CHAPTER 9: (Capital Budgeting)

Fall 2015:

4. Eaton Inc. invested $1.325 million in a project that earned an 8.25% rate of return. Eaton sold their investment for $3,713,459. How much sooner could Eaton have sold if they only wanted $2 million from the project? Assume the firm still earned 8.25%.
A. 2.69 years
B. 5.17 years
C. 6.67 years
D. 7.81 years
E. None of the above is correct.

23. Suppose Movember Shaving Supplies Inc. has two mutually exclusive projects. The IRR of project A is 15% and of project B is 20%. The NPV of project A equals that of project B at a 10% discount rate. Assuming positive discount rates, which of the following is correct?
A. The firm will always prefer project B over A because B's IRR is higher than that of A.
B. The firm will always accept both projects as their IRRs are both greater than 10%.
C. The firm will always prefer project B over A for discount rates less than 15%.
D. The firm will always prefer project A over B for discount rates less than 10%.
E. The firm will always accept project B for discount rates greater than 10%.

QUESTION 1 – PART B (6 MARKS)
Holmes Security Systems forecasts sales of 100,000 units per year at $160 each. They cost $145 per unit to manufacture, and fixed production costs are $225,000 per year. The necessary equipment costs $1,285,000 and has a 25% CCA rate. The equipment will have zero salvage at the end of the 8 year life of the project. The firm needs to invest $180,000 in net working capital up front, and no additional net working capital investment is required. The appropriate discount rate is 18%, and the tax rate is 40%. What is the NPV of this project?

Summer 2, 2015:

18. If the discount rate is 14% and the firm has limited funds, which of the following is true?
    a. The PI of project A is less than 1.0.
    b. The PI of project B is less than 1.0.
    c. Based on the PI rule, project B is preferable.
    d. Both projects would be accepted based on the PI rule.
    e. The project with the smaller initial investment always has the higher PI.

19. Based on the payback rule, which of the following is false?
    a. You would be indifferent between the two projects.
    b. Since both projects pay back, the NPV of both must be positive.
    c. With a payback cutoff of one year, neither project is acceptable.
    d. With a payback cutoff of three years, both projects are acceptable.
    e. With a payback cutoff of 1.5 years, both projects are unacceptable.

27. A project whose NPV equals zero:
    a. Should be rejected.
    b. Is expected to earn a return equal to the firm's required return.
    c. Should be accepted even if the firm has alternative investments with positive NPVs.
    d. Has a profitability index that is greater than one.
    e. Has a discounted payback period that is shorter than the life of the project.

32. The profitability index will be:
    a. Greater than 1.0 when the IRR is greater than the discount rate.
    b. Equal to 1 any time the IRR is less than the discount rate.
    c. Less than 1.0 any time the discount rate is less than the IRR.
    d. Negative any time the net present value is negative.
    e. Greater than 1.0 whenever the net present value is negative.

34. You are considering a project with the following data: IRR is 8.7%, PI ratio is 0.98, NPV is –$393, payback period is 2.44 years, and required return is 9.5%. Which one of the following is correct given this information?
    a. This project should be rejected based on the internal rate of return.
    b. This project should be accepted based on the profitability ratio.
    c. The discount rate used to compute the profitability ratio was equal to the internal rate of return.
    d. The discounted payback period will have to be less than 2.44 years.
    e. The discount rate used in computing the net present value must have been less than 8.7 percent.

QUESTION 1 (10 MARKS)
Please show all your calculations. If you use a formula, show the formula used and also the formula with the numerical values. If you use a financial calculator, show the formula used, the formula with the numerical values, and the inputs.
Magma Inc. is considering a new 4 year project. Magma paid $2,000 for a research study analyzing the effects on revenue and costs of the new project. Revenue is expected to be $100,000 in year one and will grow at 5% per year. The expected operating costs (not including CCA) are 40% of revenue. The project will require the purchase of new equipment costing $200,000, which can be salvaged for $73,828 at the end of project, and has a CCA rate of 25%. Net working capital (NWC) is as follows: $6,000, $6,300, $6,615, and $6,000 in years 1, 2, 3, and 4 respectively. Assume NWC is recovered at the end of the project. Magma has a 20% cost of capital and a 30% tax rate. Assume cash flows occur at the end of the year. Calculate the NPV of this project. Based on your NPV, should Magma invest in this project?

Summer 1, 2015:

Use the information below to answer questions # 16 & 17.

	Year 0	Year 1	Year 2	Year 3
Project A	–$200	$100	$100	$100
Project B	–$300	$175	$125	$125

16. Based on the payback rule, which of the following is false?
    a. With a payback cutoff of 1.5 years, both projects are unacceptable.
    b. With a payback cutoff of three years, both projects are acceptable.
    c. With a payback cutoff of one year, neither project is acceptable.
    d. Since both projects pay back, the NPV of both must be positive.
    e. You would be indifferent between the two projects.

17. If the discount rate is 14% and the firm has limited funds, which of the following is true?
    a. The PI of project A is less than 1.0.
    b. The PI of project B is less than 1.0.
    c. Based on the PI rule, project A is preferable.
    d. Both projects would be rejected based on the PI rule.
    e. The project with the smaller initial investment always has the higher PI.

25. A project whose NPV equals zero:
    a. Should be rejected.
    b. Has a profitability index that is greater than one.
    c. Is expected to earn a return equal to the firm's required return.
    d. Has a discounted payback period that is shorter than the life of the project.
    e. Should be accepted even if the firm has alternative investments with positive NPVs.

