

Final question paper: corporate finance



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Suppose that in the coming year, you expect Exxon-Mobil stock to have a volatility of 42% and a beta of 0.9, and Merck's stock to have a volatility of 24% and a beta of 1.1. The risk free interest rate is 4% and the market's expected return is 12%. The cost of capital for a project with the same beta as Merck's stock is closest to:

d. 12.8% | $E[R] = R_f + \text{Beta} \times \text{Risk Premium}$
 $= .04 + 1.1 \times (.12 - .04) = .128$ | Which stock has the highest total risk? |
 c. Exxon-Mobil since it has a higher volatility | |

If a stock pays dividends at the end of each quarter, with realized returns of $R_1, R_2, R_3,$ and R_4 each quarter, then the annual realized return is

calculated as Choose one answer. | c. $R_{\text{annual}} = (1 + R_1)(1 + R_2)(1 + R_3)(1 + R_4) - 1$ | |

----- Consider the following realized annual returns: Year End | S&P 500 Realized Return | IBM Realized Return
 1996 | 23.6% | 46.3% | 1997 | 24.7% | 26.7% | 1998 | 30.5% | 86.9% | 1999 | 9.0% | 23.1% | 2000 | -2.0% | 0.2% | 2001 | -17.3% | -3.2% | 2002 | -24.3% | -27.0% | 2003 | 32.2% | 27.9% | 2004 | 4.4% | -5.1% | 2005 | 7.4% | -11.3% | The standard deviation of the returns on IBM from 1996 to 2005 is closest to: | d.

33.2% | $R_{\text{annual}} = = = 16.45\%$ Year End | IBM Realized Return | $(R - R)$ | $(R - R)^2$ | 1996 | 46.3% | 29.85% | 0.0891023 | 1997 | 26.7% | 10.25% | 0.

0105063 | 1998 | 86.9% | 70.45% | 0.4963203 | 1999 | 23.1% | 6.65% | 0.

0044223 | 2000 | 0.2% | -16.25% | 0.0264063 | 2001 | -3.2% | -19.65% | 0.

0386123 | 2002 | -27.0% | -43.45% | 0.1887903 | 2003 | 27.9% | 11.45% | 0.

0131103 | 2004 | -5.1% | -21.55% | 0.0464403 | 2005 | -11.3% | -27.75% | 0.

0770063 | Variance = $\text{SUM of } (R - R)^2 / T - 1 = 0.907165 / 9 = 0.1100796$

Standard deviation = = = 0.3317825 | The variance of the returns on the

S&P 500 from 1996 to 2005 is closest to: Choose one answer. | a. . 0375 |

Rannual = = = = 8. 8% Year End| S&P 500 Realized Return| (R – R)| (R – R)²|

1996| 23. 6%| 14. 78%| 0. 0218448| 1997| 24. 7%| 15. 88%| 0. 0252174|

1998| 30. 5%| 21. 68%| 0. 0470022| 1999| 9. 0%| 0. 18%| 3. 24E-06| 2000| -

2. 0%| -10. 82%| 0. 0117072| 2001| -17. 3%| -26. 12%| 0. 0682254| 2002| -

24. 3%| -33. 12%| 0. 1096934| 2003| 32. 2%| 23. 38%| 0. 0546624| 2004| 4.

4%| -4. 42%| 0. 0019536| 005| 7. 4%| -1. 42%| 0. 0002016| Variance = SUM

of (R – R)² / T – 1 = 0. 3405116 / 9 = 0. 0378346 | The average annual return

on the S&P 500 from 1996 to 2005 is closest to: Choose one answer. | b. 8.

75% | Rannual = = = = 8. 82% | Suppose that you want to use the 10 year

historical average return on the S&P 500 to forecast the expected future

return on the S&P 500. The standard error of your estimate of the expect

return is closest to: Choose one answer. | c. 1. 95% | Rannual = = = = 8. 8%

Year End| S&P 500 Realized Return| (R – R)| (R – R)²| 1996| 23. %| 14. 78%|

0. 0218448| 1997| 24. 7%| 15. 88%| 0. 0252174| 1998| 30. 5%| 21. 68%| 0.

0470022| 1999| 9. 0%| 0. 18%| 3. 24E-06| 2000| -2. 0%| -10. 82%| 0.

0117072| 2001| -17. 3%| -26. 12%| 0. 0682254| 2002| -24. 3%| -33. 12%| 0.

1096934| 2003| 32. 2%| 23. 38%| 0. 0546624| 2004| 4. 4%| -4. 42%| 0.

0019536| 2005| 7. 4%| -1. 42%| 0. 0002016| Variance = SUM of (R – R)² / T –

1 = 0. 3405116 / 9 = 0. 0378346 Standard deviation = = = 0. 1945112

Standard error = Standard Deviation / T = 0. 1945112 / 10 = . 01945 or 1.

95% | -----

Consider the following stock price and shares outstanding data: Stock Name|

Price per Share| Shares Outstanding (Billions)| Lowes| \$28. 80| 1. 53| Wal-

Mart| \$47. 90 | 4. 17| Intel| \$19. 60 | 5. 77| Boeing| \$75. 00 | 0. 79| Assume

that you have \$100, 000 to invest and you are interested in creating a value-weighted portfolio of these four stocks. The percentage of the shares outstanding of Boeing that you would hold in your portfolio is closest to:

Choose one answer. | a. . 000024% | Stock Name| Price per Share| Shares Outstanding (Billions)| Market Capitalization (Billions)| Percent of Total| Number of Shares|

Lowe| \$28. 80 | 1. 53| \$44. 06 | 10. 6%| 368 | Wal-Mart| \$47. 90 | 4. 17| \$199. 74 | 48. 0%| 1, 002 | Intel| \$19. 60 | 5. 77| \$113. 09 | 27. 2%| 1, 387 | Boeing| \$75. 00 | 0. 79| \$59. 25 | 14. 2%| 190 | | | Total| \$416. 15 | | |

Number of shares = percentage shares outstanding = $190 / 790000000 = .$

000024% | If you are interested in creating a value-weighted portfolio of these four stocks, then the percentage amount that you would invest in

Lowe is closest to: | d. 11% | Stock Name| Price per Share| Shares

Outstanding (Billions)| Market Capitalization (Billions)| Percent of Total|

Lowe| \$28. 0 | 1. 53| \$44. 06 | 10. 6%| Wal-Mart| \$47. 90 | 4. 17| \$199. 74 | 48. 0%| Intel| \$19. 60 | 5. 77| \$113. 09 | 27. 2%| Boeing| \$75. 00 | 0. 79| \$59. 25 | 14. 2%| | | Total| \$416. 15 | | |

The market capitalization for Wal-Mart is closest to: Choose one answer. | a. \$200 Billion | Stock Name| Price per

Share| Shares Outstanding (Billions)| Market Capitalization (Billions)| Lowe|

\$28. 80 | 1. 53| \$44. 06 | Wal-Mart| \$47. 90 | 4. 17| \$199. 74 | Intel| \$19. 60 | 5. 77| \$113. 09 | Boeing| \$75. 00 | 0. 79| \$59. 25 | | | Total| \$416. 15 | | |

