Solution.

Print Last Name: ➔	Print First Name: ➔	ID Number: ➔	
COURSE FINANCE	**NUMBER** COMM 308	**SECTIONS: (➔ Circle your section)** A, AA, B, BB, C, D, E, F	
EXAMINATION Final Exam **VERSION BLUE**	**DATE** December 7, 2013	**TIME** 3 hours 14:00 to 17:00	**# OF PAGES 19** Including cover
INSTRUCTOR: **(➔ Underline your instructor's name)** Ian Rakita Monir Wahhab Kaveh Moradi Dezfouli Jennifer Yang Raad Jassim June Riley Rui Zhong		**DIVISION** John Molson School of Business Concordia University	

READ THESE SPECIAL INSTRUCTIONS CAREFULLY

- **You must submit a BLUE computer answer sheet.**

- **You are allowed to bring/use one or more calculators**

- **You are allowed to bring one language dictionary (no finance/ mathematics/economics etc. dictionary)**

- **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 19 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 any 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: 10 Points)	(Max: 10 Points)	(Max: 6 Points)	(Max: 4 Points)	**Total**

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

- This part consists of 28 Multiple Choice Questions.
- Each question is worth 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. 5% effective semiannual rate is equivalent to what APR (QR) compounded daily? Assume a year has 365 days. (Use at least four decimal places in solving this question)

   A. 4.88%.
   B. 9.65%.
   C. 9.76%.
   D. 10%.
   E. 10.25%.

$$0.05 = \left(1 + \frac{QR}{365}\right)^{\frac{365}{2}} - 1$$

$$QR = 9.7593\% \approx 9.76\%$$

2. Which of the following statements is (are) correct?

   A. It is possible to have a situation where the market risk of a single stock is less than the market risk of a portfolio of stocks.
   B. If you select a group of stocks whose returns are perfectly positively correlated, then you could end up with a portfolio for which none of the unsystematic risk is diversified away.
   C. If investors become more risk averse, then the new security market line would have a higher market risk premium.
   D. Both B and C are correct
   E. All of the above statements are correct.

3. You are going to make 20 annual payments of $800, with the first payment made today. At the end of the 40th year you will begin receiving a perpetuity from the account (first payment received at the end of year 40). If the account pays 14% EAR, how much will you receive, each year from the perpetuity (round to nearest $1,000)?

   A. $122,000
   B. $123,000
   C. $140,000
   D. $160,000
   E. None of the above

$$PV_{payment} = 800 + \frac{800}{0.14} * \left(1 - \frac{1}{1.14^{19}}\right) = \$6040.295$$

$$PV_{perpetuity} = \frac{C}{0.14} * \frac{1}{1.14^{39}} = \$6040.295$$

$$\therefore C = \$140,112.02$$

4. Your company is planning to borrow $2,500,000 on a 10-year, 9% EAR, annual payment, fully amortized term loan. What fraction of the payment made at the end of the third year will represent repayment of principal?

   A. 29.83%
   B. 35.02%
   C. 46.65%
   D. 50.19%
   E. 72.36%

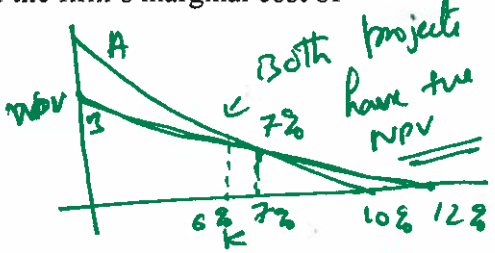
$PMT = 2,500,000 * 0.09 * \frac{1}{1 - \frac{1}{1.09^{10}}} = \$389,550.22$

$OB_2 = \frac{389550.2248}{0.09} * \left(1 - \frac{1}{1.09^8}\right) = 2,156,090.03$

$Interest_3 = 0.09 * 2158090.03 = \$194,048.1027$

fraction of PMT_3 going towards repayment of principal $= 1 - \frac{194048.10}{389,550.22} = 50.1$

5. Project A and Project B are independent. Project A has an IRR of 10 percent. Project B has an IRR of 12 percent. The crossover rate is 7%. Both projects have standard cashflow, (i.e. investment at time zero followed by a series of cash inflows). If the firm's marginal cost of capital is 6 percent, then:



   A. Project A should be accepted and Project B rejected.
   B. Project B should be accepted and Project A rejected.
   C. Both projects should be accepted.
   D. Both projects should be rejected.
   E. Decision should be based on NPV and not IRR. Given the information in this question, it is impossible to make a decision.

