

**Finance 401
Final exam
April 22nd, 2013
Version A**

Student Name _____

Student Number _____

Instructor's Name _____

The exam contains 52 multiple choice questions. The first 50 questions are worth 1 mark each. Therefore the exam is out of 50.

Questions 51 asks about who your finance 401 instructor was. Question 52 asks what version of the exam you are writing. There are no marks given for Questions 51 and 52.

You have 3 hours to complete the final.

If you believe that the correct answer is not one of the available choices you should choose the best answer available. For the numerical questions this means choosing the answer that is closest to the correct answer.

You may use 1 assistance sheet. It can be no larger than 8.5 inches by 11 inches. You may use both sides of the assistance sheet. The assistance sheet may be handwritten or typed.

Only the scantron sheet will be graded.

Students may use a financial calculator.

Problem 1. Happy Monkey Inc. (HMI) has announced a rights offer to raise \$20 million in order to develop a new stuffed toy. HMI's stock currently sells for \$50 per share and there are 5,312,500 shares outstanding. The subscription price has been set at \$32 per share. What is the ex-rights price?

- a) \$33.89
- b) **\$48.11**
- c) \$48.74
- d) \$51.26
- e) none of the above

$$\text{Number of shares to be issued} = \$20\text{m}/32 = 625,000$$

$$N = 5,312,500/625,000 = 8.5$$

$$\text{Ex-rights price} = ((8.5)(50) + 32)/(8.5+1) = 48.11$$

Problem 2. Two firms, X and Y, have each announced IPOs at \$100 per share. One of these is undervalued by \$15 and the other is overvalued by \$8, but you have no way of knowing which is which. You plan on buying 2,000 shares of each issue. If an issue is underpriced, it will be rationed, and only 25% of your order will be filled. What is your expected profit?

- a) **-\$8,500**
- b) -\$5,000
- c) zero
- d) \$1,000
- e) \$14,000

$$\text{Profit} = 2,000(0.25)(15) - 2000(8) = -\$8,500$$

Problem 3. TVC Inc. would like to issue 10,000 new shares via a Dutch Auction. The company receives the bids in the table below. At what price will all of the shares be sold?

Bidder	Quantity	Price
A	2,500 shares	\$20
B	500 shares	\$22
C	4,500 shares	\$21
D	2,000 shares	\$23
E	1,000 shares	\$19
F	1,000 shares	\$18

- A) \$18
- B) \$19**
- C) \$20
- D) \$21
- E) \$23

All shares will be sold at \$19.

Problem 4. During the _____, the underwriting group agrees not to sell securities for less than the offering price until the syndicate dissolves?

- a) Quiet Period
- b) Lockup Period
- c) **Selling Period**
- d) Oversubscription Period
- e) None of the above

Problem 5. Which of the following is/are (an) advantage(s) of issuing public debt?

- I It avoids a costly and time-consuming reporting process
 - II It avoids a costly issuing process
 - III Leverage ratios of the firm are not affected.
- a) I only
 - b) II only
 - c) III only
 - d) All are advantages of issuing public debt
 - e) **None of the above are advantages of issuing public debt**

Problem 6. Classy Candle Corp (CCC) will issue an IPO of 50,000 shares with MoneyMaker Inc., the underwriter, via a firm commitment at \$40 per share. MoneyMaker charges a \$2 per share fee for shares sold on a best-efforts basis. What will MoneyMaker's profit/loss be if CCC's stock sells for \$29 on the open market and only 75% of the IPO is subscribed?

- a) **-\$912,500**
- b) -\$837,500
- c) -\$412,500
- d) \$1,425,000
- e) \$2,000,000

$$\text{MoneyMaker's profit} = (50,000)(0.75)(29) - (50,000)(40) = -\$912,500$$

Please use the following information to answer the next TWO problems.

The shareholders of Fantastic Frames Inc (FFI) have voted in favour of a buyout offer from the Heavenly Home Décor (HHD). Information about each firm is given here:

	FFI	HHD
P/E Ratio	4.8	16
Shares Outstanding	75,000	240,000
Earnings	250,000	600,000

FFI's shareholders will receive two shares of HHD stock for every three shares they hold in FFI.

