Print Last Name: ➔	Print First Name: ➔	ID Number: ➔	
COURSE FINANCE	**NUMBER** COMM 308	**SECTIONS: (➔ Circle your section)** CA CB	
EXAMINATION Final Exam **VERSION BLUE**	**DATE** August 12, 2011	**TIME** 3 hours 19:00 to 22:00	**# OF PAGES 16** including cover
INSTRUCTOR: **(➔ Underline your instructor's name)** Rahul Ravi Ashrafee Hossain		**DIVISION** John Molson School of Business Concordia University	

READ THESE SPECIAL INSTRUCTIONS CAREFULLY

- You must submit a BLUE computer answer sheet.

- For Multiple Choice Questions,
All answers must be recorded IN PENCIL on the computer sheet.
- For Problems:
All answers must be recorded IN INK within this exam.
Show your calculations to earn part marks. Write in the space provided.
- If you are using the back of the exam for answering any question, you should label it clearly

- Please ensure you have 16 pages (including the cover page) in this exam.

- Fill in your name and other required information IN PENCIL on the Computer Answer sheet as well as IN INK on this cover sheet.

- Blank questions or those with multiple answers will not receive credit.

SCORES (FOR INTERNAL USE ONLY)

Part I Multiple Choice Questions	Part II Long Answer Questions				
	Question 1	Question 2	Question 3	Question 4	
(Max: 70 Points)	(Max: 6 Points)	(Max: 10 Points)	(Max: 8 Points)	(Max: 6 Points)	**Total**

Part I: Multiple Choice Questions (28 Questions, 70 Points Total):

- This part consists of 28 Multiple Choice Questions.
- Each question counts 2.5 points for a total of 70 points.
  - **Only answers on the computer answer sheet will be graded.**
  - **Use a pencil to mark your answers on the Computer Sheet.**

1. Assume that the interest rate is greater than zero. Which of the following cash-inflow streams should you prefer?

	Year 1	Year 2	Year 3	Year 4
I	$400	$300	$200	$100
II	$100	$200	$300	$400
III	$250	$250	$250	$250

A) I
B) II
C) III
D) Any of the above, since they each sum to $1000
E) Insufficient information. Need to know the discount rate k to answer the question

2. Of the following, which statement regarding agency costs is true?

A) An agency problem exists when there is a conflict of interest between the stockholders and management of a firm.
B) An agency problem does not exist when there are conflicts of interest between principals and agents.
C) An indirect agency cost occurs when firm management takes on risky projects that favorably affect the stock price, even though the managers are worried about keeping their jobs.
D) A corporate expenditure that benefits stockholders but harms management is an agency cost.
E) Agency costs are directly observable in the stock market.

3. According to the capital-asset pricing model (CAPM), a security's expected (required) return is equal to the risk-free rate plus a premium

A) Equal to the security's beta.
B) Based on the unsystematic risk of the security.
C) Based on the total risk of the security.
D) Based on the systematic risk of the security.
E) Non of the above.

4. The risk-free security has a beta equal to_____, while the market portfolio's beta is equal to_____.

A) one; more than one.
B) one; less than one.
C) zero; one.
D) less than zero; more than zero.
E) T-bill rate, market rate.

5. All of the following influence capital budgeting cash flows EXCEPT:

A) Change in rate of depreciation.
B) Salvage value.
C) Tax rate changes.
D) Competition for market share
E) Method of project financing used.

6. If you believe that the price of Compact Computer shares will fall, you could profit from the following strategy: ……

I. Write call options on Compact stock.
II. Buy put options on Compact stock
III. Buy call options on Compact stock
IV. Write put options on Compact stock.

A) I only
B) II only
C) III only
D) I and II only
E) III and IV only

7. A profitability index of .85 for a project means that:

A) the present value of benefits is 85% greater than the project's costs.
B) the project's NPV is greater than zero.
C) the project returns 85 cents in present value for each current dollar invested.
D) the payback period is less than one year.
E) IRR of the project is higher than the required rate of return.

8. Preferred shareholders' claims on assets and income of a firm come _____ those of creditors _____ those of common shareholders.