28. The profitability index will be:
    a. Greater than 1.0 whenever the net present value is negative.
    b. Negative any time the net present value is negative.
    c. Less than 1.0 any time the discount rate is less than the IRR.
    d. Equal to 1 any time the IRR is less than the discount rate.
    e. Greater than 1.0 when the IRR is greater than the discount rate.

32. You are considering a project with the following data: IRR is 8.7%, PI ratio is 0.98, NPV is –$393, payback period is 2.44 years, and required return is 9.5%. Which one of the following is correct given this information?
    a. The discount rate used in computing the net present value must have been less than 8.7 percent.
    b. The discounted payback period will have to be less than 2.44 years.
    c. The discount rate used to compute the profitability ratio was equal to the internal rate of return.
    d. This project should be accepted based on the profitability ratio.
    e. This project should be rejected based on the internal rate of return.

QUESTION 2 (10 MARKS)

Please show all your calculations. If you use a formula, show the formula used and also the formula with the numerical values. If yo use a financial calculator, show the formula used, the formula with the numerical values, and the inputs.

Magma Inc. is considering a new 4 year project. The project will require the purchase of new equipment costing $200,000, which ca be salvaged for $73,828 at the end of project, and has a CCA rate of 25%. Magma paid $2,000 for a research study analyzing the effects on revenue and costs of the new project. Revenue is expected to be $100,000 in year one and will grow at 5% per year. The expected operating costs (not including CCA) are 40% of revenue. Net working capital (NWC) is as follows: $6,000, $6,300, $6,615 and $6,000 in years 1, 2, 3, and 4 respectively. Assume NWC is recovered at the end of the project. Magma has a 10% cost of capital and a 30% tax rate. Assume cash flows occur at the end of the year. Calculate the NPV of this project. Based on your NPV, should Magma invest in this project?

2 marks	By using WACC to analyze all potential investments, the firm may incorrectly accept some unsuitable projects. *True or False Explain briefly.*

WINTER 2015:

10. A new project with a life of 10 years, costs $210,000 and is expected to generate annual net cash inflows of $x each year. The project has a payback period of 10 years. Which of the following statement/s is/are most correct: (*Note: RRR stands for the required rate of return for the project*)

    A. $NPV_A>0$, and $PI_A>1$

    B. $IRR_A>RRR_A$, and discounted payback period will be less than 10 years

    C. $PI_A\leq 1$, and $IRR_A\leq RRR_A$

    D. Both A and B

    E. Both B and C

18. RecRus Inc. has two separate divisions: DVD rental and sporting goods. The beta of the entire company is 1.25. The beta of the DVD rentals division is 0.8 and the beta of the sporting goods division is 1.5. The risk free rate is 4 percent and the market risk premium is 7.5 percent. Which of the following independent projects should the company undertake?

Project	Industry	CF_0	Perpetual annual CF
I	Sporting goods	-$150,000	+$25,000
II	Sporting goods	-$200,000	+$30,000
III	DVD rental	-$50,000	+$6,000
IV	DVD rental	-$80,000	+$7,500

A. Projects I and II

B. Projects I and III

C. Projects II and IV

D. Projects III and IV

E. Projects I, II, III, and IV

23. Suppose the Far North Airlines has two mutually exclusive projects: Setting up a hub in Far East, and Setting up a hub in Far West. Project East has an IRR of 12 percent and project West has an IRR of 15 percent. The crossover rate is 9 percent. The project's appropriate discount rate is 8 percent. Far North should_____.

A. Accept project East, and reject project West

B. Accept project West, and reject project East

C. Accept both projects.

D. Reject both project.

E. Insufficient information. It will depend on the cash flows from the two projects.

part (a) should not be used in part (b)

Q1 (Part a) (3 Points): The cash inflows stream of an investment project is a 25-year annuity paying C dollars at the end of every year starting one year from today (first payment at t=1). The project requires an initial investment of 6C. The required rate of return of this project is 15%. Should you invest in this project?

Q3. **(8 Points)**

Kingsmill Industrial Systems Company (KISC) is trying to decide between two different conveyor belt systems. System A costs $360,000, has a four-year life, and requires $135,000 in pre-tax annual operating costs. System B costs $430,000, has a six-year life, and requires $98,000 in pre-tax annual operating costs. Both systems are to be depreciated at 30% per year (class 10) and will have no salvage value. Whichever project is chosen, it will be replaced with the same choice when it wears out. If the tax rate is 34% and the discount rate is 12%, which project should the firm choose?

FALL 2014:

8. A new project with a life of 10 years, costs $210,000 and is expected to generates annual net cash inflows of $x each year. The project has a discounted payback period of 9 years. Which of the following statement/s is/are most correct: (*Note: RRR stands for the required rate of return for the project*)

   A. $NPV_A>0$, and $PI_A>1$

   B. $IRR_A>RRR_A$, and Payback period will be less than 10 years

   C. $PI_A<1$, and $IRR_A> RRR_A$

   D. Both A and B

   E. Both B and C

25. McCarver Inc. is considering the following mutually exclusive projects:

Year	Project A Cash Flow	Project B Cash Flow
0	-$5,000	-$5,000
1	200	3,000
2	800	800
3	200	200
4	5,000	200

At what cost of capital will the net present value (NPV) of the two projects be the same?

