

WILFRID LAURIER UNIVERSITY

WATERLOO, ONTARIO

Session: Fall 2017 Midterm Exam #2

Course No.: BU283

Title: Financial Management I

Professor: Everitt, Lennox & McNally

Number of pages: 13

Length of examination: 1.5 hours

Examination aids allowed: Calculator, Laptop Computer, Dictionary (if foreign student)

Name: _____

I.D. # _____

The doors of the examination room will be opened approximately 10 minutes before the start of the examination. Candidates will be permitted to enter the examination room quietly up to one half hour after the scheduled start of the exam. Candidates arriving late will not be allowed any extra time.

Candidates must **not begin** the examination or attempt to read the examination questions **until instructed** to do so.
*THE UNIVERSITY IS NOT RESPONSIBLE FOR THE LOSS OF VALUABLES BROUGHT INTO THE EXAM LOCATIONS OR CLASSROOMS WHERE EXAMS ARE BEING WRITTEN.

Candidates once having entered, may **not leave** the exam room before completing and submitting the exam **unless accompanied by a Proctor**. Candidates are **not** permitted to submit their examination and **leave the examination room until 1 hour** after the examination has begun, and in no case before their attendance has been taken. In no case may a candidate leave the room temporarily, for any reason, until 30 minutes after the start of the examination. In order that remaining candidates are not disrupted, candidates must remain seated and may not leave the examination room during the last 15 minutes of the examination session.

At the close of the examination period, candidates must stop writing immediately. The Presiding Officer may seize the papers of candidates who fail to observe this requirement, and a penalty may be imposed at the discretion of the instructor. Candidates must **submit all their work**, according to the instructions of the Presiding Officer, including all materials and a copy of the examination paper with their name and student ID number written on it. Unused examination booklets may not be taken from the examination room.

A candidate who leaves before the examination is over must hand in all completed and attempted work, notes made during the exam, and a copy of the examination paper with their name and student ID number on it.

Talk or any form of **communication between candidates** is absolutely **forbidden**. No information of any kind is to be written on the question paper or on scrap paper for the purpose of assisting other candidates. Responses to questions must not be done in an exaggerated way or in a manner that will involve transmission of information to others.

Candidates must remain seated during the examination period. A candidate needing to speak to the proctor (e.g. to ask for additional supplies or to request permission to leave the examination room for any reason) should so indicate by **raising** his or her **hand**.

Questions concerning possible errors, ambiguities or omissions in the examination paper must be directed to the proctor who will investigate them through the proper channels. The proctor is not permitted to answer questions other than those concerning the examination paper.

Candidates must **not use** or attempt to use any **improper source of information**. No candidates for an examination may bring into the examination room any books, notes or other material containing information pertaining to the examination unless the examiner has given instructions that such material will be allowed and this instruction is specified on the examination paper. Any item brought into the examination room is subject to inspection.

No briefcases, backpacks or other bags and carriers may be brought to the desk site where the candidate is writing the examination. These bags should be left outside the examination room. If books, notes etc. cannot be left outside the examination room, they must be put at the front of the examination room in a place designated by the proctor before a candidate takes a seat. Candidates are advised not to bring valuables to the examination room.

No electronic or communication devices will be allowed in the examination room, including cell phones, smartphones, pagers, etc. Cell phones will be taken away if found and an Irregularity notice will be filed with the Integrity Office. Calculators are not allowed unless specified by the instructor and indicated on the examination paper. **Only non-programmable calculators without lids**, authorized by the instructor, will be allowed. It is the candidate's responsibility to ascertain whether the use of calculators is permitted, and, if it is, whether any restrictions are imposed on the types of calculators that may be brought to the examination.

No pencil cases are allowed on the desks.

Translation **dictionaries** (e.g. English-French) or other dictionaries, (thesaurus, definitions, technical) **are not allowed unless specified** by the instructor and indicated on the examination paper. Electronic dictionaries are never allowed.

Except for bottled water (with label removed), no food or drink is allowed in the examination room. Candidates with health problems that warrant relaxation of this regulation should provide medical documentation to the presiding officer prior to the beginning of the examination. Such students should restrict themselves to those items and packaging that will least distract other examinees.

Candidates are expected to write their examinations in an honest and straightforward manner. Where there are reasonable grounds for believing a **violation of exam protocol** has occurred, the candidate will be **subject to the disciplinary procedures** and sanctions according to the University Calendar.

Only currently registered students will be permitted to write the final exam. Examinations conducted at Wilfrid Laurier University will be bound by WLU regulations, regardless of where the candidate is registered.