Use the table for the question(s) below. Consider the following three

individuals portfolios consisting of investments in four stocks: Stock| Beta|

Peter's Investment| Paul's Investment| Mary's Investment| Eenie| 1. 3| 2500|

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5000| 10000| Meenie| 1. 0| 2500| 5000| 10000| Minie| 0. 8| 2500| 5000| -
 5000| Moe| -0. 5| 2500| -5000| -5000| Assuming that the risk-free rate is 4%
 and the expected return on the market is 12%, then required return on
 Peter’s Portfolio is closest to: Choose one answer. | a. 9% | bportfolio = ? xibi
 $r_i = r_f + b(E[RMkt] - r_f) = .04 + .65(.12 - .04) = .092$ Stock| Beta| Peter’s
 Investment| Paul’s Investment| Mary’s Investment| Peter’s Weights| Paul’s
 Weights| Mary’s Weights| Eenie| 1. 3| 2500| 5000| 10000| 25%| 50%| 100%|
 Meenie| 1. 0| 2500| 5000| 10000| 25%| 50%| 100%| Minie| 0. 8| 2500| 5000|
 -5000| 25%| 50%| -50%| Moe| -0. 5| 2500| -5000| -5000| 25%| -50%| -50%| | |
 | | Port Beta=| 0. 65| 1. 80| 2. 15| | Assuming that the risk-free rate is 4% and
 the expected return on the market is 12%, then required return on Paul’s
 Portfolio is closest to: | c. 18% | bportfolio = ? xibi $r_i = r_f + b(E[RMkt] - r_f) = .$
 $.04 + 1.8(.12 - .04) = .248$ Stock | Beta | Peter’s Investment | Paul’s
 Investment | Mary’s Investment | Peter’s Weights | Paul’s Weights | Mary’s
 Weights | Eenie | 1. 3 | 2500 | 5000 | 10000 | 25% | 50% | 100% | Meenie | 1.
 0 | 2500 | 5000 | 10000 | 25% | 50% | 100% | Minie | 0. 8 | 2500 | 5000 | -
 5000 | 25% | 50% | -50% | Moe | -0. 5 | 2500 | -5000 | -5000 | 25% | -50% | -
 50% | | | | Port Beta= | 0. 65 | 1. 80 | 2. 15 | | The Beta on Paul’s Portfolio is
 closest to: Choose one answer. | b. 1. 8 | bportfolio = ? xibi Stock| Beta|
 Peter’s Investment| Paul’s Investment| Mary’s Investment| Peter’s Weights|
 Paul’s Weights| Mary’s Weights| Eenie| 1. | 2500| 5000| 10000| 25%| 50%|
 100%| Meenie| 1. 0| 2500| 5000| 10000| 25%| 50%| 100%| Minie| 0. 8| 2500|
 5000| -5000| 25%| 50%| -50%| Moe| -0. 5| 2500| -5000| -5000| 25%| -50%| -
 50%| | | | Port Beta=| 0. 65| 1. 80| 2. 15| | -----

Question 8 Use the information for the question(s) below. Suppose that the risk-free rate is 5% and the market portfolio has an expected return of 13%

with a volatility of 18%. Monsters Inc. has a 24% volatility and a correlation with the market of .60, while California Gold Mining has a 32% volatility and a correlation with the market of -.3. Assume the CAPM assumptions hold.

Monsters' required return is closest to: | d. 11.5% | $b_{\text{Monsters}} = .80$
 $= r_f + b(E[\text{RMkt}] - r_f) = .05 + .8(.13 - .05) = .114$ | Monsters' Beta with
 the market is closest to: Choose one answer. | a. 0.8 | $b_{\text{Monsters}} = .80$

----- Consider an economy with two types of firms, S and I. S firms always move together, but I firms move independently of each other. For both types of firms there is a 70% probability that the firm will have a 20% return and a 30% probability that the firm will have a -30% return.

What is the expected return for an individual firm? Choose one answer. | b.
 5% | $\text{expected return} = .7(20\%) + .3(-30\%) = 5\%$ |

----- Consider the following regression model: $R_s - r_f = a_s + (R_{F1} - r_f) + (R_{F2} - r_f) + e$ The term a_s is a | c. measure of the
 expected percent change in the excess return of a security for a 1% change
 in the excess return of the first factor portfolio. | |

----- Question 6 Use the information for the
 question(s) below.

Assume that Rose Corporation's (RC) EBIT is not expected to grow in the future and that all earnings are paid out as dividends. RC is currently an all equity firm. It expects to generate earnings before interest and taxes (EBIT) of \$6 million over the next year. Currently RC has 5 million shares outstanding and its stock is trading for a price of \$12.00 per share. RC is considering borrowing \$12 million at a rate of 6% and using the proceeds to

repurchase shares at the current price of \$12.00. Prior to any borrowing and share repurchase, RC's EPS is closest to: Choose one answer. | a. \$1.00 | $EPS = EBIT / \text{Shares outstanding} = \$6M / 5M \text{ shares} = \1.20 EPS | Following the borrowing of \$12 million and subsequent share repurchase, the value of a share for RC is closest to: | d. \$12.00 | $EPS = (EBIT) / \text{Shares outstanding} = (\$6M) / 5M \text{ shares} = \$1.20 \text{ EPS (unlevered)}$ $V = \$12.00 = \text{so } r_U = .10$ $r_E = r_U + (r_U - r_D) \text{ Debt} = .10 + (.10 - .06) = .11 \text{ or } 11\%$ $\$12 \text{ million} / \$12 \text{ per share} = 1 \text{ million shares repurchased, so } 5M \text{ shares initially} - 1M \text{ shares repurchased} = 4M \text{ total shares outstanding.}$ $EPS = (EBIT - \text{Interest}) / \text{Shares outstanding} = (\$6M - .06 \times \$12) / 4M \text{ shares} = \1.32 EPS $V = = \$12.00$ |

————— Luther is a successful logistical services firm that currently has \$5 billion in cash. Luther has decided to use this cash to repurchase shares from its investors, and has already announced the stock repurchase plan. Currently Luther is an all equity firm with 1.25 billion shares outstanding. Luther's shares are currently trading at \$20 per share. The market value of Luther's non-cash assets is closest to: Choose one answer. | a. \$20 billion | $= 1.25B \times \$20 \text{ per share} = \$25 \text{ billion} - \$5 \text{ billion cash} = \20 billion | —————

Rockwood Enterprises is currently an all equity firm and has just announced plans to expand their current business. In order to fund this expansion, Rockwood will need to raise \$100 million in new capital. After the expansion, Rockwood is expected to produce earnings before interest and taxes of \$50 million per year in perpetuity. Rockwood has already announced the planned expansion, but has not yet determined how best to fund the expansion.

Rockwood currently has 16 million shares outstanding and following the expansion announcement these shares are trading at \$25 per share.

Rockwood has the ability to borrow at a rate of 5% or to issue new equity at \$25 per share. If Rockwood finances their expansion by issuing \$100 million in debt at 5%, what will Rockwood's cost of equity capital be? | a. 11.25% |

First, since the project is already announced, any positive NPV is already reflected into Rockwood's current stock price. So, to raise the needed \$100 million at \$25 per share, Rockwood will need to issue = 4 million new shares for a total of $16 + 4 = 20$ million shares outstanding. So EPS per share = $\$50/20 = \2.50 $V = \$25.00 =$, so $r_U = .10$ Now $r_E = r_U + (r_U - r_D) E = .10 + (.10 - .05) = .1125$ or 11.25% |

If Rockwood finances their expansion by issuing new stock, what will Rockwood's cost of equity capital be? Choose one answer. | a. 10% |

First, since the project is already announced, any positive NPV is already reflected into Rockwood's current stock price. So, to raise the needed \$100 million at \$25 per share, Rockwood will need to issue = 4 million new shares for a total of $16 + 4 = 20$ million shares outstanding. So EPS per share = $\$50/20 = \2.50 $V = \$25.00 =$, so $r_U = .10$ |

Monsters Incorporated (MI) is ready to launch a new product. Depending upon the success of this product, MI will have a value of either \$100 million, \$150 million, or \$191 million, with each outcome being equally likely. The cash flows are unrelated to the state of the economy (i. e. risk from the project is diversifiable) so that the project has a beta of 0 and a cost of capital equal to the risk-free rate, which is currently 5%. Assume that the

capital markets are perfect. Assume that in the event of default, 20% of the value of MI's assets will be lost in bankruptcy costs.

Suppose that at the start of the year, MI has no debt outstanding, but has 5.6 million shares of stock outstanding. If MI does not issue debt, its share

price is closest to: | c. \$25.00 | $VU = \$140 \text{ million}$ Price per Share =

$\$140\text{M} / 5.6 \text{ million shares} = \25.00 | Assume that in the event of default,

20% of the value of MI's assets will be lost in bankruptcy costs and suppose

that MI has zero-coupon debt with a \$125 million face value due next year.

