WILFRID LAURIER UNIVERSITY
WATERLOO, ONTARIO

Session: ***Fall 2013 Final Exam***
Course No.: ***BU383***
Title: Financial Management I
Professor(s): W.J. McNally, P. Freire, B. Everitt
Number of pages: 28
Length of examination: 2.5 hours
Examination aids allowed: Calculator (no keyboard), Dictionary (if foreign student)

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, smart phones, 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 models 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.*

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, 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 Sept 2012

ADDITIONAL INSTRUCTIONS

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. UofW students should create a 9-digit number by adding a '0' at the END of their UofW student number.
4. Make sure that you shade the letter 'A' Under "Test Form".

DURING THE EXAM

5. Count the pages to be certain that there are no missing pages. Ask a proctor for a new exam paper if pages are missing.
6. **No** questions concerning possible errors or ambiguities will be answered by the proctors or the Professors during the exam.
7. 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.
8. Students are NOT allowed to speak to one another during the exam or exam collection period.
9. You must sign the identification sheet before leaving.
10. You are not allowed to use your own paper for rough work. Ask a proctor for scrap paper.
11. Closed book. No notes or books are permitted.
12. You are to stop writing immediately upon being told that the exam is over.

AFTER THE EXAM

13. Students may NOT leave the exam hall in the last 15 minutes of the exam.
14. Both the Scantron card and the exam MUST be handed in.
15. At the end of the exam, the proctors will collect the Scantron cards. Please remain seated quietly. When dismissed, place the exam in the containers provided at the front of the exam room.

		# Questions	Marks	Approx. Time
Section 1	Instructions	10	1	
Section 2	Pro Forma	4	4	
Section 3	Ratio Analysis	4	4	
Section 4	Free Cash Flow	3	2	
Section 5	Short-Term Financial	1	2	
Section 6	Cash Budget	3	3	
Section 7	Stock Valuation	6	4	
Section 8	Portfolio Theory	6	7	
Section 9	Futures and Options	8	6	
Section 10	TVM & Financing	3	4	
Section 11	Bonds	5	4	
TOTAL		53	44	150 minutes

1. Exam Instructions

(10 Questions worth 0.10 marks each)

1 Which letter should you shade under “Test Form” on your Scantron card?

A) A

2 Should your shaded student number be left-aligned or right-aligned on the Scantron card?

A) Left-aligned

3 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

4 True or False? I should complete the Scantron card using a pencil.

A) True

5 True or False? If I am confused about an ambiguous exam question, then I can ask the Professor a question.

A) False.

6 If the correct answer appears to be missing from the multiple choices then I should:

A) Select the best available answer.

7 If I finish my exam in the last 15 minutes of the exam period, then:

A) I should wait quietly in my seat until I am dismissed by the proctors.

8 Can students talk during the exam or exam collection period?

A) No

9 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.

10 If you send an email to your Professor after receiving your final grade asking for extra marks, should you expect an answer?

A) No, it will be deleted.

2. Pro Forma

In some questions, the correct answer may not be amongst the multiple choices. For those questions, select the best available answer.

Selected Financial Information Cadbury (£ millions)		
	Year 7	Year 8
PP&E	1,904	1,761
Depreciation		196
CAPEX		53

11 Cadbury plc is a global confectionary company. Cadbury is forecasting its financial statements for Year 9. Selected financial information for Years 7 and 8 is provided in the table. In Year 9 Cadbury is planning to invest £300 million in CAPEX. The average depreciation rate is 10%. What is the forecasted depreciation expense in Year 9?

A) £176
B) *£206
C) £286
D) £300
E) £322

Selected Financial Information Cadbury (£ millions)		
	Year 7	Year 8
Short Term Debt	£ 2,562	£ 1,189
Long Term Debt	2,551	1,973
Interest Expense		153

12 Cadbury plc is a global confectionary company. Cadbury is forecasting its financial statements for Year 9. Selected financial information for Years 7 and 8 is provided in the table. What is the interest expense for Year 9? (Assume that Cadbury's average cost of debt is 3%.)

A) £36
B) £59
C) £63
D) *£95
E) £110

Selected Financial Information Scrumptious Inc. (£ millions)		
	Year 1	Year 2
Property, Plant & Equip.	£1,904	
Depreciation	212	196
CAPEX	45	53

13 Scrumptious Confections plc is a United Kingdom confectionary company. Scrumptious Inc. is forecasting its financial statements for Year 2. Selected financial information for Years 1 and 2 is provided in the table. In Year 2 Scrumptious is planning to invest £53 million in CAPEX and forecasted depreciation is £196 million. What is Property, Plant and Equipment (Net) in Year 2?