Approved by Senate (Oct 27/2003) Updated January 2014

ADDITIONAL INSTRUCTIONS

1 BEFORE THE EXAM

1. Complete the personal identification portion of the multiple choice answer card. Shade in the boxes below your student number on BOTH sides of the Scantron card.
2. Your student number should be left-aligned in the field.
3. Make sure that you shade 'A' under "Test Form".

2 DURING THE EXAM

4. Count the pages to be certain that there are no missing pages.
5. **No** questions will be answered by the proctors or the Instructors during the exam, except in the case of missing pages.
6. If, for any reason, you think that the correct answer is missing from the multiple choices, then select the best available answer-- that is, the multiple choice which has the closest value to the correct answer.
7. Students are NOT allowed to communicate with anyone during the exam or exam collection period.
8. You must sign the identification sheet before leaving.
9. Open book. You may use prepared excel templates, browse the e-text or the web.
10. Stop writing immediately upon being told that the exam is over. Students who continue writing may be subject to a penalty.

3 AFTER THE EXAM

11. Students may NOT leave the exam hall in the last 15 minutes.
12. Only the Scantron card MUST be handed in. Only the Scantron responses will be graded.
13. Students may keep their copy of the exam paper.
14. Please remain seated quietly during the exam collection period.

Sections, Questions, Marks and Time

	# Questions	Marks	Minutes
Instructions	10	1	1
Questions	24	24	89
TOTAL	34	25	90

1 Exam Instructions

(10 Questions worth 0.1 marks each)

- 1 Which letter should you shade under “Test Form” on your Scantron card?
A) A
- 2 Can students use a laptop computer during the exam?
A) Yes
- 3 How long is the exam?
A) 1.5 hours
- 4 How many minutes do you have per mark?
A) 2.50
B) 3.00
C) *3.60
D) 4.00
- 5 Can students communicate verbally or electronically (i.e., on Facebook) during the exam or exam collection period?
A) No
- 6 True or False? The Scantron cards are the only item that will be marked and will be collected by the proctor at the end of the exam.
A) True
- 7 True or False? I should complete the Scantron card using a pencil.
A) True
- 8 True or False? If I am confused about an ambiguous exam question, then
A) Make an assumption and discuss the question with the Professor after the exam
- 9 If the correct answer appears to be missing from the multiple choices then I should:
A) Select the best available answer.
- 10 Can students continue to write after the end of the exam? (For example, to complete the Scantron card.)
A) No. Students who continue writing will have their incomplete Scantron cards collected by the Proctor and will be marked on the basis of the incomplete card.

2 Questions (24 Questions. 1 mark each.)

If you think that the correct answer is missing from the multiple choices, then select the best available answer.

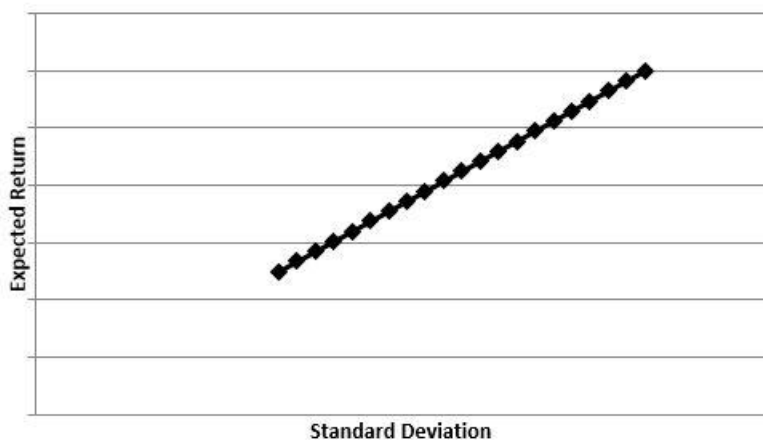
- 11 Cyberdyne Systems is issuing a series of coupon bonds to raise \$250M to fund research and development at its Skynet division. Each bond will have a face value of \$1,000 and will mature in 10 years. The bonds will pay semi-annual coupons with a coupon rate of 2.5%. The yield to maturity on the bonds is 8%. What is the fair price for one of the bonds?
- A) \$585.35
 B) \$600.23
 C) *\$626.27
 D) \$676.54
 E) \$1,000.00
- 12 Johnny Mac Inc., (a Canadian joint venture) bonds are currently trading at \$427.75. The bonds have a face value of \$1,000, a coupon rate of 4% with coupons paid semiannually, and they mature in 20 years. What is the yield to maturity of the bonds?
- A) 9.85%
 B) 10.15%
 C) 10.25%
 D) *11.25%
 E) 12.00%
- 13 Refer to the data in the table. Consider a 2-year coupon bond with a face value of \$1,000 and that pays annual coupons of \$40. The next coupon is due in one year. What is the correct price of the coupon bond at Year 1?