A. 0%

B. 14.43%

C. 19.68%

D. 30.93%

E. None of the above

28. Braun Industries is considering an investment project that has the following cash flows:

Year	Cash Flow
0	-$1,000
1	400
2	300
3	500
4	400

The company's WACC is 10 percent. What is the project's Internal rate of return (IRR), discounted payback, and net present value (NPV)? *(Choose the closest response)*

A. IRR = 10.00%, Discounted Payback = 2.60, NPV = $600

B. IRR = 21.22%, Discounted Payback = 3.05, NPV = $300

C. IRR = 21.22%, Discounted Payback = 2.60, NPV = $260

D. IRR = 21.22%, Discounted Payback = 3.05, NPV = $260

E. None of the above.

SUMMER 2, 2014:

23. The FarNorth Corp. has been presented with an investment opportunity that will yield cash flows of $30,000 per year in Years 1 through 4, $35,000 per year in Years 5 through 9, and $40,000 in Year 10. This investment will cost the firm $150,000 today, and the firm's cost of capital is 10 percent. Assume cash flows occur evenly during the year, 1/365th each day. What is the discounted payback period for this investment?

A. 5.23 years

B. 4.86 years

C. 4.00 years

D. 6.75 years

E. 4.35 years

24. Which of the following statements is most correct concerning a project with normal cash flows (i.e., a cash outflow in Year 0 followed by cash inflows in all subsequent years)?

A. If the NPV of a project is positive then the discounted payback period rule will always accept the project

B. If the NPV of a project is negative, then the profitability index of the project will always be less than one.

C. If the PI of a project is equal to one, then the IRR will always be equal to the project's cost of capital

D. If the NPV of a project is zero, then the IRR of the project will be greater than the discount rate for the project.

E. Both B and C.

Q3. (10 Points): Capital Budgeting

Service Inc. is investigating four different opportunities. Information on the four projects under study is as follows: (Assume all projects have standard cash-flows: initial cash outflow followed by a series of cash inflows)

	Project 1	Project 2	Project 3	Project 4
Investment required	$480,000	$360,000	$270,000	$450,000
Net present value	$87,270	$73,400	$66,140	$72,970
Life of project	6 years	12 years	6 years	3 years

Service Inc. has a WACC of 10%. The expected market return is 6% and the prevailing risk free rate is 2%.

a) (6 Points) Compute the project profitability index for each investment project.

b) (2 Points) Rank the four projects according to preference, in terms of:
- Net present value
- Project profitability index

c) (2 Points) assuming that the firm faces capital constraints and it needs to achieve maximum return on its investments, which project should it accept?

CHAPTER 10: (Cash Flow Estimation)

Fall 2015:

28. Your company currently sells oversized tennis racquets. The Board of Directors wants you to look at replacing them with a line of supersized racquets. Which of the following is NOT relevant?
A. $75,000 you will receive by selling the existing equipment which must be upgraded if you produce the new product.
B. $60,000 you will pay to Fred Flinstone to promote your new product.
C. A reduction in revenues of $100,000 from terminating the old product.
D. Land you own that cost $750,000 that may be used for the project.
E. Costs of $50,000 to train employees to use the new equipment.

FALL 2014:

27. Which of the following would be considered relevant cash flows in a capital budgeting evaluation?

I. Tax savings due to increased depreciation expense.
II. Increased expenditures on inventory for the new project.
III. Cost of the feasibility survey which was conducted two months ago.

A) I only

B) I and II.

C) I and III.

D) II and III

E) I, II and III

Question 3, Part b) (7 Points): Capital Budgeting

A senior executive is considering replacing one of the junior executives with a Honda Asimo robot that is capable of recognizing faces and gestures, as well as being able to walk and even climb stairs. She figures that she could argue strongly to the board that such "capital deepening" is necessary for the cost-conscious firm. Two days later, a feasibility study is completed, and the following data are presented to the president:

- It would cost $300,000 to purchase a robot with a life expectancy of 20 years at which its salvage value will be zero.
- Annual expenses of using the robot would be $100,000.
- The junior executive's annual salary is $150,000.
- The cost of the robot will be placed in class 8 with a CCA rate of 20%.
- The firm's marginal tax rate is 40%.
- The firm's current cost of capital is estimated at 11%.

On the basis of net present value criterion, should the robot be used (and the junior executive fired)?

SUMMER 2, 2014:

27. A machine costs $3 million and has zero salvage value. The machine qualifies under a special depreciation category whereby the firm is allowed to use straight-line depreciation over 4 years (the machine is depreciated 25% of its original value of $3 million value in each year leading to full depreciation at the end of year 4). Assume a discount rate of 10% and a 40% tax rate. What is the present value of depreciation tax savings associated with this machine? (Ignore half year rule)

    A. $1,800,000

    B. $1,426,439.45

    C. $1,200,000

    D. $950,959.63

    E. None of the above

CHAPTER 13: (Risk and Return and CAPM)

Fall 2015:

5. Security A has an expected return of 12% and a standard deviation of 15%. Security B has an expected return of 10% and a standard deviation of 9%. The correlation between A and B is 0.70. If you invest 30% in A and the rest in B, what is the standard deviation of your portfolio?
A. 1.00%
B. 9.98%
C. 10.80%
D. 11.00%
E. 12.00%