Problem 7. What will be the price per share of the combined firm assuming the market is fooled by the growth in EPS?

- a) \$14.09
- b) \$46.90**
- c) \$50.00
- d) \$56.67
- e) None of the above

Number of new shares issued to FFI = $75,000(2/3) = 50,000$

Market fooled, assume P/E constant at 16:

$$16 = \text{Price}/\text{EPS}$$

$$16 = \text{Price}/[(600,000+250,00)/(240,000+50,000)]$$

$$16 = \text{Price}/2.931$$

$$\text{Price} = \$46.90$$

Problem 8. What will be the new P/E ratio of the combined firm if the NPV of the acquisition is zero and the market knows it?

- a) 9
- b) 11.3
- c) 13.6**
- d) 19.2
- e) None of the above

Zero NPV \rightarrow price of HHD stays constant.

Old HHD price:

$$\text{P/E ratio} = \text{Price}/\text{EPS}$$

$$16 = \text{Price}/(600,000/240,000)$$

$$\text{Price} = \$40$$

$$\text{New P/E ratio} = 40/(850,000/290,000) = 13.6$$

Problem 9. Consider the following premerger information about a bidding firm (Firm Bidder) and a target firm (Firm Target). Assume that both firms have no debt outstanding. Suppose that synergies are \$30,000. Suppose that Firm B offers to pay Firm T's shareholders \$44 in cash for each of their shares.

	Firm B (Bidder)	Firm T (Target)
Shares Outstanding	8,000	6,000
Price per Share	\$50	\$40
Earnings	1,000	1,000

What is the NPV of the acquisition for Firm B?

- a) -\$12,000
- b) zero
- c) \$24,000
- d) \$18,000

e) **\$6,000**

$$NPV = V_B^* - \text{cash cost} = (\$40)(6,000) + 30,000 - (\$44)(6,000) = \$6,000$$

Problem 10. Firm B is going to acquire Firm T. The acquisition will be done via a share exchange. Firm B will exchange two of its shares for every one of Firm T's shares. Synergy is \$260,000

	Firm B (Bidder)	Firm T (Target)
Shares Outstanding	80,000	24,000
Price per Share	\$15	\$25
Earnings	100,000	60,000

What is the takeover premium that has been paid to Firm T?

- a) \$215,000
- b) zero
- c) **\$172,500**
- d) \$87,500
- e) \$260,000

$$\text{New shares issued to Target} = 24,000(2) = 48,000 \text{ shares}$$

$$V_{BT} = V_B + V_T + \text{Synergy} = (\$15)(80,000) + (\$25)(24,000) + 260,000 = \$2.060m$$

$$\text{Price per share} = V_{BT} / \text{new number of shares outstanding} = 2.060m / (80,000 + 48,000) = 16.0938$$

$$\text{Premium} = (16.0938)(48,000) - (\$25)(24,000) = \$172,500$$

Please use the following information to answer the next TWO problems.

Company ABC and XYZ are 100% equity-financed. Company ABC can acquire firm XYZ for \$1.5 million in the form of either cash or stock. The synergy value of the deal is \$150,000. You have been provided with the following information:

	ABC	XYZ
Market Price per share	\$125	\$50
Shares Outstanding	50,000	25,000
Earnings	250,000	600,000

Problem 11. What is the value of the post-merger firm if ABC acquires XYZ by cash?

- a) \$5,950,000
- b) **\$6,150,000**
- c) \$6,450,000
- d) \$7,650,000
- e) None of the above

$$V_{COMBINED} = V_{ABC} + NPV = (\$125)(50,000) + [(\$50)(25,000) + 150,000 - 1.5m] = \$6.15m$$

Problem 12. What will be the price per share post-merger if ABC acquires XYZ by stock?

- a. \$99.19
- b. \$102.00
- c. \$123.39**
- d. \$128.23
- e. None of the above

$$V_{COMBINED} = V_{ABC} + V_{XYZ} + Synergy = (\$125)(50,000) + (\$50)(25,000) + 150,000 = \$7.65m$$

$$New\ shares\ given\ to\ XYZ = 1.5m/125 = 12,000$$

$$Price\ per\ share = 7.65m/(50,000+12,000) = 123.39$$

Problem 13. _____ acquisitions are those where the two firms are at different stages in the production process, _____ acquisitions are those where both firms are in the same industry, and _____ acquisitions are those where the two firms are unrelated.