Zero Coupon Bond Yields FV = \$1,000	
Maturity (Years)	Yield
1	4.00%
2	5.00%

- A) \$943.31
 B) \$973.36
 C) *\$981.04
 D) \$1,000.00
 E) \$1,110.00

- 14 In the year to June 30, 2012 (yesterday) Initech paid out \$1.15B in dividends and repurchased \$7.225B worth of shares. Initech has 1.22B shares outstanding and pays all of its dividends and makes its repurchases annually on June 30. Because of the slow-down in the economy, analysts expect that next year (June 30, 2013) Initech will hold dividend payments constant at their 2012 level and cancel its stock repurchase program. Two years from now (June 30, 2014) analysts forecast that total payouts will return to the level of June 30, 2012. After that date they will continue growing at an annual rate of 3.0% in perpetuity. Assume that investors require a 13.5% rate of return on Initech shares. What is the Total Payout model estimate of the stock price on July 1, 2012?
- A) *\$58.42
 - B) \$57.69
 - C) \$49.69
 - D) \$56.91
 - E) \$60.16
- 15 Discraft Inc. is expected to pay an annual dividend of \$1 at the end of the current year. (Discraft pays its dividends annually.) The dividend is expected to grow quickly over the ensuing year at the rate of 25%. Starting two years from today the growth rate of dividends will fall to a rate of 2.5% and continue at that rate in perpetuity. Investors require a 11% return on the stock. Estimate the market price of the shares of Discraft in one year's time (at Year 1) just after the next dividend is paid.
- A) \$13.25
 - B) \$15.07
 - C) \$13.33
 - D) *\$14.71
 - E) \$14.82
- 16 Analysts expect TNJ Development to make payouts of \$2.22 billion at the end of this year. Assume that all payouts occur annually at the end of the year and that we are at the beginning of the year. Analysts forecast that TNJ Development's payouts will grow at a constant rate in perpetuity. TNJ Development stockholders require a return of 11.5%. TNJ Development has 1.17 billion shares outstanding and its shares are currently trading for \$23.14. What growth rate has the market priced into TNJ Development's share price?
- A) 0.025
 - B) 0.030
 - C) 0.042
 - D) *0.033
 - E) 0.055

- 17 Consider a 2 asset portfolio with 54% in Google Inc. (GOOG) and 46% in John Deere (DE). Google has a standard deviation of 63%, John Deere has a standard deviation of 43% and their correlation is 0.31. What is the standard deviation of returns of the portfolio?
- A) 40.34%
 - B) 41.34%
 - C) 42.34%
 - D) 43.34%
 - E) *44.34%



- 18 Given the feasible set of portfolios shown in the graph, what is the correlation of the two assets?
- A) 0
 - B) *+1
 - C) -1
- 19 Which of the following assets is inefficient?

Asset	Expected Return	Standard Deviation
Ubisoft	8%	40%
Electronic Arts	9%	50%
Atari	12%	60%

- A) Ubisoft
- B) *Electronic Arts
- C) Atari
- D) All are efficient
- E) Not enough information

Spot Rate Yields and Prices		
Maturity	Price (FV=\$100)	Yield
1	\$99.0099	1.00%
2	\$97.06853	1.4988%

- 20 Use the information in the table, above, to help answer this question. What is the best bond investment strategy over the next two years? The economy is growing strongly and so everyone expects the Bank of Canada to raise interest rates next year. The market consensus is that one year T-Bills will yield 2% next year. (Assume no maturity preference.)
- A) Roll-over: buy two successive 1-year bonds
 B) Lock-in: buy a two-year bond
 C) *Both (roll-over and lock-in) are the same
 D) Stay out of the bond market (earn 0%), since bond prices will drop when the Bank raises interest rates.
- 21 If a medium maturity coupon bond is issued at a discount, then, over its first year, its price will _____. Assume that interest rates don't change.
- A) *Rise
 B) Fall
 C) Remain Unchanged

Bond	Maturity	FV	Coupon	Yield	Price
Zero1	1	100	0	1%	\$99.0099
Zero2	2	100	0	2%	\$96.1169
Coupon2	2	100	4%	n.a.	\$101

- 22 Given the bond prices in the table, you should:
- A) Buy the two zeros and sell the coupon bond
 B) *Buy the coupon bond and sell the two zeros
 C) Nothing. The prices are consistent. There is no arbitrage opportunity.