The initial value of MI's equity is closest to: Choose one answer. | a. \$29

million | $VL = \$28.89 \text{ million}$ | _____ Flagstaff

Enterprises expected to have free cash flow in the coming year of \$8 million,

and this free cash flow is expected to grow at a rate of 3% per year

thereafter. Flagstaff has an equity cost of capital of 13%, a debt cost of

capital of 7%, and it is in the 35% corporate tax bracket. If Flagstaff currently

maintains a debt to equity ratio of 1, then Flagstaff's after-tax WACC is

closest to: | c. 8.75% | | If Flagstaff currently maintains a debt to equity ratio

of 1, then the value of Flagstaff as an all equity firm would be closest to: | b.

115 million | | If Flagstaff maintains a debt to equity ratio of 1, then

Flagstaff's pre-tax WACC is closest to: Choose one answer. | a. 10.0% | |

_____ The idea that when a seller has private

information about the value of good, buyers will discount the price they are

willing to pay due to adverse selection is known as the | b. lemons principle. |

| _____ Shepard Industries expects free cash flow

of \$10 million each year. Shepard's corporate tax rate is 35%, and its

unlevered cost of equity is 10%.

The firm also has outstanding debt of \$40 million and it expects to maintain amount of debt permanently. The value of Shepard Industries without leverage is closest to: Choose one answer. | a. \$100 million | $VU = FCF / rE = 10 / .10 = \$100M$ | -----

Consider the following top federal tax rates in the United States: Personal Tax Rates Year| Corporate Tax Rate| Interest Income| Dividends| Capital Gains| 2000| 35%| 40%| 40%| 20%| 2005| 35%| 35%| 15%| 15%| In 2005, assuming an average dividend payout ratio of 50%, the effective tax rate for equity holders was closest to: | c. 5% |

The average personal tax rate on equity is $(15\% + 15\%) / 2 = 15\%$ So, the effective tax rate = $1 - (1 - ? c)(1 - ? e) = 1 - (1 - .35)(1 - .15) = .4475$ | -----

Rosewood Industries has EBIT of \$450 million, interest expense of \$175 million, and a corporate tax rate of 35%. The total of Rosewood's net income and interest payments is closest to: | d. \$355 million | $Net\ income + Interest\ expense = (EBIT - Interest\ expense)(1 - ? C) = (450 - 175)(1 - .35) = \$178.75 + \$175 = \353.73 | -----

Big Blue Banana (BBB) is a clothing retailer with a current share price of \$10.00 and with 25 million shares outstanding. Suppose that Big Blue Banana announces plans to lower its corporate taxes by borrowing \$100 million and using the proceeds to repurchase shares. Suppose that BBB pays corporate taxes of 35% and that shareholders expects the change in debt to be permanent. Assuming that capital markets are perfect except for the existence of corporate taxes, the share price for BBB after this announcement is closest to: | c. \$11.40 | $VU = \$10.00 \times 25\ million\ shares = \$250\ million$ $VL = VU + ? cB = \$250 + .35(\$100) = \$285\ million / 25\ million$

shares = \$11.40 | ----- KT Enterprises is considering undertaking a new project. Based upon analysis of firms with similar projects, KT has determined that an unlevered cost of equity of 12% is suitable for their project. KT's marginal tax rate is 35%, its borrowing rate is 7%, and KT does not believe that its borrowing rate will change if the new project is accepted. If KT expects to maintain a debt to equity ratio for this project of . then KT's project based WACC, r_{wacc} , for this project is closest to: Choose one answer. | a. 11.1% | $r_{wacc} = r_U - d^* \frac{r_D}{E/D}$ $r_{wacc} = .12 - (.35)(.07) = .1108$ or 11.08% | If KT expects to maintain a debt to equity ratio for this project of 1 then KT's project based WACC, r_{wacc} , for this project is closest to: | d. 10.8% | $r_{wacc} = r_U - d^* \frac{r_D}{E/D}$ $r_{wacc} = .12 - (.35)(.07) = .10775$ or 10.8% | ----- Pro Forma Income

Statement for Ideko, 2005-2010 | Year| 2005| 2006| 2007| 2008| 2009| 2010|

Income Statement (\$ 000)	2005	2006	2007	2008	2009	2010
1 Sales	75,000	88,358	103,234	119,777	138,149	158,526
2 Cost of Goods Sold	(16,000)	(18,665)	(21,593)	(24,808)	(28,333)	(32,193)
3 Raw Materials	(18,000)	(21,622)	(25,757)	(30,471)	(35,834)	(41,925)
4 Direct Labor Costs	41,000	48,071	55,883	64,498	73,982	84,407
5 Gross Profit	(11,250)	(14,579)	(18,582)	(23,356)	(27,630)	(31,705)
6 Sales and Marketing	(13,500)	(13,254)	(15,485)	(16,769)	(17,959)	(20,608)
7 Administrative	16,250	20,238	21,816	24,373	28,393	32,094
8 EBITDA	(5,500)	(5,450)	(5,405)	(6,865)	(7,678)	(7,710)
9 Depreciation	10,750	14,788	16,411	17,508	20,715	24,383
10 EBIT	(75)	(6,800)	(6,800)	(6,800)	(7,820)	(8,160)
11 Interest Expense (net)	10,675	7,988	9,611	10,708	12,895	16,223
12 Pretax Income	(3,736)	(2,796)	(3,364)	(3,748)	(4,513)	(5,678)
13 Income Tax	6,					
14 Net Income						

939	5, 193	6, 247	6, 960	8, 382	10, 545	Pro Forma Balance Sheet for Ideko, 2005-2010 Year						
	2005	2006	2007	2008	2009	2010	Balance Sheet (\$ 000)					
							Assets					
							Cash and Cash Equivalents					
6, 164	7, 262	8, 485	9, 845	11, 355	13, 030	2	Accounts Receivable					
18, 493	14, 525	16, 970	19, 689	22, 709	26, 059	3	Inventories					
6, 165	6, 501	7, 613	8, 854	10, 240	11, 784	4	Total Current Assets					
30, 822	28, 288	33, 067	38, 388	44, 304	50, 872	5	Property, Plant, and Equipment					
49, 500	49, 050	48, 645	61, 781	69, 102	69, 392	6	Goodwill					
72, 332	72, 332	72, 332	72, 332	72, 332	72, 332	7	Total Assets					
152, 654	149, 670	154, 044	172, 501	185, 738	192, 597	Liabilities						
							Accounts Payable					
4, 654	5, 532	6, 648	7, 879	9, 110	10, 448	9	Debt					
100, 000	100, 000	100, 000	115, 000	120, 000	120, 000	10	Total Liabilities					
104, 654	105, 532	106, 648	122, 879	129, 110	130, 448	Stockholder's Equity						
							1 Starting Stockholder's Equity					
48, 000	44, 138	47, 396	49, 621	56, 628	62, 149	12	Net Income					
5, 193	6, 247	6, 960	8, 382	10, 545	13, 621	14	Dividends					
(2, 000)	(9, 055)	(2, 989)	(4, 735)	(1, 375)	(5, 024)	15	Stockholder's Equity					
50, 000	—	—	—	—	—	16	Total Liabilities and Equity					
152, 654	149, 670	154, 044	172, 501	185, 738	192, 597							

Assuming that Ideko has a EBITDA multiple of 8.5, then the continuation unlevered P/E ratio of Ideko in 2010 is closest to: | b. 17. | Continuation Enterprise Value = EBITDA ? EBITDA Multiple = 32.094 ? 8.5 = \$272.8 million P/E = = 17.55 | Assuming that Ideko has a EBITDA multiple of 8.5, then the continuation equity value of Ideko in 2010 is closest to: | b. \$152.8 million | Continuation Enterprise Value = EBITDA ? EBITDA Multiple = 32.094 ? 8.5 = \$272.8 million Continuation equity value = continuation enterprise

value - debt = \$272.8 - \$120 = \$152.8 million | Assuming that Ideko has a EBITDA multiple of 9.4, then the continuation levered P/E ratio of Ideko in 2010 is closest to: | c. 7.2 | Continuation Enterprise Value = EBITDA ?