A) before; and also before
B) after; but before
C) after; and also after
D) before; but after
E) equal to; and equal to

9. The call-option value of a callable bond is likely to be high when
   I. Interest rates are volatile.
   II. Interest rates are low and expected to remain low.
   III. Interest rates are low and expected to go up.
   IV. Interest rate are high and expected to remain high.
   V. Interest rates are high and expected to go down.

   A) I only
   B) II and III only
   C) III and IV only
   D) I and V only
   E) I, III, and V only

10. Which of the following would increase a portfolio's systematic risk?
   I. Common stock is sold and replaced with Treasury bills.
   II. Stocks with a beta equal to the market beta, are added to a portfolio consisting of only Treasury bills.
   III. Low-beta stocks are sold and replaced with high-beta stocks.

   A) I only
   B) II only
   C) III only
   D) II and III only
   E) I, II and III

11. Asset A, which has an expected return of 12% and a beta of 0.8, plots on the security market line. Which of the following statements is not correct if there exists another risky asset B, with a beta of 1.4 and an expected return of 18%?

   A) If the market is in equilibrium, asset B will also plot on the security market line.
   B) If the market is in equilibrium; the risk free rate must be 4%

$$\left.\begin{aligned} 0.12 &= r_f + 0.8 \times \left(r_m - r_f\right) \\ 0.18 &= r_f + 1.4 \times \left(r_m - r_f\right) \end{aligned}\right\} \text{Solving for } r_f \text{ and } r_m$$

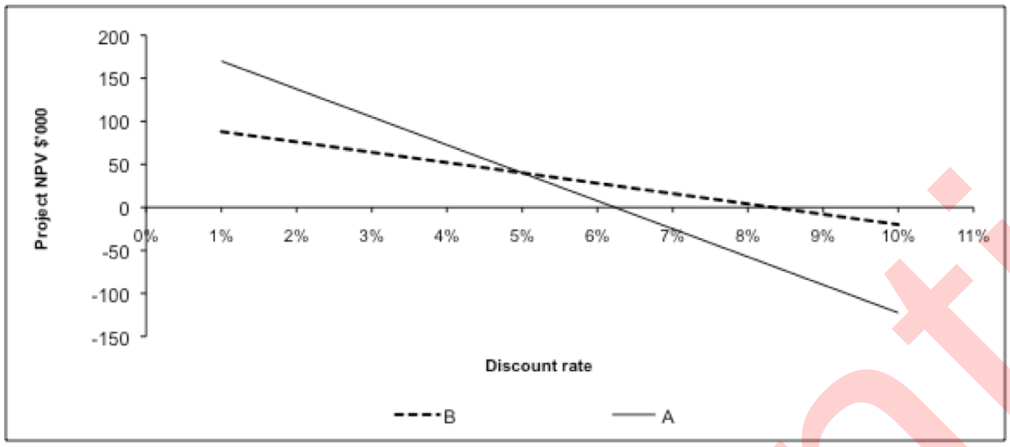
$$r_f = 4\%, r_m = 14\%$$

   C) If the market is in equilibrium; the expected return on the market must be 15%
   D) Asset B has more systematic risk than both assets A and the market portfolio.
   E) Asset A can have higher total risk than asset B.

12. Your careful analysis suggests you can make above normal returns on your investments if you react to newsletter and purchase a portfolio of recommended oil-company stocks and then hold them until the newsletter tells you to sell. Which of the following best describes these events?

   A) This is not a violation of market efficiency
   B) This is a violation of the weak form of market efficiency.
   C) This is a violation of the semi-strong form of market efficiency.
   D) This is a violation of the strong form of market efficiency.
   E) The newsletter could be all rumors and no information. Since market efficiency deals only with information, the above event might have nothing to do with market efficiency.

13. Which Projects A and B are mutually exclusive and have the same lives and initial cash outflows. For both projects, all cashflows beyond the initial one are positive. The two NPV profiles are given below.



Consider the following three statements

I. Both NPV and IRR will provide consistent ranking of the two projects for all values of the cost of capital.
II. Project B has higher IRR than Project A
III. Project B is better because it has higher IRR

Which of the above statements are correct?