6. Moral hazard means that ***the act of insuring*** _____ the probability of an accident occurring.

   A. reduces
   B. increases
   C. guarantees
   D. eliminates
   E. none of the above

7. Which of the following statements is most correct?

   A. Assume that the required rate of return on a given stock is 13%. If the stock's dividend is growing at a constant rate of 5%, its expected capital gain is 5% as well. ✓
   B. The dividend yield on a stock is equal to the expected return less the expected capital gain. ✓
   C. A stock's dividend yield can never exceed the expected growth rate. ✗
   D. Answers A and B are correct.
   E. Answers A, B, and C are correct.

8. Security A currently trades on the Toronto stock exchange. In your opinion security A has an expected rate of return of 16.5%. It has a beta of 1.5. The yield on three month treasury bill is currently 3% and the rate of return on S&P TSX index is 11%. According to the Capital Asset Pricing Model, this security is _____

$E(r)_{CAPM} = 0.03 + 1.5 * 0.08 = 15\% < 16.5\%$

$\therefore$ Stock is underpriced.

A. underpriced.
B. overpriced.
C. fairly priced.
D. cannot be determined from data provided.
E. none of the above.

9. To say that share prices move in random walk is to mean which of the following?

A. Share price moves are determined in the same random fashion as the outcome of tossing a coin - there is no underlying rationale for a particular move
B. The stock market is irrational and akin to a casino
C. Stock prices at any time reflect all available information and the price will only change in response to new information; successive price changes will be independent and prices will follow a random walk because the next piece of news is independent of the last piece of news
D. Share prices respond to news events in a random fashion
E. All of the above

10. The internal rate of return (IRR) of a project with conventional cash flows (one outflow at time zero followed by a series of cash inflows) is:

A. The lowest possible cost of capital for which the firm will accept the project. ✗
B. The rate that makes the profitability index equal to one. ✓
C. The discount rate that equates the profitability index to the NPV. ✗
D. The interest rate value that makes the crossover rate equal to zero. ✗
E. The rate that makes the discounted payback period equal to the NPV. ✗

11. 8% APR (QR) compounded semi-annually is equivalent to what APR (QR) compounded quarterly? (Use at least four decimal places in solving this question)

$\left(1 + \frac{0.08}{2}\right)^2 = \left(1 + \frac{QR}{4}\right)^4$

$QR = 7.9215\% \approx 7.92\%$

A. 4%.
B. 7.87%.
C. 7.92%.
D. 8%.
E. 8.16%.

12. Bach Airline is expected to pay a dividend of $8 in the coming year. Dividends are expected to grow at the rate of 15% per year indefinitely. The risk-free rate of return is 6% and the expected return on the market portfolio is 13%. The stock of Bach Airline has a beta of 3.00 and the market beta is 1. The price (intrinsic value) of the stock is _____.

$k = E(r) = 0.06 + 3 * 0.07 = 27\%$

$P_0 = \frac{\$8}{0.27 - 0.15} = \$66.67$

A. $53.33
B. $50.00
C. $61.54
D. $66.67
E. None of the above.

13. Which of the following is true regarding the concept of beta?

A. To benefit from an upcoming bull market (rising market), you need to invest in high beta stocks.
B. Treasury bills have a beta of 1.
C. Total risk equals beta risk plus systematic risk.
D. You can form a zero-beta portfolio by investing in as many stocks as you can afford.
E. All assets with beta of 1 may be used as a market proxy.

