

國立清華大學 105 學年度碩士班考試入學試題

系所班組別：計量財務金融學系碩士班 甲組

考試科目（代碼）：財務管理 (4304)

共 6 頁，第 1 頁

*請在【答案卷、卡】作答

單選題，共 25 題，每題 4 分，答錯每題倒扣 1 分。

1. Which of the following is not an assumption used in deriving the Capital Asset Pricing Model (CAPM)?
 - A. Investors have homogeneous expectations regarding the volatilities, correlation, and expected returns of securities.
 - B. Investors have homogeneous risk adverse preferences toward taking on risk.
 - C. Investors hold only efficient portfolios of traded securities that are portfolios that yield the maximum expected return for the given level of volatility.
 - D. Investors can buy and sell all securities at competitive market prices without incurring taxes or transactions cost and can borrow and lend at the risk-free interest rate.
 - E. None of the above.

2. The combination of the efficient set of portfolios with a riskless lending and borrowing rate results in:
 - A. the capital market line which shows that all investors will only invest in the riskless asset.
 - B. the capital market line which shows that all investors will invest in a combination of the riskless asset and the tangency portfolio.
 - C. the security market line which shows that all investors will invest in the riskless asset only.
 - D. the security market line which shows that all investors will invest in a combination of the riskless asset and the tangency portfolio.
 - E. None of the above.

3. Firms A and B are identical except for their level of debt and the interest rates they pay on debt. Each has \$2 million in assets, \$400,000 of EBIT, and has a 40% tax rate. However, firm A has a debt-to-assets ratio of 50% and pays 12% interest on its debt, while Firm B has a 30% debt ratio and pays only 10% interest on its debt. What is the difference between the two firms' ROEs?
 - A. 1.25%
 - B. 1.91%
 - C. 2.23%
 - D. 2.64%
 - E. 2.86%

4. Which of the following statements is CORRECT?
 - A. When a company increases its debt ratio, the costs of equity and debt capital both

國立清華大學 105 學年度碩士班考試入學試題

系所班組別：計量財務金融學系碩士班 甲組

考試科目（代碼）：財務管理（4304）

共 6 頁，第 2 頁 *請在【答案卷、卡】作答

- increase. Therefore, the WACC must also increase.
- B. The capital structure that maximizes stock price is generally the capital structure that also maximizes earnings per share.
- C. All else equal, an increase in the corporate tax rate would tend to encourage a company to increase its debt ratio.
- D. Since debt financing raises the firm's financial risk, increasing a company's debt ratio will always increase the company's WACC.
- E. Since debt financing is cheaper than equity financing, increasing a company's debt ratio will always reduce the company's WACC.
5. Which of the following is not a direct action that can be taken by shareholders?
- A. Submitting shareholder resolutions directing the board to take specific actions
- B. Withholding votes for the board of directors candidates
- C. Initiating a proxy contest D. Voting to remove the management team.
- E. None of the above.
6. Your firm faces an 8% chance of a potential loss of \$50 million next year. If your firm implements new safety policies, it can reduce the chance of this loss to 3%, but the new safety policies have an upfront cost of \$250,000. Suppose that the beta of the loss is 0 and the risk-free rate of interest is 5%. If your firm is uninsured, the NPV of implementing the new safety policies is closest to:
- A. \$2.25 million B. -\$0.25 million C. \$2.5 million D. \$2.15 million
- E. \$2.75
7. (Following the above question) If your firm is fully insured, the NPV of implementing the new safety policies is closest to:
- A. \$2.15 million B. \$2.5 million C. \$2.25 million D. -\$0.25 million
- E. \$2.75
8. Studies of the performance of professionally managed mutual funds find that these funds:
- A. do not outperform a market index. Assuming mutual fund managers rely primarily on public information, this finding refutes the semistrong form of the efficient market hypothesis.
- B. do not outperform a market index. Assuming mutual fund managers rely primarily on

國立清華大學 105 學年度碩士班考試入學試題

系所班組別：計量財務金融學系碩士班 甲組

考試科目（代碼）：財務管理 (4304)

共 6 頁，第 3 頁

*請在【答案卷、卡】作答

public information, this finding supports the semistrong form of the efficient market hypothesis.