A) I, II, and III
B) II and III
C) I only
D) II only
E) III only

14. An investor has simultaneously sold a call option and a put option. Assuming that both options are on the same underlying stock, with same strike price and expiration date, which of the following statement/s are true?

I. The investor's maximum loss is zero because the call and the put will offset each other.
II. The investor's maximum profit is the sum of the two option premiums.
III. The investor must profit when the stock decreases in value
IV. The investor must profit when the stock increases in value

A) I only
B) II only
C) I and II only
D) III and IV only
E) I, II, III, and IV

15. An investor is forming a portfolio by investing $50,000 in stock A that has a beta of 1.50, and $25,000 in stock B that has a beta of 0.90. The return on the market is equal to 6 percent and Treasury bonds have a yield of 4 percent. What is the required rate of return on the investor's portfolio?

A) 6.6%
B) 6.8%
C) 5.8%
D) 7.0%
E) 7.5%

$$w_a = \frac{50,000}{75,000} = \frac{2}{3}, w_b = \frac{1}{3}, \quad \therefore \beta_p = \frac{2}{3} \times 1.5 + \frac{1}{3} \times 0.9 = 1.3$$
$$E\left(r_p\right) = 0.04 + 1.3 \times 0.02 = 0.066$$

16. Today, Bruce and Brenda each have $150,000 in an investment account. No other contributions will be made to their investment accounts. Both have the same goal: They each want their account to reach $1 million, at which time each will retire. Bruce has his money invested in risk-free securities with an expected annual return of 5 percent. Brenda has her money invested in a stock fund with an expected annual return of 10 percent. How many years after Brenda retires will Bruce retire?

A) 12.6
B) 19.0
C) 19.9
D) 29.4
E) 38.9

$$150,000 \times 1.05^{n1} = 1,000,000, \quad 150,000 \times 1.1^{n2} = 1,000,000$$
$$n1 - n2 = 18.98 \cong 19 years$$

17. A bond matures in 12 years and pays an 8 percent annual coupon. The bond has a face value of $1,000 and currently sells for $985. What is the bond's current yield and yield to maturity?

A) Current yield = 8.00%; yield to maturity = 7.92%
B) Current yield = 8.12%; yield to maturity = 8.20%
C) Current yield = 8.20%; yield to maturity = 8.37%
D) Current yield = 8.00%; yield to maturity = 8.37%
E) Current yield = 8.12%; yield to maturity = 7.92%

$$CY = \frac{80}{985} = 8.12\%$$
$$\because Bond\ sells\ at\ discount$$
$$\therefore YTM > 8\%(Coupon\ rate)$$

18. Until this year, Cheers Inc. was organized as a partnership. This year, the partners have decided to organize the business as a corporation. As a result of this change in organizational form, which of the following statements is/are correct?

I. Cheers' shareholders (the ex-partners) will now have limited liability.
II. Cheers will now be subject to fewer regulations.
III. Cheers will now have relatively greater agency problems

A) I only
B) II only
C) III only
D) I and II
E) I and III

19. Your company just bought a new piece of equipment for $60,000. This equipment is subject to a 20% CCA deduction. What is the undepreciated capital cost (UCC) of the equipment at the end of year 2? Incorporate the half-year rule.

A) $ 8,892
B) $13,338
C) $19,998
D) $43,200
E) $54,000

$$End\ UCC(Year 2) = 60,000 \times 0.9 \times 0.8 = \$43,200$$

20. You have the following information on two stocks:

Probability	Stock A Return	Stock B Return
0.1	-20%	10%
0.8	20%	15%
0.1	40%	20%

The expected return for stock A is 18%, the expected return for stock B is 15% and the correlation between returns for the two stocks is 0.96. If you form an equally weighted portfolio of the two stocks, what is the portfolio's expected return?

A) 8.1%
B) 10.5%
C) 13.4%
D) 16.5%
E) 20.0%

$$0.5 \times 0.18 + 0.5 \times 0.15 = 0.165 = 16.5\%$$

21. Given the following information, what is XYZ Corp.'s weighted average cost of capital? Debt-to-equity ratio of 1.33; cost of equity = 20%; before tax cost of debt = 9%; equity beta =1.25; tax rate=35%.