10. A stock has year-end prices and dividends as below. What is the geometric average return?

Year	1	2	3	4
Price	$60.18	$73.66	$94.18	$89.35
Dividend	–	$0.60	$0.64	$0.72

A. 14.08%
B. 14.96%
C. 15.04%
D. 15.92%
E. None of the above is correct.

13. Calculate the expected return on the following portfolio.

Stock	Return	#Shares	Stock Price
A	11%	300	$22
B	16%	100	$65
C	7%	400	$15

A. 9.63%
B. 9.91%
C. 10.08%
D. 10.62%
E. 11.45%

1. You hold three stocks in your portfolio: X, Y, and Z. The portfolio beta is 1.50. Stock Y comprises 20% of the dollar value of your holdings and has a beta of 1.0. If you sell all of your investment in Y and invest the proceeds in the risk-free asset, your new portfolio beta will be:
A. 1.025
B. 1.200
C. 1.300
D. 1.625
E. 1.850

14. Suppose you have the following information on two stocks. Laurel Inc. has a beta of 1.8 and an E(R) of 22%. Hardy Inc. has a beta of 1.6 and an E(R) of 20.44%. What would the risk free rate have to be for these stocks to be correctly priced according to the CAPM?
A. 7.00%
B. 7.96%
C. 8.00%
D. 8.96%
E. 9.00%

21. Risk that affects at most a small number of assets is called:
A. Portfolio risk.
B. Undiversifiable risk.
C. Market risk.
D. Unsystematic risk.
E. Total risk.

27. The reward-to-risk ratio for stock A exceeds the reward-to-risk ratio of stock B. Stock A has a beta of 1.4 and stock B has a beta of 0 .90. This information implies that:
A. both stock A and stock B are correctly priced since stock A is riskier than stock B.
B. either stock A is underpriced or stock B is overpriced or both.
C. either stock A is overpriced or stock B is underpriced or both.
D. stock A is riskier than stock B and both stocks are fairly priced.
E. stock A is less risky than stock B and both stocks are fairly priced.

Summer 2, 2015:

8. Given the information below, what is the expected return on a portfolio that is 60% invested in A and 40% invested in B?

State	Probability	Return on A	Return on B
Boom	0.60	15%	8%
Bust	0.40	5%	20%

a. 10.0%
b. 11.7%
c. 12.1%
d. 12.8%
e. 13.8%

15. What are the geometric and arithmetic average returns for a stock with annual returns of 21%, 8%, –32%, 41%, and 5%?
a. 5.6%; 8.6%
b. 5.6%; 6.3%
c. 8.6%; 5.6%
d. 8.6%; 8.6%
e. 8.6%; 6.3%

16. What is the portfolio variance (measured in decimals) if 55% is invested in stock S and 45% is invested in stock T?

State	Probability	Return on S	Return on T
Boom	35%	16%	18%
Normal	65%	12%	6%

a. 0.001314
b. 0.003148
c. 0.009128
d. 0.036250
e. 0.056106

23. If portfolio weights are positive: 1) Can the variance of a portfolio ever be less than the smallest variance of an individual security in the portfolio? 2) Can the return on a portfolio ever be less than the smallest return on an individual security in the portfolio?
a. 1) no; 2) no
b. 1) no; 2) yes
c. 1) yes; 2) yes
d. 1) yes; 2) no
e. 1) maybe; 2) no

31. The principle of diversification states that spreading an investment over a number of assets will eliminate:
a. Most of the unsystematic risk.
b. Most of the systematic risk.
c. All of the unsystematic risk and part of the systematic risk.
d. All of the systematic risk and part of the unsystematic risk.
e. All of the risk.

33. The Koster Co. currently pays an annual dividend of $1.00 and plans on increasing that amount by 5% each year. The Keyser Co. currently pays an annual dividend of $1.00 and plans on increasing its dividend by 3% annually. Given this, it can be stated with certainty that the _____ of the Koster Co. stock is greater than the _____ of the Keyser Co. stock.
    a. Capital gains; Dividend yield
    b. Rate of capital gain; Rate of capital gain
    c. Total return; Total return
    d. Dividend yield; Dividend yield
    e. Market price; Market price

5. You want your portfolio beta to be 1.20. Currently, your portfolio consists of $100 invested in stock A with a beta of 1.4 and $300 in stock B with a beta of 0.6. You have another $400 to invest and want to divide it between stock C with a beta of 1.6 and a risk-free asset. How much should you invest in stock C?
    a. $0
    b. $140
    c. $200
    d. $320
    e. $400

13. You own two risky assets, both of which plot on the security market line. Asset A has an expected return of 12% and a beta of 0.8. Asset B has an expected return of 18% and a beta of 1.4. If your portfolio beta is the same as the market portfolio, what proportion of your funds are invested in asset B?
    a. 0.33
    b. 0.50
    c. 0.67
    d. 1.33
    e. 1.67

25. Which of the following describes a portfolio that plots above the security market line?
    a. The security is undervalued.
    b. The security is providing a return that is less than expected.
    c. The security's beta is too low.
    d. The security's reward to risk ratio is too low.
    e. The security provides a return that exceeds the average return on the market.

Summer 1, 2015:

10. Given the information below, what is the expected return on a portfolio that is 40% invested in A and 60% invested in B?