- 23 Which of the following is NOT a correct statement about STRIP bonds?
- I. A STRIP is a zero coupon bond
 - II. A STRIP never trades at a premium to face value
 - III. The yield to maturity on a STRIP is equal to its capital gain yield
- A) I
 - B) II
 - C) II
 - D) *All three are correct statements about STRIPS
- 24 Assume that the maturity preference theory holds. The forward rate is _____ the expected future spot rate.
- A) Greater Than
 - B) Lower Than
 - C) The same as
- 25 If a company's P/E ratio is larger than its P/E constant then the shares are _____ and you should _____.
- A) Overvalued, Buy
 - B) *Overvalued, Sell
 - C) Undervalued, Buy
 - D) Undervalued, Sell
 - E) Fairly valued, Hold

	M/B
Try-N-Save	3.1
Buy n Large	2.8
Sprawl-Mart	3.7
Superstore	4.2

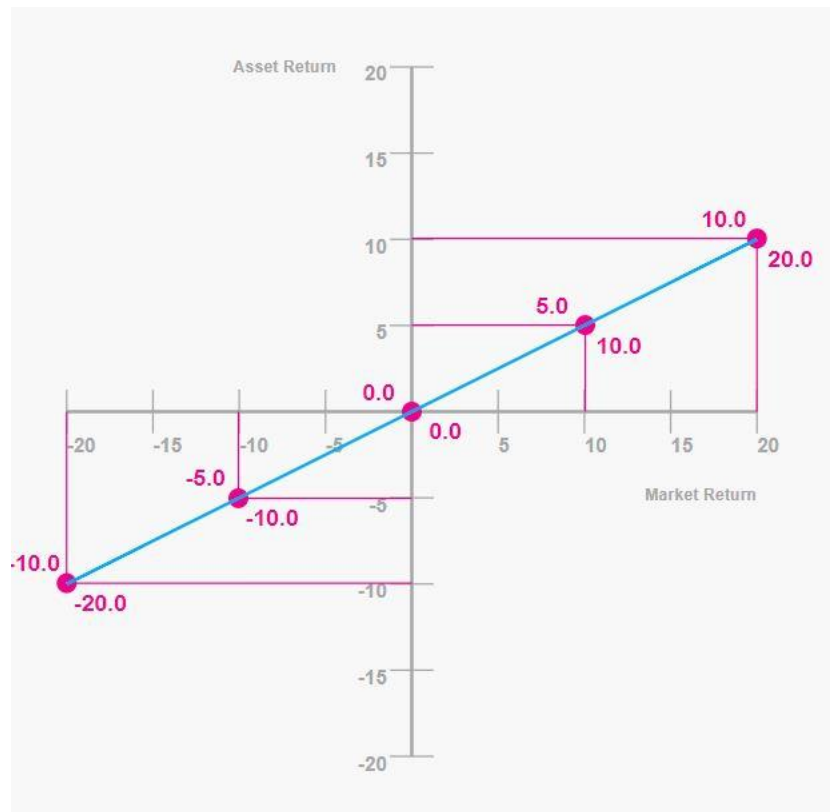
- 26 You are a portfolio manager and are considering investing in Mega Lo Mart Inc. Shares of Mega Lo Mart are currently trading for \$71.40, and its book value per share is \$26.00. One of your analysts has collected information on its main competitors, provided in the table above. What is Mega Lo Mart's fair value and should you buy its shares?
- A) \$45.40; Sell Shares
 - B) \$71.40; Hold shares
 - C) *\$89.70; Buy shares
 - D) \$97.40; Buy shares

- 27 Which of the following is the best definition of an efficient market?
- A) *a market where prices reflect all available information
 - B) a market where buyers and sellers are matched at minimum cost
 - C) a market where investors all earn the risk free rate of return
 - D) a market where investors never profit
- 28 Bluth's Original Frozen Banana Inc. operates a chain of frozen banana stands in California, and is set to expand across the country. Bluth's is famous for its chocolate dipped frozen banana treats. The company has just reported EPS of \$1.77 and expects to maintain a 42% payout ratio. Shareholders require a return of 12% and dividends are forecast to grow at 10%. What is the P/E Constant for Bluth's?
- A) 12.00
 - B) 14.75
 - C) 17.70
 - D) *21.00
 - E) 42.00