A) 11.9%
B) 13.0%
C) 13.7%
D) 15.3%
E) 15.9%

$$\frac{D}{E} = 1.33 \Rightarrow 1 + \frac{D}{E} = \frac{E+D}{E} = \frac{V}{E} = 2.33$$
$$\therefore \frac{E}{V} = 0.4292, \frac{D}{V} = 0.5708$$
$$0.2 \times 0.4292 + 0.09 \times 0.65 \times 0.5708 = 11.9\%$$

22. You deposit $1000 in an account today. You will deposit $600 at the end of each month for the next 12 months and $800 each month for the following 12 months. How much interest will you have earned in two years if the account pays 5.5% compounded monthly?

A) 795.42
B) 827.65
C) 849.42
D) 962.57
E) 979.00

$$EMR = {}^{0.055}\!/_{12} = 0.0045833$$
$$FV = FV_{24}(1000) + FV_{24}(600 Annuity) + FV_{24}(800 Annuity) = \$18,762.57$$
$$Total\ Deposit = 1000 + 12 \times 600 + 12 \times 800 = \$17,800$$
$$\therefore Total\ Interest = \$18,762.57 - \$17,800 = \$962.57$$

23. Analysts expect Company X to pay shareholders $1.00 per share annually for the next five years. For years six and seven, the annual dividend is expected to be $1.50; after that, the dividend will be $2.00 annually forever. Given a discount rate of 10%, what is the value of the stock today?

A) $6.55
B) $9.87
C) $12.37
D) $15.67
E) $21.88

$$P_0 = \frac{2}{0.1} \times \frac{1}{1.1^7} + 1.5 \times \left(\frac{1}{1.1^6} + \frac{1}{1.1^7} \right) + \frac{1}{0.1} \times \left(1 - \frac{1}{1.1^5} \right) = \$15.67$$

24. Healthy Smokes, Inc. manufactures nicotine free cigarettes. As their target customers age and pass on, sales of the product are expected to decline. Thus, demographics suggest that earnings and dividends will decrease at a rate of 8% annually forever. The firm just paid a dividend of $4.00; given a required return of 12%, the stock should sell for

A) $94.98
B) $72.00
C) $48.22
D) $35.00
E) $18.40

$$P_0 = \frac{4 \times 0.92}{0.12 + 0.08} = \$18.4$$

25. The table below shows how an asset purchased for $40,000 and belonging to an asset class with a 20% CCA rate is depreciated over time for tax purposes:

Year	UCCB	CCA	UCCE
1	$40,000.00	$4,000.00	$36,000.00
2	$36,000.00	$7,200.00	$28,800.00
3	$28,800.00	$5,760.00	$23,040.00

Suppose the asset is sold for $26,000 after three years (however, the asset pool is not terminated). As a result of the sale: _____

A) The firm must pay capital gains taxes.
B) $23,040 must be removed (deducted) from the asset pool.
C) $26,000 must be removed (deducted) from the asset pool.
D) $40,000 must be removed (deducted) from the asset pool.
E) Both A and C are correct.

26. XYZ Co. zero-coupon bonds have a face value of $1,000 and mature in 18 years. They currently sell for $179.86 today. By what percentage will the market price rise if the market's required return falls by half?

A) 99%
B) 131%
C) 137%
D) 175%
E) 231%

$$k = \left(\frac{1000}{179.86} \right)^{\left(\frac{1}{18}\right)} - 1 = 10\%$$

$$P_0' = \frac{1000}{1.05^{18}} = 415.52 \Rightarrow \%Change = \frac{415.52 - 179.86}{179.86} = 131.02\%$$

27. All else the same, if interest rates fall, then _____.

I. Bond prices will rise
II. Coupon payments on floating rate bonds will fall
III. The percentage price change for long-term bonds will be greater than for short-term bonds
IV. The percentage price change for low coupon bonds will be greater than for high coupon bonds

A) I and III only
B) I and IV only
C) II and IV only
D) I, III, and IV only
E) I, II, III, and IV

28. Which of the following statements is (are) true concerning the present value of a single sum?

I. The higher the discount rate, the higher the present value.
II. The longer the time period, the higher the present value.
III. The larger the future value, the larger the present value.
IV. The lower the discount rate the larger the present value.