State	Probability	Return on A	Return on B
Boom	0.60	15%	8%
Bust	0.40	5%	20%

    a. 10%
    b. 11%
    c. 12.1%
    d. 12.8%
    e. 13.8%

13. What are the arithmetic and geometric average returns for a stock with annual returns of 21%, 8%, –32%, 41%, and 5%?
    a. 5.6%; 8.6%
    b. 5.6%; 6.3%
    c. 8.6%; 5.6%
    d. 8.6%; 8.6%
    e. 8.6%; 6.3%

19. What is the portfolio variance (measured in decimals) if 55% is invested in stock S and 45% is invested in stock T?

State	Probability	Return on S	Return on T
Boom	35%	16%	18%
Normal	65%	12%	6%

    a. 0.001314
    b. 0.003148
    c. 0.009128
    d. 0.036250
    e. 0.056106

26. If portfolio weights are positive: 1) Can the return on a portfolio ever be less than the smallest return on an individual security in the portfolio? 2) Can the variance of a portfolio ever be less than the smallest variance of an individual security in the portfolio?
    a. 1) no; 2) no
    b. 1) no; 2) yes
    c. 1) yes; 2) yes
    d. 1) yes; 2) no
    e. 1) maybe; 2) no

30. The Koster Co. currently pays an annual dividend of $1.00 and plans on increasing that amount by 5% each year. The Keyser Co. currently pays an annual dividend of $1.00 and plans on increasing its dividend by 3% annually. Given this, it can be stated with certainty that the _____ of the Koster Co. stock is greater than the _____ of the Keyser Co. stock.
    a. Market price; Market price
    b. Dividend yield; Dividend yield
    c. Total return; Total return
    d. Rate of capital gain; Rate of capital gain
    e. Capital gains; Dividend yield

35. The principle of diversification states that spreading an investment over a number of assets will eliminate:
    a. All of the risk.
    b. All of the systematic risk and part of the unsystematic risk.
    c. All of the unsystematic risk and part of the systematic risk.
    d. Most of the systematic risk.
    e. Most of the unsystematic risk.

4. You want your portfolio beta to be 1.20. Currently, your portfolio consists of $100 invested in stock A with a beta of 1.4 and $300 in stock B with a beta of .6. You have another $400 to invest and want to divide it between an asset with a beta of 1.6 and a risk-free asset. How much should you invest in the risk-free asset?
    a. $0
    b. $140
    c. $200
    d. $320
    e. $400

15. You own two risky assets, both of which plot on the security market line. Asset A has an expected return of 12% and a beta o 0.8. Asset B has an expected return of 18% and a beta of 1.4. If your portfolio beta is the same as the market portfolio, what proportion of your funds are invested in asset A?
    a. 0.33
    b. 0.50
    c. 0.67
    d. 1.33
    e. 1.67

21. Which of the following describes a portfolio that plots below the security market line?
    a. The security is undervalued.
    b. The security is providing a return that is greater than expected.
    c. The security's beta is too low.
    d. The security's reward to risk ratio is too low.
    e. The security provides a return that exceeds the average return on the market.

WINTER 2015:

7. Given the following information, which investment(s) would risk averse investors prefer if the risk free rate is 2 percent?

		Value of Investment after one year:	
Investment	Cost Today	Probability: 40%	Probability: 60%
I	$18.00	$36.00	$8.00
II	$14.00	$12.00	$16.00
III	$15.00	$30.00	$5.50

A. I only

B. II only

C. III only

D. I and II only

E. I, II, and III

13. Which of the following will help shareholders mitigate agency problems? Shareholders can:

I. Elect directors
II. Use their voting rights to push for governance changes
III. Give managers option to buy stock at current price

A. I, and II

B. II, and III

C. I, and III

D. I, II, and III

E. None of the above.

20. If portfolio weights are positive: 1) Can the return on a portfolio ever be less than the smallest return on an individual security in the portfolio? 2) Can the variance of a portfolio ever be less than the smallest variance of an individual security in the portfolio?

A. 1) yes; 2) yes

B. 1) yes; 2) no

C. 1) no; 2) yes

D. 1) no; 2) no

E. 1) maybe; 2) no

21. Which of the following risk-adjusted performance measures, can be graphically interpreted using the Security Market Line (SML)?

I. Sharpe ratio

II. Treynor ratio

III. Standard deviation

IV Beta

A. I only

B. II only

C. I and III only

D. II and IV only

E. None of the above

Q2. (5 Points):

It is given that assets A and B are priced in the market by the CAPM, with the following data:

Stock	Expected Return	Beta
A	25%	1.5
B	-10%	-1
*Expected returns are based on CAPM		

Assets C and D are priced in the market by the dividend growth model, with the following data:

Stock	Expected Return	Beta
C	28.6%	2
D	16.8%	0.75
**Expected returns are based on the dividend growth model		

Assume that the correct asset-pricing model is the CAPM. Based on the above data, show that Asset C and D are Overpriced/Underpriced/correctly priced.

FALL 2014:

6. Given the following information, which investment(s) would risk averse investors prefer if the risk free rate is 5 percent?

		Value of Investment after one year:	
Investment	Cost Today	Probability: 40%	Probability: 60%
I	$18	$36	$8
II	$14	$12	$16
III	$15	$30	$5

A. I only

B. II only

C. III only

D. I and II only

E. I and III only

18. Suppose Sarah can borrow and lend at the risk free-rate of 3%. Assume Sarah is risk averse. Which of the following four risky portfolios should she hold in combination with a position in the risk-free asset?