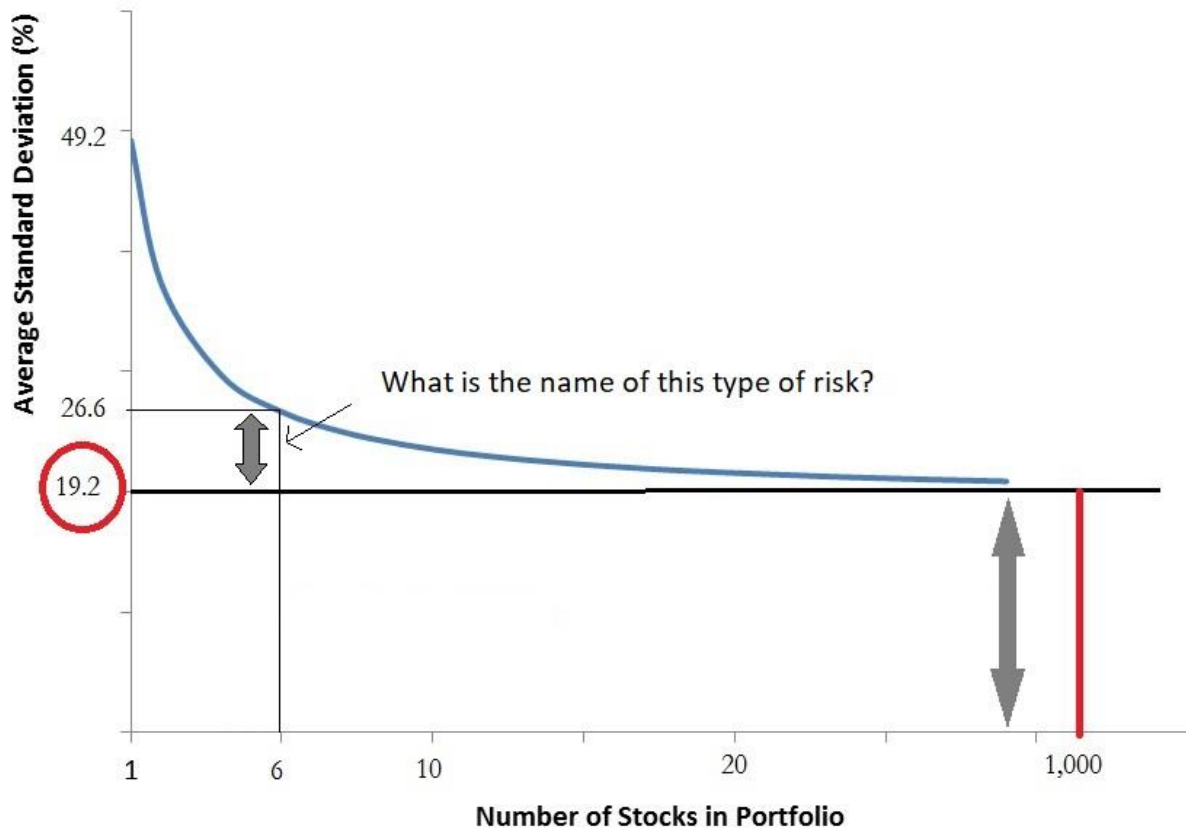
Use the data in the table, below, to answer the question that follows.

	Balanced Fund	Growth Fund	Hedge Fund	Market Portfolio	Risk Free Rate
Return	9.3%	11.0%	11.5%	9.0%	3.0%
Beta	1.18	1.45	1.52	1.00	

- 29 Which fund performed better relative to the Security Market Line?
- A) Balanced
 - B) Growth
 - C) *Hedge
- 30 You own two mutual funds, both of which plot on the security market line. Fund A has an expected return of 20% and a beta of 1.6. Fund B has an expected return of 12% and a beta of 0.8. If your portfolio beta is the same as the market portfolio, what proportion of your portfolio is invested in fund A?
- A) $x_A = 0.20$
 - B) * $x_A = 0.25$
 - C) $x_A = 0.33$
 - D) $x_A = 0.40$
 - E) $x_A = 0.50$



- 31 The graph, above, shows returns on Oscar Mayer Inc. (on the y-axis) and the market portfolio. What is the Beta for Oscar Mayer?
- A) $B = 0.05$
 - B) $B = 0.25$
 - C) $*B = 0.5$
 - D) $B = 1$
 - E) $B = 1.5$