EBITDA Multiple = 32.094 ? 9.4 = \$301.7 million Continuation equity value = continuation enterprise value - debt = \$301.7 - \$120 = \$181.7 million

P/E = 17.2 | Ideko's Accounts Receivable Days is closest to: | b. 90 days |

Accounts Receivable Days = ? 365 = 90 days | Estimated 2005 Income Statement and Balance Sheet Data for Ideko Corporation Year| 2005| | Year| 2005| Income Statement (\$ 000)| | Balance Sheet (\$ 000)| | 1 Sales| 75,000| | Assets| | Cost of Goods Sold| | 1 Cash and Equivalents| 12,664| 3 Raw Materials| (16,000)| | 2 Accounts Receivable| 18,493| 4 Direct Labor Costs| (18,000)| | 3 Inventories| 6,165| 5 Gross Profit | 1,000| | 4 Total Current Assets| 37,322| 6 Sales and Marketing| (11,250)| | 5 Property, Plant, and Equipment| 49,500| 7 Administrative| (13,500)| | 6 Goodwill| —| 8 EBITDA| 16,250| | 7 Total Assets| 86,822| 9 Depreciation| (5,500)| | Liabilities and Stockholder's Equity| | 10 EBIT| 10,750| | 8 Accounts Payable| 4,654| 11 Interest Expense (net)| (75)| | 9 Debt| 4,500| 2 Pretax Income| 10,675| | 10 Total Liabilities| 9,154| 13 Income Tax| (3,736)| | 11 Stockholder's Equity| 77,668| 14 Net Income| 6,939| | 12 Total Liabilities and Equity| 86,822| Ideko Sales and Operating Cost Assumptions | | Year| 2005| 2006| 2007| 2008| 2009| 2010| Sales Data| Growth/Year| | | | | | | 1 Market Size (000 units)| 5.0%| | 10,000| 10,500| 11,025| 11,576| 12,155| 12,763| 2 Market Share| 1.0%| | 10.0%| 11.0%| 12.0%| 13.0%| 14.0%| 15.0%| 3 Average Sales Price (\$/unit)| 2.0%| | 75.00| 76.50| 78.03| 79.59| 81.18| 82.81| Cost of Goods Data| | | | | | | Raw Materials (\$/unit)| 1.0%| | 16.00| 16.16| 16.32| 16.48| 16.65| 16.82| 5 Direct Labor Costs (\$/unit)| 4.0%| | 18.00|

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18. 72| 19. 47| 20. 25| 21. 06| 21. 90| Operating Expense and Tax Data| | | | |
 | | | | 6 Sales and Marketing (% sales)| | 15. 0%| 16. 5%| 18. 0%| 19. 5%| 20.
 0%| 20. 0%| 7 Administrative (% sales)| | 18. 0%| 15. 0%| 15. 0%| 14. 0%|
 13. 0%| 13. 0%| 8 Tax Rate| | 35. 0%| 35. 0%| 35. 0%| 35. 0%| 35.
 0%| Based upon Ideko's Sales and Operating Cost Assumptions, what
 production capacity will Ideko require in 2007? | c. , 323 units | Production
 volume each year can be estimated by multiplying the total market size and
 Ideko's market share from the table above: | Year| 2005| 2006| 2007| 2008|
 2009| 2010| Production Volume (000 units)| | | | | | 1 Market Size| | 10,
 000| 10, 500| 11, 025| 11, 576| 12, 155| 12, 763| 2 Market Share| | 10. 0%|
 11. 0%| 12. 0%| 13. 0%| 14. 0%| 15. 0%| 3 Production Volume (1 ? 2)| | 1,
 000| 1, 155| 1, 323| 1, 505| 1, 702| 1, 914| | The amount of the increase in
 net working capital for Ideko in 2008 is closest to: Choose one answer. | a.
 \$4, 090 | | Year| 2005| 2006| 2007| 2008| 2009| 2010| Working Capital (\$
 000)| | | | | | |

Assets| | | | | | 1 Accounts Receivable| | 18, 493| 14, 525| 16, 970| 19, 689|
 22, 709| 26, 059| 2 Raw Materials| | 1, 973| 1, 534| 1, 775| 2, 039| 2, 329| 2,
 646| 3 Finished Goods| | 4, 192| 4, 967| 5, 838| 6, 815| 7, 911| 9, 138| 4
 Minimum Cash Balance| | 6, 164| 7, 262| 8, 485| 9, 845| 11, 355| 13, 030| 5
 Total Current Assets| | 30, 822| 28, 288| 33, 067| 38, 388| 44, 304| 50, 872|
 Liabilities| | | | | | 6 Wages Payable| | 1, 294| 1, 433| 1, 695| 1, 941| 2, 211|
 2, 570| 7 Other Accounts Payable| | 3, 360| 4, 099| 4, 953| 5, 938| 6, 900| 7,
 878| 8 Total Current Liabilities| | 4, 654| 5, 532| 6, 648| 7, 879| 9, 110| 10,
 448| Net Working Capital| | | | | | Net Working Capital (5-8)| | 26, 168| 22,
 756| 26, 419| 30, 509| 35, 194| 40, 425| 10 Increase in Net Working Capital| |

| (3, 412)| 3, 663| 4, 089| 4, 685| 5, 231| Increase in NWC = NWC_t – NWC_{t-1}

| | d. \$14, 525 | With the proper changes it is believed that Ideko's credit policies will allow for an account receivables days of 60. The forecasted

accounts receivable for Ideko in 2006 is closest to: Accounts receivable = 60

days ? | Year| 2005| 2006| 2007| 2008| 2009| 2010| Working Capital (\$ 000)|

| | | | | | Assets| | | | | | Accounts Receivable| | 18, 493| 14, 525| 16, 970|

19, 689| 22, 709| 26, 059| 2 Raw Materials| | 1, 973| 1, 534| 1, 775| 2, 039|

2, 329| 2, 646| 3 Finished Goods| | 4, 192| 4, 967| 5, 838| 6, 815| 7, 911| 9,

138| 4 Minimum Cash Balance| | 6, 164| 7, 262| 8, 485| 9, 845| 11, 355| 13,

030| 5 Total Current Assets| | 30, 822| 28, 288| 33, 067| 38, 388| 44, 304| 50,

872| Liabilities| | | | | | 6 Wages Payable| | 1, 294| 1, 433| 1, 695| 1, 941| 2,

211| 2, 570| 7 Other Accounts Payable| | 3, 360| 4, 099| 4, 953| 5, 938| 6,

900| 7, 878| 8 Total Current Liabilities| | 4, 654| 5, 532| 6, 648| 7, 879| 9,

110| 10, 448| Net Working Capital| | | | | | Net Working Capital (5 -8)| | 26,

168| 22, 756| 26, 419| 30, 509| 35, 194| 40, 425| 10 Increase in Net Working

Capital| | | (3, 412)| 3, 663| 4, 089| 4, 685| 5, 231| | The following are

financial ratios for three comparable companies: Ratio| Oakley, Inc. |

Luxottica Group| Nike, Inc. | P/E| 24. 8x| 28x| 18. 2x| EV/Sales| 2x| 2. 7x| 1.