14. If a firm has a required rate of return greater than its ROE

A. The firm can increase market price and P/E by retaining more earnings.
B. The firm can increase market price and P/E by decreasing the retention ratio.
C. The amount of earnings retained by the firm will not affect market price or the P/E.
D. The firm can increase market price and P/E by eliminating dividends payout.
E. None of the above.

15. Which of the following statements is most correct?

A. Risk refers to the chance that some unfavorable event will occur.
B. Portfolio diversification reduces the variability of returns on an individual stock.
C. When company-specific risk has been diversified, the inherent risk that remains is market risk, which is constant for all securities in the market.
D. A stock with a beta of -1.0 has zero market risk.
E. None of the above.

16. Given the following probability distribution, what are the expected return and the standard deviation of returns for security J?

State	p_i (Probability)	k_i (Expected return)
1	0.2	10%
2	0.6	15%
3	0.2	20%

$\bar{k} = 0.02 + 0.09 + 0.04 = 0.15$

$\sigma^2 = 0.2 * (0.05)^2 + 0.6 * 0^2 + 0.2 * (0.05)^2$

$\therefore \sigma = 0.05 * \sqrt{0.4} = 3.16\%$

A. 12%; 5.18%

B. 15%; 0.1%

C. 15%; 3.16%

D. 15.5%; 0.22%

E. 15.5%; 4.72%

17. Assume that all interest rates in the economy decline from 10% to 9%. Which of the following bonds will have the largest percentage increase in price?

A. A 10-year bond with a 10% coupon rate (payable annually) and YTM=5% EAR.

B. A 10 year bond with 9.9% coupon rate (payable semi-annually) and YTM=2% EAR.

C. A 10-year bond with a 10% coupon rate (payable annually) and YTM=2% EAR.

D. A 10-year bond with a 9.9% coupon rate (payable semi-annually) and YTM=7% EAR.

E. A 9-year bond with a 10% coupon rate (payable annually) and YTM=2% EAR.

18. Which of the following statements is most correct?

A. The market value of a bond will always approach its par value as its maturity date approaches, provided the issuer of the bond does not go bankrupt.

B. If the bank of Canada unexpectedly announces that it expects inflation to increase, then we would probably observe an immediate increase in bond prices.

C. The total return on a bond is derived from interest payments and changes in the price of the bond.

D. Statements A and C are correct

E. All of the above statements are correct.

19. Which of the following equations is correct?

A. PV(Annuity Due) = PV(Annuity) * (1+k)

B. PV(Annuity Due) = PV(Annuity)/(1+k)

C. FV(Annuity Due) = FV(Annuity)/(1+k)

D. FV(Annuity Due) = PV(Annuity) * (1+k)^(n+1)

E. A and D

20. Which of the following statement is most correct?

A. If a bond is selling for a premium, this implies that the bond's yield to maturity exceeds its coupon rate. ✗

B. If a coupon bond is selling at par, its current yield equals its yield to maturity

C. If rates fall after its issue, a zero coupon bond could trade for an amount above its par value.

D. Statements B and C are correct.

E. None of the statements above is correct.

21. Which one of the following will increase the WACC of a firm?

A. An increase in the tax rate

B. An increase in the debt to equity ratio.

C. An increase in the risk free rate of return.

D. A decrease in the level of risk of a project.

E. Both A and C.

22. Which of the following statements is true?

A. All assets with beta equal to zero are risk free.

B. Any asset with beta equal to one may be used as a market proxy.

C. All risk free assets have beta equal to zero.

D. Statements A and C are true.

E. Statements A, B, and C are true.

23. A company has determined that its optimal capital structure consists of 40 percent debt and 60 percent equity. Given the following information, calculate the firm's weighted average cost of capital. Cost of Debt $k_d = 6\%$, $Taxrate = 40\%$, stock price today $P_0 = \$25$, dividend growth rate $g = 0\%$. The firm has just paid a dividend of \$2.