C. outperform a market index. Assuming mutual fund managers rely primarily on public information, this finding refutes the semistrong form of the efficient market hypothesis.

D. outperform a market index. Assuming mutual fund managers rely primarily on public information, this finding supports the semistrong form of the efficient market hypothesis.

E. Both outperform a market index. Assuming mutual fund managers rely primarily on public information, this finding refutes the semistrong form of the efficient market hypothesis; and outperform a market index. Assuming mutual fund managers rely primarily on public information, this finding supports the semistrong form of the efficient market hypothesis.

9. Suppose that Galt Ventures, a venture capital firm, raised \$250 million of committed capital. Each year over the 10-year life of the fund, 2% of this committed capital will be used to pay Galt's management fee. As is typical in the venture capital industry, Galt will only invest \$200 million (committed capital less lifetime management fees). At the end of 10 years, the investments made by the fund are worth \$800 million. Galt also charges 20% carried interest on the profits of the fund (net of management fees). Assume that Galt collects the \$250 of committed capital and invests \$200 million of it immediately. Also assume that Galt collects all proceeds from its investments at the end of the ten year life. The IRR on the investments made by Galt Ventures is closest to:

A. 9.9% B. 12.4% C. 14.9% D. 15.8% E. 17.9%

10. (Following the above question) The IRR on the investment of a limited partner into Galt Ventures net of all management fees and expenses is closest to:

A. 7.8% B. 9.9% C. 12.4% D. 14.9% E. 16.1%

11. Wyatt Oil issued \$100 million in perpetual debt (at par) with an annual coupon of 7%. Wyatt will pay interest only on this debt. Wyatt's marginal tax rate is expected to be 40% for the foreseeable future. Wyatt's annual interest tax shield is closest to:

A. \$2.8 million B. \$4.2 million C. \$7.0 million D. \$40 million
E. \$75 million

12. (Following the above question) Assuming its risk is the same as the loan, the present

國立清華大學 105 學年度碩士班考試入學試題

系所班組別：計量財務金融學系碩士班 甲組

考試科目（代碼）：財務管理（4304）

共__6__頁，第__4__頁

*請在【答案卷、卡】作答

value of Wyatt's annual interest tax shield is closest to:

- A. \$4.2 million B. \$7.0 million C. \$40 million D. \$60 million
E. \$75 million

13. (Following the above question) Assume that five years have passed since Wyatt issued this debt. While tax rates have remained at 40%, interest rates have dropped so that Wyatt's current cost of debt capital is now only 4%. Wyatt's annual interest tax shield is now closest to:

- A. \$2.8 million B. \$4.2 million C. \$40.0 million D. \$60.0 million
E. \$75 million

14. (Following the above question) Assume that five years have passed since Wyatt issued this debt. While tax rates have remained at 40%, interest rates have dropped so that Wyatt's current cost of debt capital is now only 4%. The present value of Wyatt's annual interest tax shield is now closest to:

- A. \$2.8 million B. \$40.0 million C. \$60.0 million D. \$70.0 million
E. \$85 million

15. Assume that the single factor APT model applies and a portfolio exists such that 2/3 of the funds are invested in Security Q and the rest in the risk-free asset. Security Q has a beta of 1.5. The portfolio has a beta of:

- A. 0.00. B. 0.50. C. 0.75. D. 1.00. E. 1.50.

16. The introduction of personal taxes may reveal a disadvantage to the use of debt if the:

- A. personal tax rate on the distribution of income to stockholders is less than the personal tax rate on interest income.
B. personal tax rate on the distribution of income to stockholders is greater than the personal tax rate on interest income.
C. personal tax rate on the distribution of income to stockholders is equal to the personal tax rate on interest income.
D. personal tax rate on interest income is zero.
E. None of these.