- a) Conglomerate, horizontal, vertical
- b) Horizontal, vertical, consolidation
- c) Consolidation, vertical, horizontal
- d) Vertical, horizontal, conglomerate**
- e) Vertical, conglomerate, horizontal

Problem 14. Imagine you are a shareholder in a firm facing a hostile takeover attempt by another firm. Which of the following strategies could be used to ward off the attempt?

- I Poison Pill
 - II Golden Parachute
 - III Shareholder Rights Plan
 - IV Leveraged Buyout
- a) I and II only
 - b) II and IV only
 - c) I, II and III only
 - d) I, II and IV only
 - e) All of the above can be effective strategies to deter hostile takeover attempts**

Problem 15. Delta Inc. has 420,000 shares outstanding at a market price of \$33.00 a share. If the company declares a 3 for 2 stock split, they will have _____ shares outstanding at a market price of:

- a) 280,000; \$49.50
- b) 630,000; \$49.50
- c) 630,000; \$22.00**
- d) 280,000; \$33.00
- e) 280,000; \$22.00

$New\ number\ shares\ outstanding = 420,000(3/2) = 630,000$

$Price\ per\ share = \$33(2/3) = \22

Problem 16. HiLo Enterprises maintains a debt-equity ratio of 0.75 and follows a strict residual dividend policy. The firm needs \$2,000 for new investments next year. The after-tax earnings this year are \$1,800. What is the amount that HiLo will pay out in dividends for this year?

- a) \$1,142.86
- b) \$0
- c) \$300.00
- d) \$1,300.00
- e) **\$657.14**

$D/E = 0.75 = 3/4 \rightarrow w_E = 4/7$

$Equity\ portion\ of\ investment = (4/7)(2,000) = 1,142.86$

$Dividend = \max(Earnings - Equity\ portion, 0) = \max(1,800 - 1,142.86, 0) = \657.14

Problem 17. Monique grows and exports cocoa. Her crop was partially ruined in a storm, so she needs to purchase 20 tons of cocoa in three months to meet her prior contractual obligations. Monique wants to hedge against price changes. Each futures contract is for 10 metric tons. The current quote for the contract is 1,447 per ton. Monique should _____
2 futures contracts with a total value of _____?

- a) Sell; \$28,940
- b) Buy; \$14,470
- c) **Buy; \$28,940**
- d) Sell; \$289,400
- e) Buy; \$289,400

Worried about price increasing \rightarrow long position in futures \rightarrow buy

$Contract\ value = (\#\ contracts)(contract\ size)(futures\ price) = (2)(10)(1447) = \$28,940$

Problem 18. For the past four years Doodle Dee has paid quarterly dividends of \$0.25 per share. The company has just announced that dividends are being increased by 8%. As a result, the market price of Doodle Dee stock has increased. The increase in the stock price is generally attributed to the:

- a) Change in the dividend policy
- b) Residual effect of the dividend
- c) Reinvestment of the dividend amount
- d) **Information content of the dividend**
- e) Increase in the current dividend amount

Problem 19. You purchased a call option for \$3.50. The call option has an exercise price of \$13.25. At expiry the stock price is \$21.45. What is your profit/loss?

- a) -\$3.50
- b) \$8.20
- c) **\$4.70**

- d) \$1.20
- e) \$16.75

$$\text{Profit} = \max(S - E, 0) - P = \max(21.45 - 13.25, 0) - 3.50 = \$4.70$$

Use the following information to answer the next FOUR questions.

A share of XYZ Corp. is currently trading for \$7.00. The stock does not pay any dividends. A European call option with a maturity of 6 months and a strike price of \$8.00 is trading for \$0.75, while the corresponding put is trading for \$1.50.

Problem 20. You are long 2 call options and long 1 put option. If the stock price at maturity is \$8.00 what is your profit?