- 32 Look at the graph, above. What is the name for the type of risk highlighted by the arrow?
- A) *Diversifiable risk
 - B) Non-diversifiable risk
 - C) Systematic risk
 - D) Market risk
 - E) Small portfolio risk

	Company 1	Company 1	Company 2	Company 2
Day	Price	# of Shares Outstanding	Price	# of Shares Outstanding
1	6.62	400	10.00	1,500
2	7.53	400	10.54	1,500
3	8.82	400	11.07	1,500

- 33 A popular value-weighted index is constructed out of shares in the two companies, shown in the table below. On Day 1 you construct a portfolio that mimics the index with 15% invested in Company 1 and 85% invested in Company 2. On Day 2, what trades do you need to make in order to adjust your portfolio weights so that your portfolio earns the same return as the index from Day 2 to Day 3?
- A) Sell some of Company 1 and buy more of Company 2
 - B) Buy more of Company 1 and sell some of Company 2
 - C) Buy more of Company 1 and buy more of Company 2
 - D) Sell some of Company 1 and sell some of Company 2
 - E) Make no trades
- 34 Beta is a more relevant measure of risk to an investor with a well-diversified portfolio than to an investor who holds only one stock.
- A) *Tue
 - B) False

3 Formula Sheet

$$PVIF_{n,i} = \frac{1}{(1+i)^n} = (1+i)^{-n}$$

$$i = \left[\frac{FV_n}{PV_0} \right]^{1/n} - 1$$

$$PVIFA_{n,i} = \frac{1}{i} [1 - (1+i)^{-n}]$$

$$PVIFA - Due_{n,i} = \frac{1}{i} [1 - (1+i)^{-n}] (1+i)$$

$$EIR = \left(1 + \frac{i}{m} \right)^m - 1$$

$$\text{Holding Period Return} = \frac{P_t - P_{t-1}}{P_{t-1}} + \frac{D_t}{P_{t-1}}$$

$$P = \sum_{t=1}^{\infty} \frac{D}{(1+k)^t} = \frac{D}{k}$$

$$P = \frac{TP_0(1+g)}{k-g} = \frac{TP_1}{k-g}$$

$$\frac{P_0}{EPS_1} = \frac{\text{Payout Ratio}}{k-g}$$

$$\rho_{ij} = \frac{COV(k_i, k_j)}{\sigma_i \sigma_j}$$

$$COV(\tilde{k}_1, \tilde{k}_2) = \sum_{i=1}^n Pr_i [k_{1i} - E(\tilde{k}_1)] [k_{2i} - E(\tilde{k}_2)]$$

$$E(k_p) = x_1 \cdot E(k_1) + \dots + x_n \cdot E(k_n)$$

$$E(k_1) = \sum_{i=1}^n Pr_i k_{1i}$$

$$T_i = \frac{E(k_i) - k_f}{\beta_i}$$

$$\beta_p = x_1 \cdot \beta_1 + \dots + x_n \cdot \beta_n$$

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

$$n = \frac{\ln \left[\frac{FV_n}{PV_0} \right]}{\ln(1+i)}$$

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

$$FVIFA - Due_{n,i} = \frac{1}{i} [(1+i)^n - 1] (1+i)$$

$$j = \left[1 + \frac{i}{2} \right]^{2/m} - 1$$

$$\text{Holding Period Return} = \frac{P_t - P_{t-1}}{P_{t-1}} + \frac{C_t}{P_{t-1}}$$

$$P = \sum_{t=1}^{\infty} \frac{D_0(1+g)^t}{(1+k)^t} = \frac{D_0(1+g)}{k-g} = \frac{D_1}{k-g}$$

$$k = \frac{D_1}{P_0} + g$$

$$\frac{P_0}{BVPS} = \frac{\text{Price}}{\text{Book value per share}}$$

$$\sigma = \sqrt{\sum_{i=1}^n Pr_i (k_i - E(k))^2}$$

$$\sigma = \sqrt{x^2 \sigma_a^2 + (1-x)^2 \sigma_b^2 + 2x(1-x) \rho_{a,b} \sigma_a \sigma_b}$$

$$E(k_i) = k_f + \beta_i (E(k_M) - k_f)$$

$$\beta_i = \frac{COV(k_i, k_M)}{\sigma_M^2}$$

$$\sigma_i^2 = \beta_i^2 \cdot \sigma_M^2 + \sigma_{di}^2$$