later, the price of Internet Dreams has fallen from \$30 to 26\$ and the stock has paid a dividend of \$1 per share. If the maintenance margin is 35%, at what price will Old Economy receive a margin call?

A. 34.44

- D. 15
- E. 05

4. Suppose two portfolios have the same average return, the same standard deviation of return but portfolio A has a higher beta than portfolio B. According to the Sharpe ratio, portfolio A's performance is:

- A. better than B
- B. poorer than B
- C. the same as B
- D. not enough information is given

5. The measure of risk in an efficient frontier is (efficient portfolio) \_\_\_\_\_

- A. specific risk
- B. standard deviation of return
- C. beta
- D. Unsystematic risk

6. The efficient frontier represents the set of portfolios that has the \_\_\_\_\_

- A. maximum rate of return for every given level of risk, or the minimum risk for every level of return.
- B. maximum rate of return for every given level of risk, or the maximum risk for every level of return.
- C. minimum rate of return for every given level of risk, or the minimum risk for every level of return.

7. The minimum-variance zero-beta portfolio most likely has some \_\_\_\_\_

- A. systematic and unsystematic risk
- B. unsystematic risk and no systematic risk