- a) \$0.00
- b) -\$1.50
- c) **-\$3.00**
- d) -\$2.25
- e) None of the above

Call options:

$$\text{Profit} = 2[\max(S - E, 0) - P] = 2[\max(8 - 8, 0) - 0.75] = -1.50$$

Put options:

$$\text{Profit} = \max(E - S, 0) - P = \max(8 - 8, 0) - 1.50 = -1.50$$

$$\text{Total profit} = -1.50 - 1.50 = -3.00$$

Problem 21. The call option is out of the money when:

- a) The stock price is greater than \$8.00
- b) The stock price is less than \$7.00
- c) **The stock price is less than \$8.00**
- d) The stock price is greater than \$7.00
- e) None of the above

Problem 22. A short position in the put option will yield a positive profit at maturity when:

- a) The stock price at maturity is less than \$7.25
- b) **The stock price at maturity is greater than \$6.50**
- c) The stock price at maturity is greater than \$8.75
- d) The stock price at maturity is less than \$6.50
- e) None of the above

$$\text{Profit} = P - \max(E - S, 0)$$

$$0 = 1.50 - \max(8 - S, 0)$$

$$\text{Max}(8 - S, 0) = 1.50$$

$$S = 6.50$$

Problem 23. What is the intrinsic value and time value of the put option?

- a) \$0.50 and \$1.00 respectively
- b) \$0.75 and \$0.00 respectively
- c) \$1.00 and \$0.50 respectively
- d) \$0.00 and \$0.75 respectively
- e) None of the above

$$\text{Intrinsic value} = \max(E - S, 0) = \max(8 - 7, 0) = 1$$

$$\text{Time value} = \text{Option value} - \text{intrinsic value} = 1.50 - 1 = 0.50$$

Problem 24. In order to ensure that CEOs act in shareholders' interest company should:

- I tie CEO compensation to shareholder value
 - II companies should be able, and should, replace CEOs who do a poor job
 - III CEO should be given tenure, cannot be fired
- a) I only
 - b) II only
 - c) **I and II only**
 - d) II and III only
 - e) I, II and III

Problem 25. Martin Enterprises sells motors homes and campers and currently has an after-tax cost of capital of 7%. Nagle's sells off-road dirt bikes and has an after-tax cost of capital of 13%. Martin Enterprises is considering adding dirt bikes as part of its sales lineup. It estimates that sales from these bikes could become 10% of its overall sales. The initial cash outlay for this project is \$50,000. The expected net cash inflows are \$8,000 a year for nine years. What is the net present value of this project to Martin Enterprises?

- a) **-\$8,946.76**
- b) \$2,121.86
- c) \$2,886.02
- d) -\$1,007.07
- e) -\$12,003.66

$$NPV = -50,000 + PVA(8,000, 13\%, 9 \text{ years}) = -8,946.76$$

Problem 26. Executive Stock Options are frequently part of a CEO's compensation package. What are the two of the reasons that firms use ESOs.

- I align interests of CEO with shareholders
 - II dilute shareholder value
 - III unlike cash compensation, ESOs involve no immediate cash outflows
- a) III only
 - b) **I and III only**
 - c) II and III only
 - d) I and II only
 - e) II only

Problem 27. Chase Manufacturers has a risk profile that shows the firm adding value when sudden price fluctuations move upward and losing value when the price fluctuations move downward. If the company hedged its financial risk by purchasing a put option then the company would most likely _____ value when prices rose and _____ when prices fell.

- a) **Add; maintain**
- b) Add; add
- c) Add; lose
- d) Maintain, maintain
- e) Maintain, add

Problem 28. Mountain Top Inc., mines iron ore. The company offsets its financial risk with futures contracts on copper. The company is reducing its risk using the concept of:

- a) Commodity swapping
- b) **Cross-hedging**
- c) Option-hedging
- d) Marking-to-market
- e) Forward swapping

Problem 29. Which of the following support a low-dividend policy?