A) £831
B) £861
C) £1,411
D) £1,441
E) *£1,761

Selected Financial Information Cadbury plc Year 4 (£ millions)		
	Year 4	Forecast
Revenue	£ 4,022	£5,802
Net Income	£393	£528
TOTAL ASSETS	8,895	10,275
LIABILITIES AND STOCKHOLDERS' EQUITY		
Short Term Debt	1,189	1,189
Accounts payable	1,551	
Total Current Liabilities	2,740	
Long Term Debt	1,973	
Other Liabilities	648	648
Total Liabilities	5,361	
Shareholders' Equity		
Common Stock	1,036	1,036
Retained Earnings	2,498	
Total Shareholders' Equity	3,534	
Total Liabilities & Shareholders' Equity	8,895	

14 Cadbury plc is a global confectionary company. Cadbury is forecasting its financial statements for Year 5. Selected financial information for Year 4 is provided in the table. What is the long term debt, the plug variable, amount for the forecasted year? To forecast accounts payable use the percentage of sales method based on Year 4 figures. Assume that no dividends are paid in Year 5.

A) £1,259
B) £1,397
C) £1,530
D) £2,027
E) *£2,138

3. RATIO ANALYSIS

In some questions, the correct answer may not be amongst the multiple choices. For those questions, select the best available answer.

Selected Financial Information for Apple Inc.		
	2013	2011
Sales	170,910	108,249
Cost of Goods Sold	106,606	64,431
R&D	4,475	2,429
SG&A	10,830	7,599
Net Income	37,037	25,922
Inventory	1,764	776
Accounts Receivable	24,094	13,731
Fixed Assets	16,597	7,777
Total Assets	207,000	116,371
Accounts Payable	36,223	23,879
Owner's Equity	123,549	76,615

Selected Ratios for Apple Inc.		
	2013	2011
ROE		0.34
1+D/E*	1.68	
ROA		0.22
TAT	0.83	
PM		0.24
Days Inventory		4
Days Receivables	51	
Operating Cycle		
Days Payables	124	135
Cash cycle		
Gross Margin		0.40
R&D/Sales	0.03	
SG&A/Sales		0.07
Sales/Net Fixed		13.9
*In Du Pont system, D = Total Liabilities		

15 What is the trend (from 2011 to 2013) in profitability to the owners?

A) Increasing
B) *Decreasing
C) No Change

16 What variable(s) are driving the trend in owners' profitability?

I. Leverage (1+D/E)
II. Net Profit Margin
III. Total Asset Turnover

A. I only
B. II only
C. III only
D. I and II
E. *II and III

17 Which assets are being managed worse over time?

A) Inventory
B) Accounts Receivable
C) Net Fixed Assets
D) *All of the Above

18 Which explanation best explains the change in gross margin from 2011 to 2013?

A) SG&A expenses have increased
B) R&D expenses have increased
C) *In Sept. 2012, after the launch of the iPhone5, Apple dropped the price of the iPhone4 to maintain its market lead in the U.S.
D) Apple sold more laptop computers in 2012, and laptops have higher margins than smartphones and tablets.

4. Free Cash Flow

In some questions, the correct answer may not be amongst the multiple choices. For those questions, select the best available answer.

Selected Financial Information for Blackberry		
	2013	2012
Sales	11,073	18423
Cost of Goods Sold	7639	11856
R&D	1509	1556
SG&A	2111	2600
Depreciation	714	567
Tax Rate*	48.92%	22.86%
Net Income	-646	1164
Cash	2654	1774
Inventory	603	1027
Accounts Receivable	2353	3062
Current Assets	7101	7071
Fixed Assets	2395	2733
Total Assets	13165	13731
Short-term Debt	0	0
Accounts Payable	1064	744
Current Liabilities	3448	3389
Owner's Equity	9460	10100
* Tax Rate can be used as tax refund rate		

19 What was operating cash flow for Blackberry for the year ended Feb 2013?

A) -$402.92
B) -$809.01
C) *-$1,173.72
D) -$1,614.00
E) $1,040.00

20 What was investment in net working capital for Blackberry for the year ended Feb 2013?

A) *$999
B) $3,653
C) -$510
D) -$2,621
E) $900

21 What was CAPEX for Blackberry for the year ended Feb 2013?

A) $1,681
B) -$338
C) $2,019
D) $1,000
E) *$376

5. Short-term Financial Management

In some questions, the correct answer may not be amongst the multiple choices. For those questions, select the best available answer.