A. 6.0%

B. 6.2%

C. 7.0%

D. 7.2%

E. 8.0%

$25 = \frac{2}{K_E} \Rightarrow K_E = \frac{2}{25} = 8\%$

$WACC = 0.4 * 0.06 * (1-0.4) + 0.6 * 0.08$

$= 6.24\% \cong 6.2\%$

24. Agency problem (Principal-agent problem) arises when_____

A. the shareholders and the manager have different objectives
B. the bondholders and shareholders have different objectives.
C. The firm is unable to open a new agency.
D. A and B
E. A, B, and C

25. The intrinsic value of an out-of-the-money call option is equal to_____

A. The call premium
B. zero
C. the stock price minus the exercise price.
D. the striking price.
E. None of the above.

26. An investor simultaneously buys a call option and a put option. Both options have same expiration date, same strike price, and they are written on the same stock. His total payoff will:_____

A. Increase as the stock price increases above the strike price.
B. Increase as the stock price decreases below the strike price.
C. Will not change with change in the stock price.
D. Both A and B.
E. Insufficient information for answering the question.

27. Consider the following two projects:

Project	Year 0	Year 1	Year 2	Year 3
A	-$200	$100	$100	$100
B	-$300	$100	$100	$225

What is the crossover rate for these two projects?

A. 7.72%
B. 12.2%
C. 14.0%
D. 18.3%
E. None of the above

Y	A - B
0	100
1	∅
2	∅
3	-125

$100 - \frac{125}{(1+IC)^3} = \emptyset$

$(1+IC)^3 = \frac{125}{100}$

$IC = (1.25)^{1/3} - 1 = 7.72\%$

28. John makes 40 ~~years of~~ annual investment into an account that pays a quoted rate (QR) of 7% (EAR). He will make his first payment of $25,000 in one year and he expects his subsequent annual contributions to increase by 7% per year. What is the value of the investment at the end of the 40 years?

A. $934,579.44

B. $1,000,000.00

C. $4,990,877.80

D. $13,994,820.41

E. This question cannot be solved because g=k

$PV_1 = 25{,}000 * 40 = \$1{,}000{,}000$

$FV_{40} = 1{,}000{,}000 \times 1.07^{39}$

$= \$13{,}994{,}820.41$

Part II: Problèmes (30 Points Total)

- Answer on this document, in the space provided. Use the back of the sheet if you need additional space. Label it clearly. Any work on the back of the sheet, which is not labeled clearly, will not be graded.
- Show all your work. Unsupported statements or numbers will not receive any credit.

Q1. (10 Points) Application of Time Value Mechanics: This question has two unrelated parts. Part (a) is Mortgage. Part (b) is equity valuation. Information from part (a) should not be used in part (b)

Q1 Part a) (5 Points)

Suppose that you take out a 25-year mortgage of $300,000 from the Bank of Montreal at 3.890% (QR compounded semiannually) to purchase a new home. Assume that today is the first of January.

The bank gives you two options for repayment:

Option1: You repay the mortgage at the quoted rate with the first payment due on the first of every month, starting **February** (Thus your first payment will be due on the 1st of February).

Option2: You pay $5000 one time deferral fee today (first of January) and at no additional interest, you can defer the start of your mortgage payments to the beginning of **August** (Thus your first payment will be due on the 1st of August and you repay the loan in 300 equal installments).

Which option is cheaper?

Solution:

$$k_{monthly} = \left(1 + \frac{0.0389}{2}\right)^{\left(\frac{2}{12}\right)} - 1 = 0.0032157$$

The option allows the borrower to defer the repayment by 6 months for a one-time fee of $5000.

$\therefore$ Present *value of Option* 2 *mortgage payments* $\left(July\ 1^{st}\right) = \$300{,}000$

Present *value of Option* 2 *on January* $1^{st} = \frac{\$300{,}000}{1.0032157^{6}} + \$5{,}000 = \$299276.33$

Present *value of Option* 1 *on January* $1^{st} = \$300{,}000$

$\therefore$ *Option* 2 *is cheaper than option* 1

Q1 Part b) (5 Points) Equity valuation

Note: *Information from part (a) should not be used in part (b)*

You have been given the following projections for Smooth Sail corporation (SS) for the coming year:

Sales	= 10,000 *units*
Sales price per unit	= \$10
Variable cost per unit	= \$5
Fixed costs	= \$10,000
Bonds outstanding	= \$15,000
K_d on outstanding bonds	= 8%
Tax rate	= 40%
Shares of comon stock outstanding	= 10,000 *shares*
Beta	= 1.4
RF	= 5%
R_m	= 9%
Dividend payout ratio	= 60%
Growth rate	= 8%
Total Earnings	= \$23,280

Calculate the current price per share for SS.