- I. A tax policy wherein the individual tax rate on dividends is greater than the tax rate on capital gains.
 - II. Uncertainty about the future financial stability of the issuer
 - III. Pension Plans own the majority of the outstanding stock
 - IV. Corporate Investors own the majority of the outstanding shares
- a) II, III and IV only
 - b) **I only**
 - c) I, II and IV only
 - d) II and IV only
 - e) I and III only

Problem 30. Mitch sold 10 futures contracts on copper at a price of \$0.8063 per pound. Contracts on copper are set at 25,000 pounds. What is the amount of Mitch's profit or loss if the price on the maturity date is \$0.8104?

- a) -\$410.00
- b) \$102.50
- c) \$1,025.00
- d) -\$102.50
- e) **-\$1,025.00**

$$\text{Profit} = (10)(25,000)(0.8063 - 0.8104) = -\$1,025$$

Problem 31. A \$1,000 face value 7% convertible bond pays interest semi-annually and has a maturity date of five years. The conversion price is \$40. The yield to maturity on nonconvertible bonds of comparable quality is 8%. The market price of the common stock is \$38.50 currently. What is the minimum price at which the convertible bond should sell?

- a) \$1,000.00
- b) \$1,037.50
- c) \$959.45
- d) \$962.50**
- e) \$948.26

SBV: $N = 10, I = 4\%, PMT = 35, FV = 1,000 \rightarrow PV = \959.45

Conversion value = $(1000/40)(\$38.50) = 962.50$

Minimum price = $\max(\text{SBV}, \text{conversion value}) = \max(959.45, 962.50) = \962.50

Problem 32. A company has sales of \$80,000, costs of \$48,000 and CCA of \$20,000 in the first year. The tax rate is 34%. Which one of the following is the correct method of computing the operating cash flow in the first year, using the tax shield approach?

- a) $(\$80,000 - \$48,000 - \$20,000) - (\$80,000 - \$48,000 - \$20,000)(0.34)$
- b) $(\$80,000 - \$48,000 - \$20,000) - (\$80,000 - \$48,000 - \$20,000)(1 - 0.34)$
- c) $(\$80,000 - \$48,000 - \$20,000) + (\$20,000)(0.34)$
- d) $\$80,000 - \$48,000 - (\$80,000 - \$48,000 - \$20,000)(0.34)$**
- e) $(\$80,000 - \$48,000)(.34) + (\$20,000)(1 - 0.34)$

Use the following information to answer the next THREE questions.

Homer Inc. is expected to pay dividends of \$100 per share at the end of one year and \$100 per share at the end of the second year. The dividend in the second year is a liquidating dividend and the firm will cease to exist. Investors require a 12% return on investments of this type. There are 100 shares outstanding. The firm is considering an alternate dividend policy that will pay out \$120 in dividends per share the first year. Under the alternative plan, any shortfall in funds will be raised by selling new equity. There are no taxes, no transaction costs, and there are no other market imperfections.

Problem 33. What will be Homer's stock price once the alternate dividend plan is adopted?

- a) \$169.01**
- b) \$164.26
- c) \$172.54
- d) \$176.24
- e) \$167.73

$N = 2, I = 12, PMT = 100 \rightarrow \text{compute } PV = 169.01$

Problem 34. Under the alternate dividend plan, what will Homer pay to the old shareholders as a dividend in year 2?

- a) \$78.20
- b) \$81.50
- c) \$77.61**
- d) \$75.25
- e) \$80.00

Let second dividend be X

$$169.01 = 120/1.12 + X/(1.12^2)$$

$$X = \$77.61$$

Problem 35. What is Homer's stock price before the alternate dividend plan is adopted?

- a) **\$169.01**
- b) \$176.24
- c) \$167.73
- d) \$164.26
- e) \$172.54

$$N = 2, I = 12, PMT = 100 \rightarrow \text{compute } PV = 169.01$$

Problem 36. Several rumours concerning Wyslow Inc. stock have started circulating. These rumours are causing the market price of the stock to be quite volatile. Given this situation, you decide to buy both a one-month put and a one-month call option on this stock with an exercise price of \$15. You purchased the call at a quoted price of \$0.20 and the put at a price of \$2.10. What will be your total profit or loss on these option positions if the stock price is \$4 on the day the options expire? Note: Each contract calls for the delivery of 100 shares of the underlying stock.