5x| EV/EBITDA| 11. 6x| 14. 4x| 9. 3x| EBITDA/Sales| 17. 0%| 18. 5%| 15. 9|

Based upon the average EV/Sales ratio of the comparable firms, if Ideko

holds \$6. 5 million of cash in excess of its working capital needs, then Ideko's

target market value of equity is closest to: | c. 157 million | Average EV /

Sales = = 2. 07 EV = EV / Sales + Sales = 2. 07 ? \$75 million = \$155. 25 EV

= Equity + Debt - Cash in excess of NWC needs Equity = EV - Debt + cash

in excess of NWC needs = \$155. 25 - \$4. 5 + \$6. 5 = \$157. 25 million | With

the proper changes it is believed that Ideko's credit policies will allow for an

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account receivables days of 60. The forecasted accounts receivable for Ideko in 2007 is closest to: | d. \$16, 970 | Accounts receivable = 60 days ? | Year|

Year	2005	2006	2007	2008	2009	2010
Working Capital (\$ 000)						
Assets						
1 Accounts Receivable	18, 493	14, 525	16, 970	19, 689	22, 709	26, 059
2 Raw Materials	1, 973	1, 534	1, 775	2, 039	2, 329	2, 646
3 Finished Goods	4, 192	4, 967	5, 838	6, 815	7, 911	9, 138
4 Minimum Cash Balance	6, 164	7, 262	8, 485	9, 845	11, 355	13, 030
Total Current Assets	30, 822	28, 288	33, 067	38, 388	44, 304	50, 872
Liabilities						
5 Wages Payable	1, 294	1, 433	1, 695	1, 941	2, 211	2, 570
6 Other Accounts Payable	3, 360	4, 099	4, 953	5, 938	6, 900	7, 878
7 Total Current Liabilities	4, 654	5, 532	6, 648	7, 879	9, 110	10, 448
Net Working Capital	26, 168	22, 756	26, 419	30, 509	35, 194	40, 425
10 Increase in Net Working Capital	(3, 412)	3, 663	4, 089	4, 685	5, 231	

Omicron Industries’ Market Value Balance Sheet (\$ Millions) and Cost of Capital Assets | | Liabilities | | Cost of Capital | | Cash | 0 | Debt | 200 | Debt | 6% | Other Assets | 500 | Equity | 300 | Equity | 12% | | | | | ? c | 35%

Omicron Industries New Project Free Cash Flows Year | 0 | 1 | 2 | 3 | Free Cash Flows | (\$100) | \$40 | \$50 | \$60 |

Assume that this new project is of average risk for Omicron and that the firm wants to hold constant its debt to equity ratio. The Debt Capacity for Omicron’s new project in year 2 is closest to: Choose one answer. | a. \$22. 00 | $rwacc = rE + rD(1 - \tau_c)$, where $D = \text{net debt} = \text{Debt} - \text{Cash}$ $rwacc = (.12) + (.06)(1 - .35) = .0876 = = \55.17 $D2 = d ? D2 = (\$55.17) = \22.06 | The unlevered value of Omicron’s new project is closest to: | c. \$124 |

runlevered = $r_E + r_D$, where $D = \text{net debt} = \text{Debt} - \text{Cash}$ runlevered = $(.12) + (.06) = .096$ $V_U = + + = \$123.70$ | _____

Consider the following equation: $D_t = d$? the term d in this equation is? | d . the firm's target debt to value ratio. | | _____

Consider the following equation: $r_{wacc} = r_E + r_D(1 - \tau_c)$ the term $r_D(1 - \tau_c)$ in this equation is? | b . the after tax required rate of return on debt | | _____

_____ Which of the following types of risk doesn't belong? . | b . Market risk | | _____ Suppose the market portfolio's excess return tends to increase by 30% when the economy is strong and decline by 20% when the economy is weak.

A type S firm has excess returns increase by 45% when the economy is strong and decrease by 30% when the economy is weak. A type I firm will also have excess returns of either 45% or -30%, but the type I firm's excess returns will depend only upon firm-specific events and will be completely independent of the state of the economy. What is the Beta for a type I firm? Choose one answer. | a . 0.0 | The systematic risk of the strength of the economy produces at 30% - -20% = 50% change in return for the market portfolio. The type I firm's return is independent of the economy as a whole so its change = 0% $\text{Beta} = 0\% / 50\% = 0$ | _____

Which of the following equations is incorrect? Choose one answer. | a . $E[R] = \frac{R - P}{R}$ | | b . $\text{Var}(R) = \frac{R - P}{R} (R - E[R])^2$ | | c . $\text{Var}(R) = | \text{SD}(R) = | | d . $\text{SD}(R) = | |$ _____$

_____ Which of the following statements is false? Choose one answer. | a . We should be suspicious of beta estimates that are extreme relative to industry norms. | | b . Evidence suggests that betas tend to revert toward zero over time. | | c . When using

historical data, there is always the possibility of estimation error. | | d. For stocks, common practice is to use at least two years of weekly return data or five years of monthly return data when estimating beta. | |

----- Which of the following statements is false?

Choose one answer. | a. The risk-free interest rate is generally determined using the yields of U. S. Treasury securities, which are free from default risk.

| | | b. The CAPM states that we should use the risk-free interest rate corresponding to the investment horizon of the firm's investors. | | | c.

To determine the risk premium for a stock using the security market line, we need an estimate of the market risk premium. | | | d. When surveyed, the vast majority of large firms and financial analysts reported using the yields of Treasury Bills to determine the risk-free rate. | |

----- Consider the following information

regarding the Fama French Carhart four factor model: Factor Portfolio|

Average Monthly Return (%)| IBM Factor Betas| GE Factor Betas| Wal-Mart

Factor Betas| $R_m - r_f$ | 0. 64| 0. 712| 0. 937| 0. 782| SMB| 0. 17| -0. 103| -0.

214| 0. 224| HML| 0. 53| 0. 124| 0. 154| 0. 123|

PR1 YR| 0. 76| 0. 276| -0. 147| 0. 247| Using the FFC four factor model and the historical average monthly returns, the expected monthly return for Wal-

Mart is closest to: | d. 0. 79% | | Using the FFC four factor model and the

historical average monthly returns, the expected monthly return for IBM is closest to: | c. 0. 71% | Factor Portfolio| Average Monthly Return (%)| IBM

Factor Betas| GE Factor Betas| Wal-Mart Factor Betas| IBM Return Calc. | GE

Return Calc. | Wal-Mart Return Calc. | $R_m - r_f$ | 0. 64| 0. 712| 0. 937| 0. 782| 0. 456| 0. 600| 0. 500| SMB| 0. 17| -0. 103| -0. 214| 0. 224| -0. 018| -0. 036| 0.

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0.38 | HML | 0.53 | 0.24 | 0.154 | 0.123 | 0.066 | 0.082 | 0.065 | PR1 YR | 0.76 |
 0.276 | -0.147 | 0.247 | 0.210 | -0.112 | 0.188 | | | | E[Rs] = | 0.714 | 0.533 |

0.791 | The return calculation involves multiplying the average monthly return by the factor beta. | ----- Which of the following statements is false? Choose one answer. | a. If indeed alphas are positive, it is possible that the costs of implementing investment strategies are larger than the NPVs of undertaking them. | | b. If indeed alphas are positive, then investors have to be systematically ignoring positive-NPV investments opportunities. | | c.

The only way a positive NPV investment opportunity can exist in a market is if some barrier to entry restricts competition. | | d. If indeed alphas are positive, it is possible that the positive alpha trading strategies contain risk that investors are unwilling to bear but the CAPM does not capture. | |

----- Which of the following statements is false?

Choose one answer. | a. We might be using the wrong proxy portfolio when we calculate alphas. | | b. Although the true market portfolio of all invested wealth might be efficient, the proxy portfolio might not track the actual market very well. | | c. The true market portfolio consists of all traded investment wealth in the economy. | | d. A significant fraction of investors might care about aspects of their portfolios other than expected return and volatility, and so would be unwilling to hold inefficient investment portfolios. |

| ----- You are evaluating a new project and need an estimate for your project's beta. You have identified the following information about three firms with comparable projects: Firm Name | Equity Beta | Debt Beta | Debt to Equity Ratio | Lincoln | 1.5 | 0 | 0.25 | Blinkin | 1.6 | 0.