A. portfolio with a standard deviation of 15% and an expected return of 12%

B. portfolio with a standard deviation of 19% and an expected return of 15%

C. portfolio with a standard deviation of 25% and an expected return of 18%

D. portfolio with a standard deviation of 12% and an expected return of 9%

E. Insufficient information.

11. A particular asset has a beta of 0.61 and an expected return of 10%. The expected return on the market portfolio is 13% and the risk-free is 5%. Which of the following statement is correct?

A. This asset is correctly priced according to the CAPM because its returns lie on the SML.

B. This asset is underpriced according to the CAPM because its returns lie above the SML.

C. This asset is overpriced according to the CAPM because its returns lie above the SML.

D. This asset is overpriced according to the CAPM because its returns lie below the SML

E. This asset is underpriced according to the CAPM because its returns lie below the SML.

23. If a stock's beta is 0.8 during a period when the market portfolio was down by 10%, then, we could expect the return on this individual stock to: *(ceteris paribus)*

A. lose exactly 10%

B. gain more than 10%

C. lose less than 10%

D. gain exactly 10%

E. The average level of mispricing in the market

Q2. (5 Points):

You are considering acquiring a firm that you believe can generate expected cash-flow of $10,000 next year and after that the cash-flows will decline at a constant rate of 1% per year for ever. However, you recognize that those cash flows are uncertain. You expect that the beta of the firm is 0.4. How much is the firm worth?

The risk free rate is 5% and the expected rate of return on the market portfolio is 15%.

SUMMER 2, 2014:

17. When two risky securities with correlation less than one, are held in a portfolio,

A. the portfolio standard deviation will be greater than the weighted average of the individual security standard deviations.

B. the portfolio standard deviation will be less than the weighted average of the individual security standard deviations.

C. the portfolio standard deviation will be equal to the weighted average of the individual security standard deviations.

D. the portfolio standard deviation will always be equal to the securities' covariance.

E. none of the above are true.

15. Your personal opinion is that a security has an expected rate of return of 0.11. It has a beta of 1.5. The risk-free asset has a beta of zero and the market expected rate of return is 0.09. According to the Capital Asset Pricing Model, this security is

A. underpriced.

B. overpriced.

C. fairly priced.

D. cannot be determined from data provided.

E. none of the above.

18. If stock A and B have the same variance, which of the following does not appropriately complete the following sentence: If stock A has a higher _____ than stock B, then stock A must have a higher _____ than stock B.

A. beta; risk premium

B. beta; unsystematic risk

C. risk premium; Sharpe ratio

D. covariance with the market; correlation with the market

E. None of the above

19. According to the Capital Asset Pricing Model, fairly priced securities could _____.

A. have positive betas

B. have negative betas

C. have zero betas

D. have non zero alphas

E. have positive, negative or zero beta

20. The tangency portfolio is the portfolio with

A. The highest expected return

B. The lowest standard deviation

C. The highest correlation

D. The highest Sharpe ratio

E. The highest beta

Q1. (6 Points) Risk and Return:

Quebecare Inc. has a beta of 1.20. The risk free rate is 6% and the expected return on the market portfolio is 14.5%. The company presently pays an annual dividend of $5 per share. However, investors expect all future dividends to experience a decline of 1% per annum for many years to come.

a. (3 Points) What is the stock's present market price per share, assuming the required rate of return is determined by the CAPM?

b. (3 Points) Consider an alternative investment in the stock of Cancare Inc. Cancare has an expected return of 15% and a beta of 1.5. Should you purchase this stock? (why or why not?)

CHAPTER 12: (Market Efficiency)

Fall 2015:

19. Which of the following is implied by the evidence regarding market efficiency?
A. There is a simple way to identify mispriced stocks when they exist.
B. Prices in well-organized capital markets are unfair.
C. Prices don't respond rapidly to new information.
D. Insiders cannot make money from their private information.
E. It is difficult to predict future price movements based on public information.

30. You discover that you can make greater than expected returns by buying stock in firms whenever the growth rate in sales predicted by an investment survey exceeds the stock's current price-earnings ratio. Which of the following describes this event?
A. This would be a violation of all forms of market efficiency.
B. This would not be a violation of market efficiency.
C. This would be a violation of strong form efficiency but not of semi-strong form efficiency.
D. This would be a violation of semi-strong form efficiency.
E. This would be a violation of weak form efficiency.

Summer 2, 2015:

22. If a market is efficient, then the difference between the market value of an investment and its cost is:
    a. Equal to the risk-free rate of return.
    b. Equal to the net present value of the cash inflows.
    c. Equal to the risk premium.
    d. Negative.
    e. Zero.

28. If capital markets are efficient, then:
    a. Historical price trends will give you a good idea of where prices are headed in the future.
    b. It is not possible to make money by playing the stock market.
    c. Prices will adjust slowly when reacting to new information.
    d. It is possible to profit regularly from publicly available information.
    e. There is no reason to believe that prices are too high or too low.

35. Suppose you purchase a stock expecting the price to rise in the coming year. After one year, your stock has actually decreased in value, due primarily to adverse information released during the year. Which of the following describes this result?
    a. This is a violation of all forms of market efficiency.
    b. This is a violation of strong form efficiency.
    c. This is a violation of semi-strong form efficiency.
    d. This is a violation of weak form efficiency.
    e. This is not a violation of market efficiency.

Summer 1, 2015:

24. If a market is efficient, then the difference between the market value of an investment and its cost is:
    a. Zero.
    b. Positive and greater than 1.
    c. Equal to the risk premium.
    d. Equal to the net present value of the cash inflows.
    e. Equal to the risk-free rate of return.