Total amount of dividend = Total Earnings * payout

$= 23,280 * 0.6 = \$13,968$

Dividends per share $= \frac{13,968}{10,000} = \$1.3968$

∴ These projections are for the coming year

$\therefore D_1 = \$1.3968$

Using CAPM: $K = RF + \beta * (R_m - RF) = 0.05 + 1.4 * (0.09 - 0.05)$

$= 10.6\%$

$P_0 = \frac{1.3968}{0.106 - 0.08} = \$53.72$

Q2. **(10 Points)** This question has two related parts. Information from (i) may be used in (ii)

Your younger cousin is about to enter Concordia University, and she is going to start her own used textbook business while she is in college. The business will only last for 4 years. The building will cost $120,000 today to purchase. She expects to sell the building 4 years from now for $60,000. She expects annual revenues (starting next year) of $45,000. Her operating costs (including salaries, overhead expenses, shelving, etc.) will be $14,000 per year. Her working capital level requirements will be $10,000 immediately, $15,000 in the first and second years and $5,000 in the third year. She will not need any working capital at the end of the year four period.

She asks you for advice regarding this venture… should she do it?

For simplicity ignore CCA and assume that she can depreciate the building by $15,000 each year for four years. Assume that the appropriate discount rate for this project is 10% and the corporate tax rate is 30%

To assist you in your analysis, we have provided you with a partially completed cash flow estimation table corresponding to the above problem.

Complete the table by calculating the missing numbers (letters a through t).

Use page 15 if you need more working space for this problem. Please report your answers (**a** through **t**) in the table below:

Year	0	1	2	3	4
Sales		45000	45000	45000	45000
Costs		14000	14000	14000	14000
Operating income (Sales - costs)		31000	31000	31000	31000
After tax operating income		21,700 a)	21700 b)	21700 c)	21700 d)
NWC	10,000	15000	15000	5000	0
Change(NWC)	-10,000 e)	-5000 f)	Ø g)	10,000 h)	5,000 i)
Building Depreciation	-120,000	15000	15000	15000	60000 15000
Tax Shields	j)	4500 k)	4500 l)	4500 m)	4500 n)
CF	-130,000 o)	21,200 p)	26,200 q)	36200 r)	91,200 s)

(t) NPV = $414.04

Decision: should she do it? (Yes/No?) Yes.

Note: *report all answers in the table provided on page 14.*

Q3. **(6 Points) Option portfolio payoff:** Suppose that the price of a share of stock in XYZ Corporation is currently trading at $20 per share. Consider buying the following two options on one share of XYZ:

a. A Call option with strike price $15
b. A Put option with strike price $25

i. (4 Points) Draw a payoff diagram of this portfolio

Note: *Clearly label both axes and the location of each important point on the diagram (Points of intersections, points where the graph changes direction, etc.).*

Stock price	0	15	25	40
Call 15 payoff	0	0	10	25
Put 25 payoff	25	10	0	0
Portfolio payoff	25	10	10	25

ii. (1 Point) What is the minimum price that you should be willing to pay for the above portfolio?

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$10
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iii. (1 Point) What is the holder of this portfolio betting on?

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Price rising above $25 or falling below $15 (Very high
volatility).
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Q4. **(4 Points) True or False**: Support your answer with one or two sentence explanation.

a) (2 Points) Company's owners are shareholders. So the company property belongs to the shareholders.

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The answer (True or False) can both be justified. Example:

False: Firm's property belongs to both debt holders and
shareholders.

True: If the firm is unlevered all property belongs to
shareholders.

==> award marks based on the justification.
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b) (2 Points) Two firms with the same dividend and growth rate must also have the same stock price.