A) IV only
B) I and III only
C) III and IV only
D) I, III, and IV only
E) I, II, III, and IV

Part II: Problems (30 Points Total)

- **Answer on this document, in the space provided.**
- Show all of your calculations.
- Write clearly! Part marks will be awarded (when deserved).

Q1: (6 Points)

Barber Corporation has preferred shares, common shares, and corporate bonds in its capital structure. Barber's preferred shares are trading at $12.5 per share and pay an annual dividend of $1.58 per share. The total market value of the preferred shares is 16 million. Barber's common stock, of which 4 million shares are outstanding, sells for $15 per share. The returns of Barber's common shares have a covariance with the market of 0.031. The standard deviation of the market returns is 0.16, and the historical market risk premium is 8.5%. Barber bonds carry a 13% coupon rate (6.5% coupon paid semi-annually) and are priced to yield 11% (5.5% effective semiannual yield). The par value of the bonds is $20 million, and the market value $24 million. The tax rate is 40%, and the Treasury bill rate is 7%.

Calculate Barber Corporation's weighted average cost of Capital.

Solution:

WACC Calculation :

Cost of preferred shares = $\frac{1.58}{12.5} = 12.64\%$ ---------- 1 Point

Market value of preferred shares = $16 million

Beta of common shares = $\frac{0.031}{0.16^2} = 1.211$ ---------- 1 Point

Cost of common shares (CAPM) = $0.07 + 1.211 \times 0.085 = 17.29\%$ --------- 1 Point

Market value of common shares = $\$15 \times 4$ million = $60 million

Cost of debt = $\left(1 + \frac{0.11}{2}\right)^2 - 1 = 11.30\%$ ---------- 1 Point

Market value of debt = $ 24 million

Total market value of the firm = $16 + $60 + $24 = $100 million

$$WACC = \frac{16}{100} \times 0.1264 + \frac{60}{100} \times 0.1729 + \frac{24}{100} \times 0.1130 \times (1 - 0.4) = 14.0236\%$$

----- 1 Point for getting all the weights correct

----- 1 Point for taking the after tax cost of debt

Q2: (10 Points)

The provincial government's Ministry of Forest Resources requires a spotter plane for its fire service. The price of a HAWK plane is $120,000. The first year's operating cost is $30,000, and this cost is expected to grow by 5% per year. Given the heavy use it will receive, the HAWK's salvage value will be zero when it is replaced after 5 years. The more durable but less efficient FALCON, priced at $100000, will cost $40,000 per year to operate, will last 7 years, and will have a resale price of $10000 after 7 years. If the provincial government pays an interest rate of 10% compounded annually on its medium-term debt, which plane should be chosen? (All the operating costs are paid at the beginning of the year).

Solution:

HAWK:

initial cost = $120,000

term = 5 years

annual costs = $30,000

growth rate of costs = 5%

salvage value = $0

discount rate = 10%

$$PV(\text{cost}) = 120000 + \left[\frac{30000}{0.10-0.05} * \left(1 - \left(\frac{1.05}{1.10}\right)^5\right)\right] * 1.10$$

-- Growing annuity 1 Point
-- correctly address annuity due 1 Point

$$= 120000 + 30000 * 4.150591 * 1.10$$

$$= \$256,969.51$$

---------- Correct number 1 Point

FALCON:

initial cost = $100,000

term = 7 years

annual costs = $40,000

growth rate of costs = 0%

salvage value = $10,000

discount rate = 10%

$$PV(\text{cost}) = 100000 + \left[\frac{40000}{0.10} * \left(1 - \left(\frac{1}{1.10}\right)^7\right)\right] * 1.10 - 10000 * \left(\frac{1}{1.10}\right)^7$$