17. The TrunkLine Company will earn \$60 in one year if it does well. The debtholders are

國立清華大學 105 學年度碩士班考試入學試題

系所班組別：計量財務金融學系碩士班 甲組

考試科目（代碼）：財務管理（4304）

共__6__頁，第__5__頁 *請在【答案卷、卡】作答

promised payments of \$35 in one year if the firm does well. If the firm does poorly, expected earnings in one year will be \$30 and the repayment will be \$20 because of the dead weight cost of bankruptcy. The probability of the firm performing poorly or well is 50%. If bondholders are fully aware of these costs what will they pay for the debt? The interest rate on the bonds is 10%.

A. \$25.00 B. \$27.50 C. \$29.55 D. \$32.50 E. \$35.00

18. (Following the above question) The TrunkLine Company debtholders are promised payments of \$35 if the firm does well, but will receive only \$20 if the firm does poorly. Bondholders are willing to pay \$25. The promised return to the bondholders is approximately:

A. 2.9% B. 16.9% C. 27.3% D. 40.0% E. 100%

19. A branching tree for the binomial model:

A. should capture all possible futures paths for the asset.

B. has a move down followed by a move up on a subsequent branch to end at the same value as the reverse path.

C. has a move down followed by a move up on a subsequent branch to end at a lower value than a move up then a move down.

D. Both should capture all possible futures paths for the asset; and has a move down followed by a move up on a subsequent branch to end at a lower value than a move up then a move down.

E. Both should capture all possible futures paths for the asset; and has a move down followed by a move up on a subsequent branch to end at the same value as the reverse path.

20. Robinson's has 15,000 shares of stock outstanding with a par value of \$1.00 per share and a market price of \$36 a share. The balance sheet shows \$15,000 in the common stock account, \$315,000 in the capital in excess of par account, and \$189,000 in the retained earnings account. The firm just announced a 3-for-2 stock split. What will the value of the common stock account be after the split?

A. \$10,000 B. \$12,500 C. \$15,000 D. \$18,500 E. \$22,500

21. Suppose that Taggart Transcontinental currently has no debt and has an equity cost of

- capital of 10%. Taggart is considering borrowing funds at a cost of 6% and using these funds to repurchase existing shares of stock. Assume perfect capital markets. If Taggart borrows until they achieved a debt-to-value ratio of 20%, then Taggart's levered cost of equity would be closest to:
- A. 8.0% B. 9.2% C. 10.0% D. 11.0% E. 15.1%
22. Your investment portfolio consists of \$10,000 worth of Google stock. Suppose that the risk-free rate is 4%, Google stock has an expected return of 14% and a volatility of 35%, and the market portfolio has an expected return of 10% and a volatility of 18%. Assume that the CAPM assumptions hold. What alternative investment has the lowest possible volatility while having the same expected return as Google?
- A. -25% in the risk-free asset and +125% in the market portfolio
B. -20% in the risk-free asset and +120% in the market portfolio
C. 0% in the risk-free asset and +100% in the market portfolio
D. 20% in the risk-free asset and +80% in the market portfolio
E. None of the above.
23. (Following the above question) The volatility of the alternative investment that has the lowest possible volatility while having the same expected return as Google is closest to:
- A. 18.0% B. 22.5% C. 23.4% D. 35.0% E. 40.5%
24. (Following the above question) What alternative investment has the highest possible expected return while having the same volatility as Google?
- A. -25% in the risk-free asset and +125% in the market portfolio
B. -20% in the risk-free asset and +120% in the market portfolio
C. -94% in the risk-free asset and +194% in the market portfolio
D. 6% in the risk-free asset and +94% in the market portfolio
E. None of the above.
25. The expected return on the alternative investment having the highest possible expected return while having the same volatility as Google is closest to?
- A. 21.6% B. 22.5% C. 23.4% D. 35.0% E. 40.5%