29. If capital markets are efficient, then:
    a. There is no reason to believe that prices are too high or too low.
    b. It is possible to profit regularly from publicly available information.
    c. Prices will adjust slowly when reacting to new information.
    d. It is not possible to make money by playing the stock market.
    e. Historical price trends will give you a good idea of where prices are headed in the future.

34. Suppose you purchase a stock expecting the price to rise in the coming year. After one year, your stock has actually decreased in value, due primarily to adverse information released during the year. Which of the following describes this result?
    a. This is not a violation of market efficiency.
    b. This is a violation of weak form efficiency.
    c. This is a violation of semi-strong form efficiency.
    d. This is a violation of strong form efficiency.
    e. This is a violation of all forms of market efficiency.

WINTER 2015:

4. In an efficient market, the announcement that a company earned profits last year that exceeded analysts' expectations should cause the stock price to

    A. Rise gradually as investors learn of the news

    B. Be unchanged since no one can benefit abnormally

    C. Be unchanged since it was unexpected news

    D. React unpredictably up or down

    E. Rise very quickly

6. Your quantitative research team at Technical Investment Strategies LLC reports that they identified a successful trading strategy. The team claims that superior returns could be achieved by purchasing Canadian stocks whose price has increased at a higher rate than the increase in the Toronto Stock Exchange S&P/TSX stock market index over the past six month. If true, the existence of such a trading strategy would be evidence...

A. against the stock market being strong form efficient.

B. against the stock market being semi-strong form efficient.

C. against the stock market being weak form efficient.

D. Both (A) and (B)

E. All (A), (B) and (C)

FALL 2014:

3. If a market is not weak form efficient then the correlation coefficient between stock returns for two non-overlapping time periods should be:

A. Positive

B. Negative

C. Zero

D. Either negative or positive, but not zero

E. Either negative, positive, or zero

16. If markets were semi-strong form efficient, which of the following situations would potentially yield abnormal returns?

A. Analyzing a company's earnings report

B. Identifying a pattern in a company's stock price

C. Obtaining insider information

D. All of the above would yield abnormal returns

E. None of the above

SUMMER 2, 2014:

12. You just read the following from The Financial Post on Thursday, May 12, 2014: "Gannett Co. Inc. the largest U.S. newspaper publisher, reported a lower third-quarter profit yesterday because of weak advertising growth and lower-than-expected revenues, sending shares down 3.4%. Revenue rose 2.7% to US$1.91-billion, but fell short of analysts' views ranging from US$1.92-billion to US$1.99-billion, according to Reuters Estimates." Assume nothing happens before the event. This is consistent with: (pick the best answer)

A. Weak form EMH (Efficient market hypothesis)

B. Semi-strong form EMH

C. Strong form EMH

D. Markets are Inefficient

E. Both A and B

CHAPTER 14: (Cost of Capital)

Fall 2015:

15. Suppose that Ziggy Industries has a cost of equity of 14% and a before tax cost of debt of 9%. If the target debt/equity ratio is 75%, and the tax rate is 34%, what is Ziggy's weighted average cost of capital (WACC)?
A. 7.96%
B. 9.31%
C. 10.25%
D. 10.55%
E. 11.86%

22. A firm currently has a debt-equity ratio of 0.75, an after-tax cost of debt of 4%, and a cost of equity of 14%. The firm changes its debt-equity ratio to 0.50, all else constant. This change will:
A. Decrease the firm's WACC.
B. Increase the cost of equity financing.
C. Increase the total debt level of the firm.
D. Not affect the firm's capital budgeting decisions.
E. Cause the NPV of projects under consideration to decrease.

32. WACC is the:
A. Required rate of return on a firm.
B. Average rate of return needed to increase the value of a firm's stock.
C. Average IRR of the firm's current projects.
D. Cost of obtaining equity financing.
E. Discount rate based on the pre-tax cost of capital.

QUESTION 1 – PART A (4 MARKS)
Snoopy Inc. is considering a project that will result in initial after-tax cash savings of $1.9 million at the end of the first year, and these savings will grow at 1% per year indefinitely. The firm has a target debt to equity ratio of 0.8, a cost of equity of 14%, and an after tax cost of debt of 3.8%. This project is risker than the firm, so

management applies an adjustment factor of +3% to the cost of capital. Under what circumstances should the firm take on the project?

Summer 2, 2015:

QUESTION 2 (10 MARKS)

Please show all your calculations. If you use a formula, show the formula used and also the formula with the numerical values. If you use a financial calculator, show the formula used, the formula with the numerical values, and the inputs.

Robin Corp. has 10 million shares of common stock with a book value of $25 per share. Robin just paid an annual dividend of $4 per share, and shareholders expect it to grow by one percent per year forever. The current beta of the common stock is 0.75. The Treasury bill rate is 2% and the return on the market proxy is 12%. The firm also has one million 7% preferred shares outstanding with a face (par) value of $100. The preferred stock is trading at 110% of par value. The firm also has $200 million face value of outstanding debt with a coupon of 4% and an annualized yield to maturity of 3%. The bonds make semi-annual payments and have 8 years to maturity. In addition, the firm has Robin has a 30% tax rate. Calculate Robin's weighted average cost of capital.

SUMMER 1, 2015

QUESTION 1 (10 MARKS)

Please show all your calculations. If you use a formula, show the formula used and also the formula with the numerical values. If y use a financial calculator, show the formula used, the formula with the numerical values, and the inputs.