-- Growing annuity 1 Point
-- address annuity due 1 Point
-- address resale 1 point

$$= 100000 + 40000 * 4.868419 * 1.10 - 10000 * 0.513158$$

$$= \$309,078.86$$

---------- Correct number 1 Point

The EAC of HAWK= **$67,787.91**

$$PV(\text{cost}) = \$256,969.51$$

$$PVIFA(10\%,5) = \frac{1}{0.10} * [1 - (\frac{1}{1.10})^5] = 3.790787$$

$$EAC = \frac{PV(\text{cost})}{PVIFA(10\%,5)} = \frac{256969.51}{3.790787} = \$67,787.91$$ --- correct EANPV 1 Point

The EAC of FALCON = **$63,486.49**

$$PV(\text{cost}) = \$309,078.86$$

$$PVIFA(10\%,7) = \frac{1}{0.10} * [1 - (\frac{1}{1.10})^7] = 4.868419$$

$$EAC = \frac{PV(\text{cost})}{PVIFA(10\%,5)} = \$63,486.49$$ --- Correct EANPV 1 Point

Choose FALCON because it has a smaller EAC. -- Decision 1 Point

Q3: (8 Points)

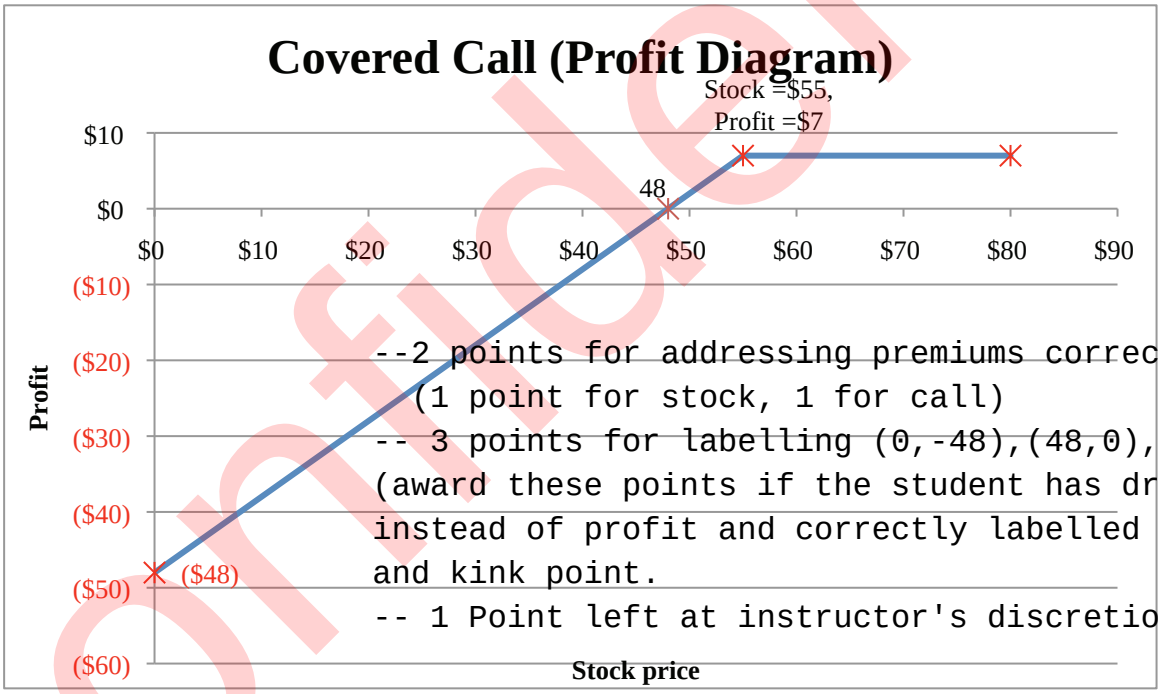
Important: when drawing payoff or profit diagrams, you need to show the location of each important point on the diagram by writing down the relevant numbers next to each point (i.e. indicate intersections with the horizontal and vertical axes and any points where the payoff/profit function changes abruptly).

An investor buys a stock for $50 and simultaneously sells a call option on the stock, with a strike price of $55 for a $2 premium. This trading strategy is known as covered call.

a) (6 Points) Draw the profit diagram for the above covered call position.