2) 1) Nod | 2. 3 | 0. 3 | 1. 5 | The unlevered beta for Lincoln is closest to: | d. 1. 00 | Firm Name | Equity Beta | Debt Beta | Debt to Equity Ratio | Percent Equity | Percent Debt | Unlevered Beta | Lincoln | 1. 25 | 0 | 0. 25 | 0. 8 | 0. 2 | 1 | Blinkin | 1. 6 | 0. 2 | 1 | 0. 5 | 0. 5 | 0. 9 | Nod | 2. 3 | 0. 3 | 1. 5 | 0. 4 | 0. 6 | 1. 1 | % equity is calculated as % debt is calculated as the unlevered beta is calculated as ? $U = \% \text{ equity } ? E + \% \text{ debt } ? D$ | The unlevered beta for Blinkin is closest to: | b. 0. 90 | | -----

Luther Industries has no debt, a total equity capitalization of \$20 billion, and a beta of 1. 8. Included in Luther’s assets are \$4 billion in cash and risk-free securities. Considering the fact that Luther’s Cash is risk-free, Luther’s unlevered beta is closest to: | b. 2. 25 | ? $U = ? E + ? D$? $U = 1. 8 + 0 = 2. 25$ | -----

Consider a project with free cash flows in one year of \$90, 000 in a weak economy or \$117, 000 in a strong economy, with each outcome being equally likely. The initial investment required for the project is \$80, 000, and the project’s cost of capital is 15%.

The risk-free interest rate is 5%. Suppose that to raise the funds for the initial investment the firm borrows \$40, 000 at the risk free rate and issues new equity to cover the remainder. In this situation, the cash flow that equity holders will receive in one year in a strong economy is closest to: | d. \$75, 000 | $\$117, 000 - \$40, 000(1. 05) = \$75, 000$ |

----- Which of the following statements is false? | a. Firms with steady, reliable cash flows, such as utility companies, are able to use high levels of debt and still have a very low probability of default. | | b.

The tradeoff theory states that firms should increase their leverage until it reaches the level D^* for which V_L is maximized. | | | c. The costs of financial distress reduce the value of the levered firm, V_L . The amount of the reduction decreases with the probability of default, which in turn increases with the level of the debt D . | | | d. If there were no costs of financial distress, the value of the firm would continue to increase with increasing debt until the interest on the debt exceeds the firm's earnings before interest and taxes and the tax shield is exhausted. | | _____

Which of the following equations is incorrect? Choose one answer. | a. $V_L = V_U + ? cD$ | | | b. $r_{wacc} = r_E + r_D(1 + ? c)$ | $r_{wacc} = r_E + r_D(1 - ? c)$ | | c. $r_{wacc} = r_E + r_D - r_D? c$ | | | d. $V_L = V_U +$ | | _____

Which of the following statements is false? Choose one answer. | a. With tangible assets, the financial distress costs of leverage are likely to be low, as the assets can be liquidated for close to their full value. | | | b. The tradeoff theory explains how firms should choose their capital structures to maximize value to current shareholders. | | | c.

Firms with high $R; D$ costs and future growth opportunities typically maintain high debt levels. | | | d. Proponents of the management entrenchment theory of capital structure believe that managers choose a capital structure to avoid the discipline of debt and maintain their own job security. | |

_____ Which of the following statements is false? Choose one answer. | a. Personal taxes have the potential to offset some of the corporate tax benefits of leverage. | | | b. Just like corporate taxes, personal taxes reduce the cash flows to investors and diminish firm value. | | c. The actual interest tax shield depends on the reduction in the total taxes

(both corporate and personal) that are paid. | | | d. The amount of money an investor will pay for a security ultimately depends on the benefits the investor will receive—namely, the cash flows the investor will receive before all taxes have been paid. | The amount of money an investor will pay for a security ultimately depends on the benefits the investor will receive—namely, the cash flows the investor will receive after all taxes have been paid. ————— Wildcat Drilling is an oil and gas exploration company that currently operating two active oil fields with a market value of \$200 million dollars each. Unfortunately, Wildcat Drilling has \$500 million in debt coming due at the end of the year. A large oil company has offered Wildcat drilling a highly speculative, but potentially very valuable, oil and gas lease in exchange for one of their active oil fields. If Wildcat accepts the trade, there is a 10% chance that Wildcat will discover a major new oil field that would be worth \$1. billion, a 15% that Wildcat will discover a productive oil field that would be worth \$600 million, and a 75% chance that Wildcat will not discover oil at all. What is the expected payoff to equity holders with the speculative oil lease deal? | d. \$85 million | Expected payoff = (. 1)(\$1200 - \$500) + (. 15)(\$600 - \$500) + (. 75)(\$0) = \$85 million | What is the expected payoff to debt holders with the speculative oil lease deal? | c. \$275 million | Expected payoff = (. 1)(\$500) + (. 15)(\$500) + (. 75)(\$200) = \$275 million | —————

Consider the following income statement for Kroger Inc. (all figures in \$ Millions):

Year	2006	2005	2004
Total Sales	60, 553	56, 434	53, 791
Cost of goods sold	45, 565	42, 140	39, 637
Selling, general ; admin expenses	11, 688	12, 191	11, 575
Depreciation	1, 265	1, 256	1, 209

Operating Income| 2, 035| 847| 1, 370| Other Income| 0| 0| 0| EBIT| 2, 035| 847| 1, 370| Interest expense| 510| 557| 604| Earnings before tax| 1, 525| 290| 766| Taxes (35%)| 534| 102| 268| Net Income| 991| 189| 498| The income that would be available to equity holders in 2005 if Kroger was not levered is closest to: | b. 550 million | Year| 2006| 2005| 2004| Total Sales| 60, 553| 56, 434| 53, 791| Cost of goods sold| 45, 565| 42, 140| 39, 637| Selling, general ; admin expenses| 11, 688| 12, 191| 11, 575| Depreciation| 1, 265| 1, 256| 1, 209| Operating Income| 2, 035| 847| 1, 370| Other Income| 0| 0| 0| EBIT| 2, 035| 847| 1, 370| Interest expense| 510| 557| 604| Earnings before tax| 1, 525| 290| 766| Taxes (35%)| 534| 102| 268| Net Income| 991| 189| 498| | | | Tax Shield = . 35 ? Interest Exp| 178. 5| 194. 95| 211. 4| | | | Total available to all investors Interest expense + net income| 1, 501| 746| 1, 102| | | |

Total available to S. H. if no leverage = $EBIT(1 - 0.35)$ | 1322. 75| 550. 55| 890. 5| | The total amount available to payout to all the investors in Kroger in 2006 is closest to: | b. \$1, 500 million | Year| 2006| 2005| 2004| Total Sales| 60, 553| 56, 434| 53, 791| Cost of goods sold| 45, 565| 42, 140| 39, 637| Selling, general ; admin expenses| 11, 688| 12, 191| 11, 575| Depreciation| 1, 265| 1, 256| 1, 209| Operating Income| 2, 035| 847| 1, 370| Other Income| 0| 0| 0| EBIT| 2, 035| 847| 1, 370| Interest expense| 510| 557| 604| Earnings before tax| 1, 525| 290| 766| Taxes (35%)| 534| 102| 268|

Net Income| 991| 189| 498| | | | Tax Shield = . 35 ? Interest Exp| 178. 5| 194. 95| 211. 4| | | | Total available to all investors Interest expense + net income| 1, 501| 746| 1, 102| | | | Total available to S. H. if no leverage = $EBIT(1 - 0.35)$ | 1322. 75| 550. 55| 890. 5| | _____

Which of the following statements is false? Choose one answer. | a. By reducing a firm's corporate tax liability, debt allows the firm to pay more of its cash flows to investors. | | b. For individuals, interest payments received from debt are taxed as income. | | c. Equity investors must pay taxes on dividends but not capital gains. | Equity investors must pay taxes on dividends and capital gains. | | d. The value of a firm is equal to the amount of money the firm can raise by issuing securities. | |

————— Which of the following statements is false? Choose one answer. | a. For low levels of debt, the risk of default remains low and the main effect of an increase in leverage is an increase in the interest tax shield, which has present value $\tau^* D$, where τ^* is the effective tax advantage of debt. | | b.