22 Which company is likely to have the shortest cash conversion cycle?

A) Loblaws Grocery Stores
B) Hudson's Bay Department Stores
C) Deloitte and Touche Accountants
D) Mattel Inc. (toy company)
E) *Air Canada

6. Cash Budget

In some questions, the correct answer may not be amongst the multiple choices. For those questions, select the best available answer.

The Schwety Confectionery Co. is a UK based manufacturer of chocolate and non-chocolate confectionery, best known for its Schwety Mint Balls. Recent sales (Nov – Dec) and a sales forecast are provided in the top row of the table. Schwety collects 20% of sales in the month of the sale, 40% in the following month, and 40% two months later. Schwety purchases its chocolate and other raw materials one month prior to the expected sales. Its cost of goods sold is 45% of sales. Schwety's pays its suppliers one month after the purchase of raw materials. General and administrative expenses are $3.5M per month. Taxes are $2M per month. The company will have a cash balance of $6M at the start of January. Construct a cash budget for Schwety for the months of January, February, and March and answer the questions that follow.

Schwety Confectionery Co. Sales Forecast and Cash Budget ($000,000s)						
	Nov	**Dec**	**Jan**	**Feb**	**March**	**April**
Sales Forecast	$13.2	$13.6	$12.8	$11.3	$11.6	$10.1
Cash Sales						
Collections from last month						
Collections from 2 months ago	-					
Total Cash Inflows						
Purchases From Suppliers						-
Payments to Suppliers						
General & Admin Expenses			3.50	3.50	3.50	
Taxes			2.00	2.00	2.00	
Total disbursements						
Net Cash Flow						
Beginning cash balance			$6.00			
Plus: Net Cash Flows						
Ending Cash balance		$6.00				

23 What are total cash inflows in January?

A) $11.30
B) $11.72
C) $12.44
D) $12.80
E) *$13.28

24 What are total cash disbursements in February?

A) $7.09
B) $8.59
C) $9.75
D) *$10.59
E) $11.25

25 What is the cash balance at the end of March?

A) $10.90
B) *$11.50
C) $12.70
D) $13.00
E) $13.70

7. Stock Valuation

In some questions, the correct answer may not be amongst the multiple choices. For those questions, select the best available answer.

26 Discraft Inc. is expected to pay an annual dividend of $1 in one year. (Discraft pays its dividends annually.) The dividend is expected to grow at a rate of 3% in perpetuity. Investors require a 12% return on the stock. Estimate the market price of the shares of Discraft in one year's time just before the next dividend is paid.

A) $10.44
B) $11.44
C) $11.94
D) *$12.44
E) $13.44

27 Google shares are trading for $415. Google doesn't currently pay a dividend. Google's EPS this year was $6.85 per share. Most analysts expect that Google will start paying dividends in three year's time and they expect that the first annual dividend will be $8 per share. If the dividends subsequently increase at a constant percentage rate in perpetuity, then what growth rate is currently priced into the stock? Google investors require a 12% rate of return.

A) *10.5%
B) 10.75%
C) 11%
D) 11.25%
E) 11.5%

28 Four Seasons Inc. is expected to pay a dividend of $0.25 per share next year from expected earnings of $10 per share. Dividends and earnings are expected to grow at a constant rate in perpetuity of 3.5%. Investors in Four Seasons expect a 12% rate of return. What is the P/E ratio for Four Seasons (based on forward (next year's) earnings)?

A) *0.29
B) 2.94
C) 3.25
D) 11.47
E) Not Enough Information

29 Motor Homes Inc. (MHI) is presently in a stage of abnormally high growth because of a surge in the demand for motor homes. The company expects earnings and dividends to grow at a rate of 20% for the next 4 years, after which time there will be no growth (g=0) in earnings and dividends. The company's last dividend was $1.50. MHI has a beta of 1.6, the return on the market is currently 12.75%, and the risk-free rate is 4%. What should be the current price per share of common stock?