Profit matrix:

Stock	$0	$55	$80
Long Stock	$0	$55	$80
Short Call	$0	$0	($25)
Prem	($48)	($48)	($48)
Profit	($48)	$7	$7



--2 points for addressing premiums correctly
(1 point for stock, 1 for call)
-- 3 points for labelling (0,-48),(48,0),(55,7)
(award these points if the student has drawn payoff instead of profit and correctly labelled intercept and kink point.
-- 1 Point left at instructor's discretion.

b) (2 Point) What is the maximum profit and the maximum loss that the investor can incur from the above position?

Maximum profit = $7 (When the stock is greater than or equal to $55 (The call is in the money)
Maximum loss = -$48 (When the stock price is $0)

-- 1 Point for $7 profit
-- 1 Point for $48 loss

Q4: (6 Points) Short Answers:

a) (2 Points) Assume that the information system is so advanced that the market, as confirmed by numerous unbiased studies, is efficient. Investment firms therefore decide to retire all portfolio managers and financial analysts and let random choice govern the security section process. What impact will this action have on market efficiency?

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-- part mark left at instructor's discretion
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The efficiency of the market is based upon the continuing services of the analysts and portfolio managers to actively scout the market. If these players are removed from the market, the prices will cease to reflect all the available information. This will consequently lead to markets becoming inefficient

b) (2 Points) Standard deviation of stock returns is often used as a measure of riskiness of the stock. How does standard deviation measure risk?

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The standard deviation of stock returns measures the dispersion of the returns around the mean. Therefore, ex-ante standard deviation is a measure of dispersion of the ex-ante returns around the expected stock return. Thus, higher the dispersion, higher will be the uncertainty of the ex-post returns being close to the ex-ante expected returns. Since, risk is defined as uncertainty, higher the standard deviation, higher will be the risk.

c) (2 Points) The idea behind CAPM is that investors should not be compensated for diversifiable risk. Why not?

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Diversifiable risk, by definition can be fully eliminated through efficient asset allocation in a portfolio. Therefore, existence of this type of risk in a portfolio is purely an expression of the manager's asset choice. Therefore, in equilibrium state, market should not compensate for diversifiable risk.

Equation List - Comm 308 - Booth-Cleary Text

5.3	Present Value of FV_n : $PV_0 = \frac{FV_n}{(1+k)^n}$
5.4	Future value of an annuity: $FV_n = \frac{PMT}{k}\left[(1+k)^n - 1\right]$
5.5	Present Value of an annuity: $PV_n = \frac{PMT}{k}\left[1 - \frac{1}{(1+k)^n}\right]$
5.8	Present value of perpetuity: $PV_0 = \frac{PMT}{k}$
5.10	Effective rate with continuous compounding: $k = e^{QR} - 1$
5.11	Effective rate: $k = \left(1 + \frac{QR}{m}\right)^{\frac{m}{f}} - 1$
5A-2	Present value of growing perpetuity: $PV_0 = \frac{PMT_0(1+g)}{k-g} = \frac{PMT_1}{k-g}$
5A-4	Present value of growing annuity: $PV_0 = \frac{PMT_1}{k-g}\left[1 - \left(\frac{1+g}{1+k}\right)^n\right]$
6.3	Current Yield: $CY = \frac{Annual\ Interest}{B}$
6.6	Price of T-Bill given BEY: $P = \frac{F}{\left(1 + k_{BEY} \times \frac{n}{365}\right)}$
7.10	Share price with growth opportunities: $P_0 = \frac{EPS_1}{k_c} + PVGO$
7.11	Growth rate: $g = b * ROE$
8.3	Total return = Income yield + Capital gain (loss) yield = $\frac{CF_1}{P_0} + \frac{P_1 - P_0}{P_0}$
8.5	Geometric average (GM) $= \left[(1+r_1)(1+r_2)(1+r_3)\times(1+r_n)\right]^{1/n} - 1 = \left(\prod_{i=1}^{n}(1+r_i)\right)^{\frac{1}{n}} - 1$
8.6	Expected return: $ER = \sum_{i=1}^{n}(r_i * \text{Prob}_i)$
8.7	Ex-post $\sigma = \sqrt{\frac{\sum_{i=1}^{n}(r_i - \bar{r})^2}{n-1}}$
8.8	Ex-ante $\sigma = \sqrt{\sum_{i=1}^{n}(\text{Prob}_i)(r_i - ER)^2}$
8.9	Expected portfolio return: $ER_p = \sum_{i=1}^{n}(w_i * ER_i)$
8.11	Portfolio standard deviation: $\sigma_P = \sqrt{(w_A)^2(\sigma_A)^2 + (w_B)^2(\sigma_B)^2 + 2(w_A)(w_B)(COV_{A,B})}$
8.12	$COV_{A,B} = \sum_{i=1}^{n}\text{Prob}_i(r_{A,i} - \bar{r_a})(r_{B,i} - \bar{r_b})$