- a) \$1,310
- b) \$910
- c) **\$870**
- d) -\$230
- e) \$890

$$\text{Call profit} = \max(S - E, 0) - P = \max(4 - 15, 0) - 0.20 = -0.20$$

$$\text{Put profit} = \max(E - S, 0) - P = \max(15 - 4, 0) - 2.10 = 8.90$$

$$\text{Total profit} = 100(8.90 - 0.20) = \$870$$

Use the following information to answer the next four questions. A company has 750,000 preferred shares outstanding. The preferred shares sell for \$80 each. The preferred shares pay an annual dividend of \$7.00. The preferred dividend was just paid. The company has 600,000 common shares outstanding. The common shares sell for \$90 per share. The common shares pay an annual dividend of \$9 per share. The common dividend was paid yesterday. The dividend is expected to grow by 5% each year. The company has 45,000 bonds outstanding. The bonds have a face value of \$1,000. They have a coupon rate of 7%. The coupon is paid annually. The bonds mature in 40 years. The bonds sell for 110% of their face value. The company's tax rate is 30%.

Problem 37. What is the yield to maturity on the company's bonds?

- a) 6.45%
- b) 4.82%
- c) 5.58%
- d) **6.31%**

- e) 7.00%

$$N = 40, PV = -1,100, FV = 1000, PMT = 70 \rightarrow I = 6.31\%$$

Problem 38. What is the proportion of the firm's assets financed with preferred shares?

- a) 33.3%
b) 33.0%
c) **36.7%**
d) 30.3%
e) 25.0%

$$MVP = (750,000)(80) = 60m$$

$$MVD = (45,000)(1,000)(1.1) = 49.5m$$

$$MVE = (600,000)(90) = 54m$$

$$Total\ MV = 60m + 49.5m + 54m = 163.5m$$

$$w_P = 60m/163.5m = 36.7\%$$

Problem 39. What is the required rate of return on the preferred shares?

- a) 7.0%
b) **8.8%**
c) 7.8%
d) 6.0%
e) 8.2%

$$80 = 7/R_P \rightarrow R_P = 8.75\%$$

Problem 40. What is the required rate of return on the common shares?

- a) 8.8%
b) 10.5%
c) **15.5%**
d) 15.0%
e) 10.0%

$$R_E = D_1/P_0 + g = (9)(1.05)/90 + 0.05 = 15.5\%$$

Problem 41. ABC has a target debt equity ratio of 1.50. Its WACC is 12% and the tax rate is 40%. ABC's cost of equity is 18%. What is ABC's pre-tax cost of debt?

- a) 10.0%
b) **13.3%**
c) 15.0%
d) 16.0%
e) 16.7%

$$D/E = 1.5 \rightarrow w_E = 2/5 = 40\%, w_D = 3/5 = 60\%$$

$$12 = (0.4)(18) + (0.6)(R_D)(1 - 0.4)$$

$$4.8 = (0.36)(R_D)$$

$$R_D = 13.3\%$$

Use the following information to answer the next 4 questions.

ABC Inc is trying to decide whether it should lease a new piece of equipment or borrow the money and purchase the new piece of equipment. The equipment would cost \$1,500,000. The equipment would last 5 years. The CCA rate is 30%. The equipment has a salvage value of \$350,000. The company can borrow the necessary funds at 6%. The tax rate is 45%. If the company leased the equipment the lease payments would be \$500,000 per year. The lease payments would be made at the beginning of the year.

Problem 42. What is the present value of the lease payments used in the calculation of NAL?

- a) **-\$1,289,911**
- b) -\$1,248,704
- c) -\$2,270,371
- d) -\$1,158,400
- e) -\$2,106,182

$$ATRD = (6)(1 - 0.45) = 3.3\%$$

$$ATLP = 500,000(1 - 0.45) = 275,000$$

$$PV(ATLP) = PVAD(275,000, 5 \text{ years}, 3.3\%) = 1,289,911$$

Problem 43. What is the present value of the CCA Tax Shield included in the calculation of NAL?

