Corporate Finance
Tools Exam

Writing time: 60 minutes

15 questions – please circle the best alternative in multiple choice questions, and show clearly your work in open-ended questions.

Name Answer Key – correct answers in red

Student number _____

Pledge: I have neither given nor received aid in completion of this exam

Signed: _____

1. When time value of money is considered, the current value of future cash flows

a) decreases
b) increases
c) remains unchanged
d) becomes riskier

2. Use of Gordon's growth model is equivalent to

a) assuming that a stock will pay no dividends.
b) assuming that the value of a stock is driven by speculators.
c) accounting for a chance that dividends will decrease in the future.
d) discounting an infinite stream of constantly growing dividends.

3. The firm's cost of capital depends on

a) its use of debt financing.
b) its riskiness.
c) its cost of equity.
d) all of the above.

4. Which of the following statements is NOT true?

a) The IRR can have multiple answers.
b) The IRR is easier to use than the NPV, as the IRR method does not require knowledge of the cost of capital.
c) The IRR and the NPV may rank mutually exclusive projects differently.
d) The IRR becomes the preferred method of capital budgeting.

Both b) and d) were considered correct answers in #4.

5. For a company with the following data, what is the Weighted Average Cost of Capital (WACC) (assume that the firm uses only debt and equity in its financing)?

Cost of debt (pre-tax) = 7%
Cost of equity = 12%
Weight of equity (market based) = 55%
Marginal tax rate = 40%

a) 9.5%
b) 8.5%
c) 12.5%
d) 9.8%

6. A €1000 investment is expected to produce the following cash flows

Time	Cash flow
1	€300
2	€350
3	€450

Which of the following statements is true?

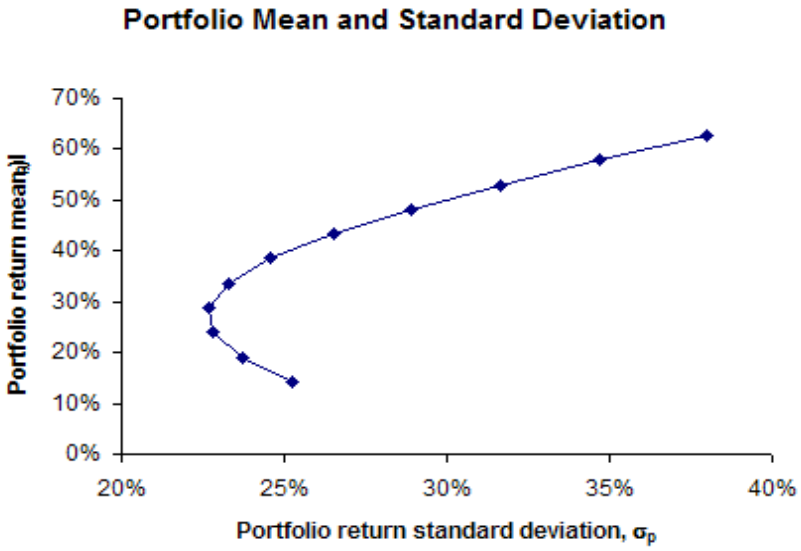
a) The IRR of the project is less than 5%.
b) With cost of capital at 8%, this would be an acceptable project.
c) This is an acceptable project since the sum of future cash flows is greater than the investment.
d) The payback period for this project is 2 years.

7. What should be the cost of equity for the following company?

Current dividend = €4
Current stock price = €40
Growth rate of dividends = 4%

a) 4.4%
b) 10.0%
c) 10.4%
d) 14.4%

8. Consider the graph below, and choose the best answer from the choices below it.



a) According to the graph, sophisticated investors should not expect a return above 30%.
b) For 25% standard deviation, sophisticated investors should expect about 15% return.
c) The risk is minimized when the expected return is slightly below 30%.
d) Sophisticated investors will invest on the downward-sloping portion of the graph.

9. What is the expected return for XYZ, Inc.'s stock?

T-Bill return = 3%
Expected return on the S&P 500 Index = 12%
XYZ, Inc.'s Beta = 1.2

a) 4.2%
b) 3.0%
c) 13.8%
d) 14.3%

10. If ABC, Inc. has a historical beta of 0.9 and they unexpectedly increase use of debt on their balance sheet, what is the expected effect on the beta?

a) The beta will be unchanged, since the CAPM does not include a term for leverage.
b) The beta will be unchanged, since it measures the risk of equity, and not the risk of debt.
c) The beta will increase.
d) This question does not make any sense.

11. An interest rate increase will cause bond prices to

a) increase.
b) decrease.
c) remain unchanged for existing bonds.
d) equal interest rates.

12. How many dollars is each coupon payment of a bond that has $1,000 par value, 8.25% coupon rate, and semi-annual coupon payments?

a) $41.25
b) $82.50
c) $6.875
d) $825

13. Calculate the value of the bond in question 12, given that it has 5 years to maturity and your required rate of return is 5.5% (show your calculations – in case you are using a financial calculator, show key strokes)

PMT=41.25
N=10
FV=1000
I=5.5%/2 = 2.75%

Gives PV=1118.80
Solutions where annual coupons had been used were considered incorrect. Using semiannual compounding was considered correct, while the bond market simply divides annual interest rate by 2, as shown above.

14. With a put option that has a strike price of €35, you can

a) purchase the underlying asset for €35.
b) purchase any asset for €35.
c) sell the underlying asset.
d) switch from being a bondholder to being a stockholder.

15. Explain in 15 words or less, why a call option on the S&P 500 Index should be less valuable than a similar option on a randomly selected individual stock.

As a diversified portfolio, S&P Index can be assumed to have lower volatility than a randomly selected individual stock, and volatility is positively related to the value of the option.

$$FV_n = PV(1+i)^n = PV(FVIF_{i,n})$$

$$FV_n = PV\left(1+\frac{i}{m}\right)^{mn}$$

$$PV = FV_n\left[\frac{1}{(1+i)^n}\right] = FV_n(PVIF_{i,n})$$

$$FV_n = PMT\left[\frac{(1+i)^n - 1}{i}\right] = PMT(FVIFA_{i,n})$$

$$PV = PMT\left[\frac{1-[1/(1+i)^n]}{i}\right] = PMT(PVIFA_{i,n})$$

$$PV = \frac{PP}{i}$$

$$k_j = k_{rf} + \beta_j(k_m - k_{rf})$$

$$P_b = \sum_{t=1}^{n}\frac{Coup_t}{(1+k_d)^t} + \frac{Mat}{(1+k_d)^n}$$

$$YTM = \frac{Coup + \frac{Par - Market}{n}}{\frac{Par + 2(Market)}{3}}$$

$$P_p = \frac{Div}{k_p}$$

$$V_{cs} = \frac{D_1}{k_{cs} - g}$$

$$g = ROE * r$$

$$WACC = w_d k_d(1-t) + w_{ps}k_{ps} + w_{cs}k_{cs}$$

$$r = \frac{(1+n)}{(1+i)} - 1$$