8.14	$COV_{AB} = \rho_{AB}\sigma_A\sigma_B$
8.16	If $\rho_{AB} = -1$, then: $\sigma_P = w\sigma_A - (1-w)\sigma_B$
9.3	$E(R_P) = RF + \left(\frac{E(R_A) - RF}{\sigma_A}\right)\sigma_P$
9.4	Slope of CML $= \frac{ER_M - RF}{\sigma_M}$
9.6	Sharpe Ratio $= \frac{ER_P - RF}{\sigma_P}$
9.7	$\beta_i = \frac{Cov_{i,M}}{\sigma_M^2} = \frac{\rho_{i,M}\sigma_i}{\sigma_M}$
9.8	$\beta_P = w_A\beta_A + w_B\beta_B + \ldots + w_n\beta_n$
9.9	$k_i = RF + (ER_M - RF)\beta_i$
12.2	$Option$ Premium $= IV + TV$
12.5	Put Call Parity: $P + S = C + PV(X)$
13.1	$NPV = \frac{CF_1}{(1+k)^1} + \frac{CF_2}{(1+k)^2} + \frac{CF_3}{(1+k)^3} + .. + \frac{CF_n}{(1+k)^n} - CF_0 = \sum_{t=1}^{n}\frac{CF_t}{(1+k)^t} - CF_0$
13.3	$PI = \frac{PV(Cash \text{ inflows})}{PV(Cash \text{ outflows})}$
14.1	$CF_0 = C_0 + \Delta NWC_0 + OC$
14.2	$CF_t = CFBT_t(1-T) + CCA_t(T)$
14.4	$ECF_n = SV_n + \Delta NWC_n$
14.5	$NPV = PV(CF_t) + PV(ECF_n) - CF_0$
14.6	$PV(Operating\ Cash\ Flows) = \frac{CFBT(1-T)}{k}\left[1 - \frac{1}{(1+k)^n}\right]$
14.7	$PV(CCA\ Tax\ Shield) = \frac{(C_0)(d)(T)}{d+k} * \frac{(1+0.5k)}{(1+k)} - \frac{(SV_n)(d)(T)}{d+k} * \frac{1}{(1+k)^n}$
20.8	Cost of Capital: $K_a = \frac{ROI \times IC}{V} = \frac{K_e S + K_d(1-T)D}{V} = K_e\frac{S}{V} + K_d(1-T)\frac{D}{V}$
20.9	$WACC = K_e\frac{S}{V} + K_p\frac{P}{V} + K_i\frac{D}{V}$, Where: $K_i = K_d(1-T)$
20.10	Market value: $S = P_0 \times n$
20.13	Net proceeds: $NP = \frac{I(1-T)}{K_i}\left[1 - \frac{1}{(1+K_i)^n}\right] + F\left(\frac{1}{(1+K_i)^n}\right)$
20.14	Cost of preferred shares: $K_p = D_p \Big/ NP$
20.17	$K_{ne} = \frac{D_1}{NP} + g$
20.21	$K_e = \frac{D_1}{P_0} + g = \frac{X_1(1-b)}{P_0} + b * ROE$
20.27	Cost of new equity: $K_{ne} = K_e * \frac{P_0}{NP}$