A) *$15.17
B) $17.28
C) $22.21
D) $19.10
E) $16.20

30 Yesterday, Macallan Corp paid out $1.7308B in dividends and repurchased $4.3983B worth of shares. Macallan has 1.12B shares outstanding and pays all of its dividends and makes its repurchases at the end of each year. Because of the slow-down in the economy, analysts expect that next year Macallan will hold dividend payments constant at yesterday's level and cancel its stock repurchase program. Two years from now, analysts forecast that total payouts will return to the level of yesterday. After that date analysts expect that total payouts will grow at an annual rate of 2% in perpetuity. Assume that investors require a 10% rate of return on Macallan's shares. Which of the following is closest to the Total Payout Model estimate of the stock price today?

A) $58
B) $60
C) $62
D) *$64
E) $66

31 [Warning: This question is quite difficult.] Today is Jan 1. AgriCorn has 300 million shares outstanding and they are trading at $6.44. Last week, AgriCorn Inc. paid out $50 million in dividends and repurchased $100 million worth of shares. Analysts expect AgriCorn's payouts to grow at 3% per annum in perpetuity. The next payouts will occur in approximately one year. The dividends will be paid on Dec 29 and the repurchase will occur on Dec 31. How many shares will AgriCorn repurchase on Dec 31, assuming that it pays the fair price for those shares? Investors require a return of 11%.

	Dividends ($000,000)	Repurchases ($000,000)	Total Payouts
Yesterday	$50	$100	$150
In 1 Year	$51.5	$103	$154.5
In 2 Years	$53.045	$106.09	$159.135

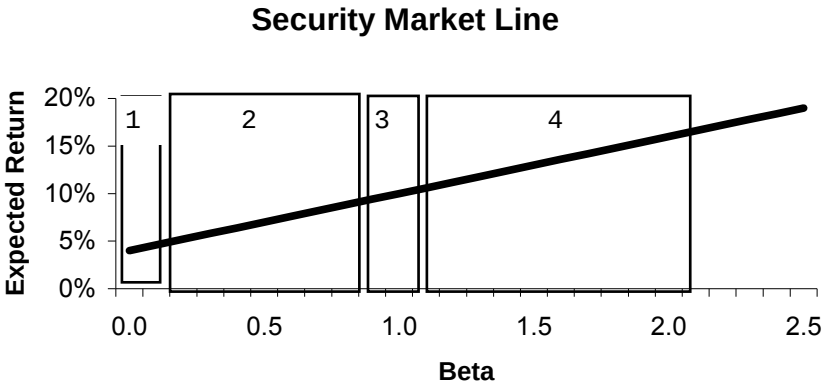
A) 11.994 million
B) 12.769 million
C) 13.994 million
D) *14.769 million
E) 15.994 million

8. Portfolio Theory

In some questions, the correct answer may not be amongst the multiple choices. For those questions, select the best available answer.

32 Horizons BetaSML Funds offer a group of mutual funds that are designed to put investors at various points along the Security Market Line. One of Horizons' products, called the Market Bear Plus Fund, is designed to lose approximately twice as much, on a percentage basis, as any increase in the index when the index rises over a given period. The Bear Plus fund is constructed by shorting market index units (exchange traded funds which mimic the market index) and investing the proceeds in risk free securities. Refer to the SML, drawn below. There are four regions indicated from left to right, region 1, 2, 3 and 4. In which region is the Bear Plus fund positioning investors?

A) 1
B) 2
C) 3
D) 4
E) *None of the above.



33 Horizons BetaSML Funds offer a group of mutual funds that are designed to put investors at various points along the Security Market Line. One of Horizons' products, called the Market Bull Plus Fund, is designed to provide a return that is twice the market index's return. The Bull Plus fund is constructed by borrowing money and then buying market index units (exchange traded funds which mimic the market index). If the cost of borrowing is 4.5% and the expected return on the market is 10%, then what are the portfolio weights for the Horizons Bull Plus fund? (w = the portfolio weight on the market index. The weights in the multiple choices are NOT in percentage form, so w=1 is the same as w=100%.)

A) w =1
B) w=1.82
C) w = 2
D) w=2.5
E) *w=2.82

34 Delilah Jones has a portfolio of stocks A and B. See the table below for details. What is the correlation between the two stocks?