Robin Corp. has $200 million face value of outstanding debt with a coupon of 4% and an annualized yield to maturity of 3%. The bonds make semi-annual payments and have 8 years to maturity. The firm also has one million 6% preferred shares outstanding w a face (par) value of $100. The preferred stock is trading at 110% of par value. In addition, the firm has 10 million shares of comm stock with a book value of $25 per share. Robin just paid an annual dividend of $4 per share, and shareholders expect it to grow b one percent per year forever. The current beta of the common stock is 1.25. The Treasury bill rate is 2% and the return on the market proxy is 12%. Robin has a 40% tax rate. Calculate Robin's weighted average cost of capital.

WINTER 2015:

12. A company has a market-to-book ratio that is greater than 1.0. If this company uses book value of equity to determine their WACC, they will derive a value that is _____ the market based WACC. Because _____

    A. Equivalent to; the ratio of debt to equity is the same whether book values or market values are used.

    B. Greater than; the ratio of debt to equity will be greater than if the ratio was based on market values.

    C. Greater than; the ratio of debt to equity will be less than if the ratio was based on market values.

    D. Less than; the ratio of debt to equity will be greater than if the ratio was based on market values.

    E. Less than; the ratio of debt to equity will be less than if the ratio was based on market values.

19. Trans Continental Corporation (TCC) has an effective annual WACC of 9.60%. It is financed with 40% debt and 60% equity. TCC's effective annual cost of equity is 12.80% and its corporate tax rate is 40%. The debt issued by TCC is 30-year bonds, paying coupons annually at a coupon rate of 8%. Each TCC bond has a face value of $1,000. What is the value of each TCC bond?

A. $1,076.74

B. $1,027.93

C. $1,017.67

D. $1,000.00

E. It cannot be determined with the information given

FALL 2014:

21. An analyst has obtained the following information about the Velo Co.: Book value of assets $25,000; book value of common equity $10,000; book value of preferred stock $5,000. The company has 4,000 common shares outstanding which are currently trading at $5 per share. The company has 3,000 preferred shares outstanding which are currently trading at $2 per share. The yield on the debt equals the coupon rate. The weights used to determine the weighted average cost of capital are:

	Common Equity	Preferred Equity:	Debt:
A.	55.56% ;	16.67% ;	27.78%
B.	40.00% ;	20.00% ;	40.00%
C.	23.52% ;	17.65% ;	58.82%
D.	33.33%;	33.33%;	33.33%

E. Cannot be determined, we need the market value of debt

Question 3, Part a) (5 Points): Cost of Capital

WidgetsRus is considering a new project they consider to be a little riskier than their current operations. Thus, management has decided to add an additional 2.5 percent to their company's overall cost of capital when evaluating this project. The project has an initial cash outlay of $30,000 and projected cash inflows of $12,000 in year one, $20,000 in year two, and $8,000 in year three. The firm uses 40 percent debt and 60 percent common stock as their capital structure. The company's cost of equity is 14 percent while the after-tax cost of debt for the firm is 7 percent. What is the projected net present value of the new project?

SUMMER 2, 2014:

11. Under which of the following scenarios will increasing the payout ratio for a firm increase its equity value?

A. Never

B. Always

C. When the return on equity is equal to its cost of equity

D. When the return on equity is less than the cost of equity

E. When the return on equity is greater than the cost of equity

21. A firm is expected to pay a constant annual dividend of $6 every year with the first dividend payment coming up immediately. Its cost of equity is 12% and it has 1,000,000 shares outstanding. The book value of its equity is $60 million. It also has 20,000 bonds outstanding. Each bond pays semi-annual coupon, has a par value of $1,000, is trading at a price of $1,100 and has an annualized YTM of 2.978%. The tax rate is 30%. Therefore, the weighted average cost of capital is:

A. 8.970%

B. 8.975%

C. 10.194%

D. 9.636%

E. None of the above

22. Which of the following statements is true about the weighted average cost of capital (WACC) method?:

A. WACC can be used to evaluate projects in which the capital structure is significantly different from the firm's overall structure.

B. WACC does not explicitly calculate interest tax shields that are generated by debt securities for the financing of a project.

C. WACC does not adjust for the tax deductibility of interest costs.

D. All of the above.

E. Only B and C

25. A firm's WACC is estimated to be 10.56%, its cost of equity is Ke=14%, and it is subject to a 40% corporate income tax rate. The firm's debt-to-equity ratio is $D/E = 2/3$. What is the firm's after tax cost of debt?

A. 5.4%

B. 7.68%

C. 9.0%

D. 9.33%

E. 10.56%.

Q2. **(8 Points) Cost of Capital:**

Sparrow Corp. has $100 million face value of outstanding debt with a coupon of 10% and a yield to maturity of 8% (annualized). The bonds make semi-annual payments, and have 10 years to maturity. The company also has 1 million shares of common stock with book value per share of $35. The company presently pays an annual dividend of $5 per share, and investors expect it to experience a growth in dividends of 1% per annum for many years to come. The current beta of the stock is 1.5. The Treasury bill rate is 5%, and the market risk premium is 8.5%. Sparrow Corp. has 50,000 preferred shares outstanding, with a face value of $100 and a 6% preferred dividend rate. The preferred stock is trading at $105. The company is in the 40% tax bracket. What is the company's current weighted average cost of capital? (Assume that the common stock price lies on the SML)