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False: Risk of the two firm's could be different.
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Equation List - Comm 308 - Booth-Cleary Text

5.3	Present value (compound interest): $PV_0 = \frac{FV_n}{(1+k)^n}$
5.4	Future value (ordinary 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 period rate (for any period f): $k = \left(1 + \frac{QR}{m}\right)^{\frac{m}{f}} - 1$
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: $CY = \frac{Annual\ Interest}{B}$
6.5	Fisher Relationship: $RF = \left[(1 + \text{Real rate}) \times (1 + \text{Expected inflation})\right] - 1$
6.7	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: $g = b \times ROE$
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) $= \left[(1+r_1)(1+r_2)(1+r_3)\ldots(1+r_n)\right]^{1/n} - 1 = \left(\prod_{i=1}^{n}(1+r_i)\right)^{\frac{1}{n}} - 1$
8.6	Expected return: $ER = \sum_{i=1}^{n}(r_i \times \text{Prob}_i)$
8.7	Standard Deviation for individual returns: Ex-post $\sigma = \sqrt{\frac{\sum_{i=1}^{n}(r_i - \bar{r})^2}{n-1}}$
8.8	Standard Deviation for individual returns: 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	Covariance of returns: $COV_{AB} = \sum_{i=1}^{n}\text{Prob}_i(r_{A,i} - \bar{r}_a)(r_{B,i} - \bar{r}_b)$
8.14	Covariance of returns: $COV_{AB} = \rho_{AB}\sigma_A\sigma_B$

8.16	If $\rho_{AB} = -1$, then: $\sigma_P = w\sigma_A - (1-w)\sigma_B$
9.3	Expected return for a portfolio of one risky and one riskfree asset: $E(R_P) = RF + \left(\frac{E(R_A) - RF}{\sigma_A}\right)\sigma_P$
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	Portfolio beta: $\beta_P = w_A\beta_A + w_B\beta_B + \ldots + w_n\beta_n$
9.9	Security market line (SML): $k_i = RF + (ER_M - RF)\beta_i$
12.3	TV = Option premium - IV
12.5	Put Call Parity: $P + S = C + PV(X)$
13.1	$NPV = \frac{CF_1}{(1+k)^1} + \frac{CF_2}{(1+k)^2} + \frac{CF_3}{(1+k)^3} + \ldots + \frac{CF_n}{(1+k)^n} - CF_0 = \sum_{t=1}^{n} \frac{CF_t}{(1+k)^t} - CF_0$
13.3	$PI = \frac{PV(Cash\ \text{inflows})}{PV(Cash\ \text{outflows})}$
14.1	*Initial cash outlay:* $CF_0 = C_0 + \Delta NWC_0 + OC$
14.2	*Annual After-Tax Cash flows:* $CF_t = CFBT_t(1-T) + CCA_t(T)$
14.4	*Ending Cash flows (ignoring tax implications):* $ECF_n = SV_n + \Delta NWC_n$
14.5	*Net present value:* $NPV = PV(Annual\ CFs) + PV(ECF_n) - CF_0$
14.6	$PV(Operating\ Cash\ Flows) = \frac{CFBT(1-T)}{k}\left[1 - \frac{1}{(1+k)^n}\right]$
14.7	*Present value of CCA Tax shield (ignoring CCA recapture and Terminal loss)* $PV(CCA\ Tax\ Shield) = \frac{(C_0)(d)(T)}{d+k} * \frac{(1+0.5k)}{(1+k)} - \frac{(SV_n)(d)(T)}{d+k} * \frac{1}{(1+k)^n}$
20.8	Weighted average Cost of Capital (WACC): $K_a = \frac{ROI \times IC}{V} = \frac{K_e S + K_d(1-T)D}{V} = K_e\frac{S}{V} + K_d(1-T)\frac{D}{V}$
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	$K_p = D_p / NP$
20.17	$K_{ne} = \frac{D_1}{NP} + g$
20.21	$K_e = \frac{D_1}{P_0} + g = \frac{X_1(1-b)}{P_0} + b \times ROE$
20.27	Cost of new equity: $K_{ne} = K_e \times \frac{P_0}{NP}$