	A	**B**	**Portfolio**
Weights	40%	60%	
Expected Return	15%	20%	
Standard Deviation	20%	22%	11.5169%

A) –1.0
B) *–0.5
C) 0
D) 0.5
E) 1.0

35 You want to buy $20,000 worth of shares in Tootsie Roll Industries Inc. on margin, but you only have $10,000 of your own money to invest. The remaining $10,000 is borrowed by issuing the risk free asset (T-Bills). Tootsie Roll has a beta of 0.75. What is the beta of the portfolio?

A) 0.75
B) 1.25
C) *1.50
D) 1.75
E) 2.00

The table below shows historical data for the Turtle Income fund, the Hare Growth fund, the S&P 500 (Market), and U.S T-Bills.

	Turtle	**Hare**	**Market**	**T-Bills**
Average Return	10%	13%	12%	5%
Std Dev.	8.5%	17.9%	11.9%	0%
Beta	0.7143	1.4	1	0

36 Draw a graph with average returns on the Y-axis and Beta on the X-axis. Plot the risk-free return (T-Bills) and the risk/return combination of the market. Draw in the SML. Plot the two funds on the graph. How do the two funds compare to the SML?

A) *Turtle plots on the line, Hare plots below
B) Hare plots on the line, Turtle plots below
C) Both plot below the line
D) Both plot above the line
E) None of the above

37 Big Brother Holding Co. just paid (yesterday) a dividend of $1. The dividend is paid annually and is expected to grow at a rate of 5% in perpetuity. The current market price of this stock is $10. Big Brother's beta is 1.25, the risk free rate is 3%, and the expected return on the market is 9%. Is the stock overvalued or undervalued at $10?

A) Overvalued
B) *Undervalued
C) Fairly Valued

9. Futures and Options

In some questions, the correct answer may not be amongst the multiple choices. For those questions, select the best available answer.

Pulte Homes, Inc., (NYSE: PHM), based in Bloomfield Hills, Mich., is a FORTUNE 150 company with operations in 27 states. In 2012, the company delivered 45,630 homes in the U.S. and generated consolidated revenues of $14.7 billion.

To hedge the price risk associated with one of its major inputs, Pulte uses lumber futures contracts which trade on the Chicago Mercantile Exchange (CME). The CME Random Length Lumber futures contract calls for delivery of 110,000 board feet (110 MBF) of random length 8-foot to 20-foot nominal 2-inch x 4-inch pieces. (1 MBF is 1,000 board feet of lumber.) The deliverable species are: Western Spruce, Pine, and Fir. The acceptable grades are #1 and #2 of the structural light framing category. Wood must be kiln dried to a moisture level of 19 percent. Lumber of each length, must be banded together, poly or paper wrapped and loaded on one 73' flatcar. The initial margin (per contract) is $1,600 and the maintenance margin is $1,000.

In October of last year, Pulte bought 100 CME lumber contracts for March delivery at a futures price of $300 per MBF. It is now the first week of March and the cash price for lumber is $263 per MBF. Today's futures prices are quoted in the table below.

Expiry Month	Futures Price $0.00/MBF	VOL	Open Interest
March	262.50	900	4000
May	278.70	146	416
July	283.00	2	26

39 How can Pulte complete its futures trade?

I. Sell the 100 CME contracts that they purchased in Oct.
II. At maturity take delivery of the lumber
III. Enter into a short position in 100 CME March lumber contracts.
IV. Buy 100 CME May lumber contracts.

A) I or II
B) *II or III
C) I only
D) II only
E) IV only

40 If Pulte completes its position today by executing an offset (reversing) trade, then what are its cumulative profits on the futures position?

A) *-$412,500
B) $412,500
C) -$3,750
D) $3,750

41 Armand Hammer is the risk manager at Pulte. Armand took a long position in 100 contracts last October at a futures price of $300. He made the minimum initial margin deposit of $160,000. On Feb 6, the futures price was $305/MBF and the balance in his trading account was $215,000. On Feb 7, a NAFTA Chapter 19 adjudication panel announced that U.S. tariffs on Canadian softwood lumber were a violation of NAFTA and must be reduced. The U.S. Department of Commerce issued a press release announcing that it would obey the ruling. The anticipated increase in lumber supply caused futures prices to fall to $280/MBF. Armand received a margin call from his broker. How much must Armand deposit into his trading account?

A) $100,000
B) $150,000
C) $160,000
D) *$165,000
E) $275,000

Apple Inc.