- a) -\$608,108
- b) **-\$477,765**
- c) -\$322,430
- d) -\$266,975
- e) -\$598,395

$$PV(CCATS) = (1.5m)(0.3)(0.45)/(0.3+0.033) \times [1 + (0.5(0.033))/(1 + 0.033) - (350,000)(0.3)(0.45)/(0.3+0.033) \times [1/(1 + 0.033)^5]] = \$477,765$$

Problem 44. What is the present value of the salvage value used in the calculation of NAL?

- a) -\$163,655
- b) -\$227,476
- c) -\$261,540
- d) **-\$297,554**
- e) -\$143,847

$$PV(\text{Salvage}) = PV(350,000, 5 \text{ years}, 3.3\%) = \$297,554$$

Problem 45. What is the break-even payment?

- a) \$600,000
- b) \$431,385
- c) \$334,764
- d) \$280,903**
- e) \$125,675

$$0 = 1.5m - PV(ATLP) - 477,765 - 297,554$$

$$PV(ATLP) = 724,681$$

$$PV = 724,681, N = 5, I = 3.3\%, \text{ compute } PMT = \$154,497$$

$$BTLP = ATLP/(1 - T_c) = 154,497/(1 - 0.45) = 280,903$$

Use the following information to answer the next FOUR questions.

Finance Inc has an expected EBIT of \$50,000,000. It expects to earn this EBIT in perpetuity. The corporate tax rate is 25%. The unlevered cost of equity is 13%. The company has 7,500,000 shares outstanding. The company is currently all equity financed. The company is thinking about issuing \$150,000,000 of debt and using the proceeds to repurchase shares. The required rate of return on the debt is 4%.

Problem 46. What is the value of the company's equity prior to the announcement of the debt issue and the share repurchase?

- a) \$500,000,000
- b) \$384,614,444
- c) \$288,461,539**
- d) \$325,961,539
- e) \$175,961,539

$$V_U = (50m)(1 - 0.25)/0.13 = \$288,461,539$$

Problem 47. What will be the required rate of return on the company's equity after the debt is issued and the shares are repurchased?

- a) 18.8%**
- b) 19.8%
- c) 13.0%
- d) 22.0%
- e) 16.1%

$$V_L = 288,461,539 + 150m(0.25) = 325,961,539$$

$$RE = RU + (RU - RD)(D/E)(1 - T_c)$$

$$RE = 13 + (13 - 4)(150m/175,961,539)(1 - 0.25) = 18.75\%$$

Problem 48. What will be the price per share after the company issues the new debt and repurchases the outstanding shares.

- a) \$80.00
- b) \$43.46

- c) **\$48.67**
- d) \$38.46
- e) \$68.38

Old share price = $\$288,461,539/7.5m = 38.46$

Shares repurchased = $150m/38.46 = 3,900,156$

Price per share = $V_E/\# \text{ shares outstanding} = 175,961,539/(7.5m - 3,900,156) = \48.88

Problem 49. What will be the company's WACC after the debt is issued and the shares are repurchased?

- a) **11.5%**
- b) 15.3%
- c) 13.0%
- d) 12.0%
- e) 12.7%

$WACC = w_E R_E + w_D R_D (1 - T_c)$

$WACC = (175,961,539/325,961,539)(18.8) + (150m/325,961,539)(4)(1 - 0.25) = 11.52\%$

Problem 50. DEF Inc is comparing two different capital structures. Plan I would result in 2,200 shares of stock and \$33,000 in debt. Plan II would result in 1,800 shares of stock and \$55,000 in debt. The interest rate on the debt is 10%. The tax rate is zero. What is the break-even level of EBIT?

- a) \$10,800
- b) \$11,950
- c) \$13,100
- d) \$14,150
- e) \$15,400

$(EBIT - 3,300)/2,200 = (EBIT - 5,500)/1,800$

$18(EBIT - 3,300) = 22(EBIT - 5,500)$

$-4EBIT = -61,600$

$EBIT = \$15,400$

Problem 51 (no marks) My instructor is?

- a) Scott Anderson
- b) Michael Inglis
- c) Sirajum Sarwar
- d) Melissa Toffanin

Problem 52 (no marks) I am writing version _____ of the exam

- a) A
- b) B
- c) C
- d) D
- e) E