Stock: AAPL: NASDAQ
Stock Price: **477.05**
Volume: **5,453,332**
Contract Expiry: November

Calls				**Puts**		
Premium	Vol	Op Int	Strike	Premium	Vol	Op Int
			410	0.700	10	4,840
			420	0.800	55	4,042
			430	1.200	83	6,205
38.600	45	3,741	440	1.950	40	4,814
30.100	150	5,632	450	3.100	267	6,983
22.100	187	5,010	460	5.100	150	4,598
15.500	2,356	9,365	470	8.100	613	7,498
10.300	986	10,128	480	12.700	371	3,375
6.500	482	9,327	490	19.700	56	2,064
0.450	176	5,136	500			

42 Refer to the table of Apple stock option prices. Which of the following options are "in-the-money"?

I. The $440 Call.
II. The $490 Call.
III. The $410 Put.
IV. The $490 Put.

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

43 What is the intrinsic value of the $490 Call?

A) *$0
B) $6.45
C) $6.50
D) -$12.95
E) $12.95

44 What is the time premium of the $480 Put?

A) $0
B) $2.95
C) $7.35
D) *$9.75
E) $12.70

45 If you purchased the $490 Call today, then how high would the price of Apple's shares have rise in order for you to break even and earn $0 of profit on the call option?

A) $483.50
B) $490
C) *$496.5
D) $509.70

46 If you wrote a $480 Put during the summer when the stock price was $500 and the put premium was $6.00 (per share). The stock price has fallen almost consistently since and you fear that it will continue to fall. You have decided to execute an offset trade to close out your short position. What is your profit (per share)?

A) -$12.70
B) *-$6.70
C) -$6.00
D) $6.70
E) $12.70

10. Time Value of Money

In some questions, the correct answer may not be amongst the multiple choices. For those questions, select the best available answer.

47 You plan to retire at age 65. You want to withdraw $100,000 from your savings account every year starting on your 65th birthday. You expect to you earn 3% on your savings in retirement. Today is your 26th birthday. You wish to make equal annual deposits into your savings account on your birthdays (starting today) and continuing until your 65th birthday. How much must you deposit each year if you earn 5% on your investments?

A) *$12,685.29
B) $9,023.99
C) $13,143.63
D) $12,213.20
E) $12,315.81

48 You just took out a $12,000 loan for your small business. The loan has a three year term and repayment is in the form of three equal end–of–year payments of $4,953.316. The interest rate on the loan is 11.5%. Consider the final loan payment. How much principal do you pay in the final payment?

A) $4,292.44
B) $4,342.22
C) $4,392.44
D) *$4,442,44
E) $4,492.44

One year ago you signed a 4 year lease on a Honda Civic. The sticker price on the car was $21,000, you made no downpayment, the lease rate was 4%, and the monthly payments (starting at the time of signing) were $263.12. The buyout was $10,920 due at the end of the lease term. Now (one year after signing the lease but just before the 13th lease payment) Honda has just released the new Civic. You want to get out of your lease on the old Civic and lease one of the new ones. To escape from your lease, Honda Canada Finance will require you to pay the difference between the amount of principal that you repaid over the first year and the amount that the vehicle has depreciated in value. For example, if you paid $2,000 of principal over the first year, but the vehicle actually depreciated by $2,500, then you would pay the difference of $500. Assume that the civic depreciates on a straight-line basis from its purchase price to the buyout price.

49 What is the size of the payment that you must make to Honda Canada Finance (just before the 13th lease payment)?

A) $119.17
B) *$148.88
C) $202.56
D) $256.72
E) $298.34

11. Bonds

In some questions, the correct answer may not be amongst the multiple choices. For those questions, select the best available answer.

50 Consider a two year coupon bond issued today with a face value of $1,000 and a 6% coupon rate. Suppose that yields on zero coupon bonds with terms one and two are 6% and 7% respectively. What is your best estimate of the price of the bond next year after the first coupon?

A) *$981.40
B) $982.45
C) $985.25
D) $992.50
E) $962.25

51 Consider a Sears zero coupon bond and a Government of Canada zero coupon bond both maturing in ten years. The current yield to maturity on the Sears bond is 5.3% compared to the Gov't bond yield of 4.5%. The higher yield on the Sears bond reflects Sear's higher probability of default. Historically, the difference between the yields of the two bonds has been 1.2%. This difference is called the "yield spread." Today the yield spread is only 0.8%. You expect that the yield spread will widen back to its historic value over the next few days. Assume that both yields will change equally to bring the spread back to its historic position and assume that the mid-point of the spread will stay where it is. What are the anticipated price changes for the two bonds?

A) *Sears -$11.21, Canada +$12.45
B) Sears +$11.21, Canada -$12.45
C) Sears +$11.21, Canada +$12.45
D) Sears -$11.21, Canada -$12.45

52 You have just purchased a 15-year, $1,000 par value US Government bond for $909.20. The yield to maturity on the bond is 8.6%. What is the coupon rate?

A) 8.6%
B) 15.0%
C) 7.0%
D) 9.0%
E) *7.5%

53 The current spot rate on bonds with maturity of 4 years is 1%. If bonds with a maturity of 5 years have a spot rate of 1.5% then what is the implied one-year forward rate that starts in 4 years?

A) *3.5%
B) 3.7%
C) 2.2%
D) 3.2%
E) 2.7%

54 Which of the following is a correct statement?

A) The roll-over has interest rate risk. The lock-in has re-investment rate risk.
B) *The roll-over has re-investment rate risk. The lock-in has interest rate risk.
C) Only long-term bond holders, who hold to maturity, are faced with interest rate risk.
D) Re-investment rate risk is the risk that the coupon-re-investment rate is different from the yield to maturity.

12. Final Exam Formula Sheet

$PVIF_{n,i} = \frac{1}{(1+i)^n} = (1+i)^{-n}$	$FVIF_{n,i} = (1+i)^n$
$i = \left[\frac{FV_n}{PV_0}\right]^{1/n} - 1$	$n = \frac{ln\left[\frac{FV_n}{PV_0}\right]}{\ln(1+i)}$
$PVIFA_{n,i} = \frac{1}{i}\left[1-(1+i)^{-n}\right]$	$FVIFA_{n,i} = \frac{1}{i}\left[(1+i)^n - 1\right]$
$PVIFA\text{-}Due_{n,i} = \frac{1}{i}\left[1-(1+i)^{-n}\right](1+i)$	$FVIFA\text{-}Due_{n,i} = \frac{1}{i}\left[(1+i)^n - 1\right](1+i)$
$PV = FVe^{-in}$	$f_t = \frac{(1+k_t)^t}{(1+k_{t-1})^{t-1}} - 1$
$EIR = \left(1+\frac{i}{m}\right)^m - 1$	$j = \left[1+\frac{i}{2}\right]^{2/m} - 1$
$i_{EIR} = \left[1+\left(\frac{Interest+Fees-Savings}{Net\ Amount\ Borrowed}\right)\right]^{365/Days\ to\ maturity} - 1$	
NAB ≠ Principal for front-end fees, discount interest and compensating balance.	
$\text{Bond Equivalent Yield} = \frac{\text{FV - Price}}{\text{Price}} \cdot \frac{365}{\text{Term}}$	$k_n = k_r + \pi + k_r\pi$
$YTM = k_r + INF + MRP + LRP + DRP$	$P_{bond} = \frac{C}{(1+k_1)} + \frac{C+FV}{(1+k_2)^2}$
$P_{zero} = \frac{\$FV_n}{(1+i_n)^n}$	$P_{bond} = \$C \cdot \frac{1}{k_d}\left[1-(1+k_d)^{-n}\right] + \frac{\$FV}{(1+k_d)^n}$
$\text{Holding Period Return} = \frac{P_t - P_{t-1}}{P_{t-1}} + \frac{D_t}{P_{t-1}}$	$\text{Holding Period Return} = \frac{P_t - P_{t-1}}{P_{t-1}} + \frac{C_t}{P_{t-1}}$
$P = \sum_{t=1}^{\infty} \frac{D}{(1+k)^t} = \frac{D}{k}$	$P = \sum_{t=1}^{\infty} \frac{D_0(1+g)^t}{(1+k)^t} = \frac{D_0(1+g)}{k-g} = \frac{D_1}{k-g}$
$P = \frac{TP_0(1+g)}{k-g} = \frac{TP_1}{k-g}$	$k = \frac{D_1}{P_0} + g$
$\frac{P_o}{EPS_1} = \frac{\text{Payout Ratio}}{k-g}$	$\frac{P_o}{BVPS} = \frac{\text{Price}}{\text{Book value per share}}$
$\rho_{ij} = \frac{COV(k_i, k_j)}{\sigma_i \sigma_j}$	$E = mc^2$

$COV(\tilde{k}_1, \tilde{k}_2) = \sum_{i=1}^{n} Pr_i \left[k_{1i} - E(\tilde{k}_1)\right]\left[k_{2i} - E(\tilde{k}_2)\right]$	$\sigma = \sqrt{\sum_{i=1}^{n} Pr_i (k_i - E(k))^2}$
$E(k_p) = x_1 \cdot E(k_1) + \ldots + x_n \cdot E(k_n)$	$\sigma = \sqrt{x^2\sigma_a^2 + (1-x)^2\sigma_b^2 + 2x(1-x)\rho_{a,b}\sigma_a\sigma_b}$
$E(k_1) = \sum_{i=1}^{n} Pr_i k_{1i}$	$E(k_i) = k_f + \beta_i (E(k_M) - k_f)$

$T_i = \frac{E(k_i) - k_f}{\beta_i}$	$\beta_i = \frac{COV(k_i, k_M)}{\sigma_M^2}$
$\beta_p = x_1 \cdot \beta_1 + \ldots + x_n \cdot \beta_n$	$\sigma_i^2 = \beta_i^2 \cdot \sigma_M^2 + \sigma_{di}^2$.

Free Cash Flow = Operating Cash Flow – CAPEX – Change in NWC	
NWC = Current Assets – Current Liabilities	
NWC = (Current Assets – Cash) – (Current Liabilities – Short-term Debt)	
Total Debt = Short-term Debt + Long-term Debt	
Current ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$
Quick ratio	$\frac{\text{Current assets - Inventory}}{\text{Current liabilities}}$
Inventory turnover	$\frac{\text{Cost of goods sold}}{\text{Inventory}}$
# Days Inventory (Days' sales in inventory)	$\frac{\text{Inventory}}{\text{COGS}} * 365$
Receivables turnover	$\frac{\text{Sales}}{\text{Accounts receivable}}$
# Days Receivable (Days' sales in receivables)	$\frac{\text{Accounts Receivable}}{\text{Sales}} * 365$
# Days Payable (Days' Payables)	$\frac{\text{AccountsPayable}}{\text{COGS}} * 365$
NWC to Total Capital	$\frac{\text{NWC}}{\text{Total Assets - Current Liabs.}}$
Fixed asset turnover	$\frac{\text{Sales}}{\text{Net fixed assets}}$

Total asset turnover	$\frac{\text{Sales}}{\text{Total assets}}$
Debt ratio	$\frac{\text{Total Liabilities}}{\text{Total assets}}$
Debt/equity ratio	Total Liabilities/Total equity
Equity multiplier	Total assets/Total equity
Times interest earned	$\frac{\text{EBIT}}{\text{Interest}}$
Cash Flow to Debt	$\frac{\text{Cash Flow}}{\text{Total Debt}} = \frac{\text{Net Income} + \text{Depreciation}}{\text{Short-term} + \text{Long-term Debt}}$
Asset Coverage (Collateral Ratio)	$\frac{\text{Long-term Tangible Assets}}{\text{Short-term} + \text{Long-term Debt}}$
Net Profit margin	$\frac{\text{Net income}}{\text{Sales}}$
Gross Margin	$\frac{\text{Sales - Cost of Goods Sold}}{\text{Sales}}$
Return on assets (ROA)	$\frac{\text{Net income}}{\text{Total assets}}$
Return on equity (ROE)	$\frac{\text{Net income}}{\text{Total equity}}$
Price/earning ratio	$\frac{\text{Price per share}}{\text{Earnings per share}}$
Market-to-book ratio	$\frac{\text{Market value per share}}{\text{Book value per share}}$
Dividend Payout	$\frac{\text{Dividends}}{\text{Net Income}}$
Dividend Yield	$\frac{\text{Dividends per share}}{\text{Market price per share}}$
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization

ROE = ROA x [1 + D/E]
[1 + D/E] = Total Assets/Owner's Equity
D = Total Assets – Owner's Equity = Total Liabilities
ROA = Net Profit Margin x Total Asset Turnover

Operating Cycle = Days Inventory + Days Receivables	
Cash Cycle = Operating Cycle - Days Payables	
$Net_t = Net_{t-1} + CAPEX_t - Depr_t$	