Firms whose value and cash flows are very volatile (for example, semiconductor firms) must have much higher levels of debt to avoid a significant risk of default. | | c. Real estate firms are likely to have low costs of financial distress, as much of their value derives from assets that can be sold relatively easily. | | d. The probability of financial distress depends on the likelihood that a firm will be unable to meet its debt commitments and therefore default. | |

————— $r_{wacc} = r_E + r_D (1 - \tau_c)$ $r_{wacc} = .13 + .7 (1 - .35) = .087750$ Which of the following statements is false? Choose one answer. | a. The agency costs of debt can arise only if there is no chance the firm will default and impose losses on its debt holders. | | b. When a firm faces financial distress, it may choose not to finance new, positive-NPV projects. | | c. Agency costs represent another cost of increasing the firm's

leverage that will affect the firm's optimal capital structure choice. | | | d. An under-investment problem occurs when shareholders choose to not invest in a positive-NPV project. | | _____

Consider the following formula: $r_{wacc} = r_E + r_D - r_D \tau_c$ The term $r_D \tau_c$ represents Choose one answer. | a. the present value of the interest tax shield. | | | b. the present value of the future interest payments. | | | c. the reduction due to the interest tax shield. | | | d. the interest tax shield each year. | | _____ Use the information for the question(s) below. Luther Industries has no debt and expects to generate free cash flows of \$48 million each year. Luther believes that if it permanently increases its level of debt to \$100 million, the risk of financial distress may cause it to lose some customers and receive less favorable terms from its suppliers. As a result, Luther's expected free cash flows with debt will be only \$44 million per year. Suppose Luther's tax rate is 40%, the risk-free rate is 6%, the expected return of the market is 14%, and the beta of Luther's free cash flows is 1.25 (with or without leverage). The value of Luther with leverage is closest to: | c. \$315 million | $r_E = r_f + \beta(r_M - r_f) = .06 + 1.25(.14 - .06) = .16$ $V_U = = = \$275$ million (using lower cash flow from leverage) $V_L = V_U + \tau_c D = \$275 + .4(\$100) = \$315$ |

Which of the following statements is false? Choose one answer. | a. If the debt level is too large firm value is reduced due to the loss of tax benefits (when interest exceeds EBIT), financial distress costs, and the agency costs of leverage. | | | b. The optimal level of debt D^* , balances the costs and benefits of leverage. | | | c. As the debt level increases, the firm faces worse

incentives for management, which increase wasteful investment and perks. |

| | d. As the debt level increases, the firm benefits from the interest tax shield (which has present value τ^*D). | | -----

LCMS Industries has \$70 million in debt outstanding. The firm will pay only interest on this debt (the debt is perpetual). LCMS' marginal tax rate is 35% and the firm pays a rate of 8% interest on its debt. Assuming that the risk is the same as the loan, the present value of LCMS' interest tax shield is

closest to: Choose one answer. | a. \$24.5 million | $PV \text{ of Tax shield} =$

$\text{debt} \times \tau^* = \$70M \times .35 = 24.5M$ | Quiz 1. 1 Question 1 Use the information

for the question(s) below. Suppose that in the coming year, you expect

Exxon-Mobil stock to have a volatility of 42% and a beta of 0.5, and Merck's

stock to have a volatility of 24% and a beta of 1.1. The risk free interest rate

is 4% and the market's expected return is 12%. The cost of capital for a

project with the same beta as Merck's stock is closest to: Choose one

answer. | a. 11.6% | | b. 11.2% | | c. 12.4% | | d. 12.8% | $E[R] = R_f +$

$\text{Beta} \times \text{Risk Premium} = .04 + 1.1 \times (.12 - .04) = .128$ | Question 2 If a

stock pays dividends at the end of each quarter, with realized returns of R_1 ,

R_2 , R_3 , and R_4 each quarter, then the annual realized return is calculated as

Choose one answer. | a. $R_{\text{annual}} = (1 + R_1)(1 + R_2)(1 + R_3)(1 + R_4)$ | | b.

$R_{\text{annual}} =$ | | c. $R_{\text{annual}} = (1 + R_1)(1 + R_2)(1 + R_3)(1 + R_4) - 1$ | | d.

$R_{\text{annual}} = R_1 + R_2 + R_3 + R_4$ | | Question 3 Use the table for the question(s)

below. Consider the following realized annual returns: Year End | S; P 500

Realized Return | IBM Realized Return | 1996 | 23.6% | 46.3% | 1997 | 24.7% |

26.7% | 1998 | 30.5% | 86.9% | 1999 | 9.0% | 23.1% | 2000 | -2.0% | 0.2% |

2001 | -17.3% | -3.2% | 2002 | -24.3% | -27.0% | 2003 | 32.2% | 27.9% | 2004 |

4. 4% | -5. 1% | 2005 | 7. 4% | -11. 3% | The standard deviation of the returns on IBM from 1996 to 2005 is closest to: Choose one answer. | a. 16. 4% | | | b. 31. % | | | c. 11. 0% | | | d. 33. 2% |

Year	Realized Return	$(R - R)^2$
1996	46. 3%	29. 85%
1997	26. 7%	10. 25%
1998	86. 9%	70. 45%
1999	23. 1%	6. 65%
2000	0. 2%	-16. 25%
2001	-3. 2%	19. 65%
2002	-27. 0%	43. 45%
2003	27. 9%	11. 45%
2004	-5. 1%	21. 55%
2005	-11. 3%	27. 75%

Variance = $\text{SUM of } (R - R)^2 / T - 1 = 0. 9907165 / 9 = 0. 1100796$ Standard deviation = = = 0. 3317825 | Question 5 Use the table for the question(s) below.

Consider the following realized annual returns: Year End | S; P 500 Realized Return | IBM Realized Return |

Year	S; P 500 Realized Return	IBM Realized Return
1996	23. 6%	46. 3%
1997	24. 7%	26. 7%
1998	30. 5%	86. 9%
1999	9. 0%	23. 1%
2000	-2. 0%	0. 2%
2001	-17. 3%	-3. 2%
2002	-24. 3%	-27. 0%
2003	32. 2%	27. 9%
2004	4. 4%	-5. 1%
2005	7. 4%	-11. 3%

The variance of the returns on the S; P 500 from 1996 to 2005 is closest to: Choose one answer. | a. . 0375 |

Year	Realized Return	$(R - R)^2$
1996	23. 6%	14. 78%
1997	24. 7%	15. 88%
1998	30. 5%	21. 68%
1999	9. 0%	0. 18%
2000	-2. 0%	-10. 82%
2001	-17. 3%	-26. 12%
2002	-24. 3%	-33. 12%
2003	32. 2%	23. 38%
2004	4. 4%	-4. 42%
2005	7. 4%	-1. 42%

Variance = $\text{SUM of } (R - R)^2 / T - 1 = 0. 3405116 / 9 = 0. 0378346$ | | b. . 1935 | | | c. . 3400 | | | d. . 0450 | |

Question 6 Use the table for the question(s) below. Consider the following

stock price and shares outstanding data: Stock Name| Price per Share| Shares Outstanding (Billions)|
 Lowes| \$28. 80| 1. 53| Wal-Mart| \$47. 90 | 4. 17| Intel| \$19. 60 | 5. 77| Boeing| \$75. 00 | 0. 79|

Assume that you have \$100, 000 to invest and you are interested in creating a value-weighted portfolio of these four stocks. The percentage of the shares outstanding of Boeing that you would hold in your portfolio is closest to:

Choose one answer. | a. . 000024% | Stock Name| Price per Share| Shares Outstanding (Billions)| Market Capitalization (Billions)| Percent of Total|
 Number of Shares| Lowes| \$28. 80 | 1. 53| \$44. 06 | 10. 6%| 368 | Wal-Mart| \$47. 90 | 4. 17| \$199. 74 | 48. 0%| 1, 002 | Intel| \$19. 60 | 5. 77| \$113. 09 | 27. 2%| 1, 387 | Boeing| \$75. 00 | 0. 79| \$59. 25 | 14. 2%| 190 | | Total| \$416. 15 | | |
 Number of shares = ercentage shares outstanding = $190 / 790000000 = . 000024\%$ | | b. . 000018% | | | c. . 000031% | | | d. . 000020%

| | Question 7 Use the table for the question(s) below. Consider the following three individuals portfolios consisting of investments in four stocks: Stock| Beta| Peter's Investment| Paul's Investment| Mary's Investment| Eenie| 1. 3| 2500| 5000| 10000| Meenie| 1. 0| 2500| 5000| 10000| Minie| 0. 8| 2500| 5000| -5000| Moe| -0. 5| 2500| -5000| -5000| Assuming that the risk-free rate is 4% and the expected return on the market is 12%, then required return on Peter's Portfolio is closest to: Choose one answer. | a. 9% | bportfolio = ? |
 $r_i = r_f + b(E[RMkt] - r_f) = . 04 + . 65(. 12 - . 04) = . 092$ Stock| Beta| Peter's Investment| Paul's Investment| Mary's Investment| Peter's Weights| Paul's Weights| Mary's Weights| Eenie| 1. 3| 2500| 5000| 10000| 25%| 50%| 100%| Meenie| 1. 0| 2500| 5000| 10000| 25%| 50%| 100%| Minie| 0. 8| 2500| 5000| -5000| 25%| 50%| -50%| Moe| -0. 5| 2500| -5000| -5000| 25%| -50%| -50%| | |

|| Port Beta=| 0. 65| 1. 80| 2. 15| || b. 8% || | c. 12% || | d. 10% || Question 8 Use the information for the question(s) below. Suppose that the risk-free rate is 5% and the market portfolio has an expected return of 13% with a volatility of 18%.

Monsters Inc. has a 24% volatility and a correlation with the market of . 60, while California Gold Mining has a 32% volatility and a correlation with the market of -. 7. Assume the CAPM assumptions hold. Monsters' required

return is closest to: Choose one answer. | a. 10. 0% || | b. 13. 0% || | c. 15. 5% || | d. 11. 5% | bMonsters = = = . 80 $r_i = r_f + b(E[RMkt] - r_f) = . 05 + .$

8(. 13 - . 05) = . 114 | Question 9 Use the table for the question(s) below.

Consider the following three individuals portfolios consisting of investments

in four stocks: Stock | Beta | Peter's Investment | Paul's Investment | Mary's

Investment | Eenie | 1. | 2500 | 5000 | 10000 | Meenie | 1. 0 | 2500 | 5000 |

10000 | Minie | 0. 8 | 2500 | 5000 | -5000 | Moe | -0. 5 | 2500 | -5000 | -5000 |

Assuming that the risk-free rate is 4% and the expected return on the

market is 12%, then required return on Paul's Portfolio is closest to: Choose

one answer. | a. 16% || | b. 22% || | c. 18% | bportfolio = ? $r_i = r_f +$

$b(E[RMkt] - r_f) = . 04 + 1. 8(. 12 - . 04) = . 184$ Stock | Beta | Peter's

Investment | Paul's Investment | Mary's Investment | Peter's Weights | Paul's

Weights | Mary's Weights | Eenie | 1. 3 | 2500 | 5000 | 10000 | 25% | 50% |

100% | Meenie | 1. | 2500 | 5000 | 10000 | 25% | 50% | 100% | Minie | 0. 8 |

2500 | 5000 | -5000 | 25% | 50% | -50% | Moe | -0. 5 | 2500 | -5000 | -5000 |

25% | -50% | -50% || || | Port Beta= | 0. 65 | 1. 80 | 2. 15 | || | d. 20% || Quiz

1. 2 Question 1 If a stock pays dividends at the end of each quarter, with

realized returns of R1, R2, R3, and R4 each quarter, then the annual realized

return is calculated as Choose one answer. | a. $R_{\text{annual}} = R_1 + R_2 + R_3 + R_4$ | | | b. $R_{\text{annual}} =$ | | | c. $R_{\text{annual}} = (1 + R_1)(1 + R_2)(1 + R_3)(1 + R_4)$ | | | d. $R_{\text{annual}} = (1 + R_1)(1 + R_2)(1 + R_3)(1 + R_4) - 1$ | | Question 3 Use the information for the question(s) below.

Consider an economy with two types of firms, S and I. S firms always move together, but I firms move independently of each other. For both types of firms there is a 70% probability that the firm will have a 20% return and a 30% probability that the firm will have a -30% return. What is the expected return for an individual firm? Choose one answer. | a. 3% | | | b. 5% | expected return = $.7(20\%) + .3(-30\%) = 5\%$ | | c. 14% | | | d. -5% | |

Question 4 Use the table for the question(s) below. Consider the following realized annual returns: Year End | S&P 500 Realized Return | IBM Realized Return | 1996 | 23.6% | 46.0% | 1997 | 24.7% | 26.7% | 1998 | 30.5% | 86.9% | 1999 | 9.0% | 23.1% | 2000 | -2.0% | 0.2% | 2001 | -17.3% | -3.2% | 2002 | -24.3% | -27.0% | 2003 | 32.2% | 27.9% | 2004 | 4.4% | -5.1% | 2005 | 7.4% | -11.3% | The average annual return on the S&P 500 from 1996 to 2005 is closest to: Choose one answer. | a. 4.00% | | | b. 8.75% | $R_{\text{annual}} = = = = 8.82\%$ | | c. 9.75% | | | d. 7.10% | | Question 5 Use the information for the

question(s) below. Suppose that in the coming year, you expect Exxon-Mobil stock to have a volatility of 42% and a beta of 0.9, and Merck's stock to have a volatility of 24% and a beta of 1.0. The risk free interest rate is 4% and the markets expected return is 12%. Which stock has the highest total risk? Choose one answer. | a. Exxon-Mobil since it has a lower beta | | | b. Merck since it has a lower volatility | | | c. Exxon-Mobil since it has a higher volatility | | | d. Merck since it has a higher Beta | | Question 8 Use the table for the

question(s) below. Consider the following stock price and shares outstanding data: Stock Name| Price per Share| Shares Outstanding (Billions)| Lowes| \$28. 80| 1. 53| Wal-Mart| \$47. 90 | 4. 17| Intel| \$19. 60 | 5. 77| Boeing| \$75. 00 | 0. 79|

If you are interested in creating a value-weighted portfolio of these four stocks, then the percentage amount that you would invest in Lowes is closest to: Choose one answer. | a. 20. 0% | | | b. 25% | | | c. 12% | | | d. 11%

Stock Name	Price per Share	Shares Outstanding (Billions)	Market Capitalization (Billions)	Percent of Total
Lowes	\$28. 80	1. 53	\$44. 06	10. 6%
Wal-Mart	\$47. 90	4. 17	\$199. 74	48. 0%
Intel	\$19. 60	5. 77	\$113. 09	27. 2%
Boeing	\$75. 00	0. 79	\$59. 25	14. 2%
Total			\$416. 15	

Question 9 Use the information for the question(s) below.

Suppose that the risk-free rate is 5% and the market portfolio has an expected return of 13% with a volatility of 18%. Monsters Inc. has a 24% volatility and a correlation with the market of . 60, while California Gold Mining has a 32% volatility and a correlation with the market of -. 7. Assume the CAPM assumptions hold. Monsters' Beta with the market is closest to:

Choose one answer. | a. 0. 8 | b. Monsters = = = . 80 | | | c. 1. 0 | | | d. 0. 6 | | | Quiz 2. 1 Question 2 Use the equation for the question(s) below.

Consider the following regression model: $R_s - r_f = a_s + (RF1 - r_f) + (RF2 - r_f) + e$

The term e is a Choose one answer. | a. error term that has an expectation of zero and is uncorrelated with either factor. | | | b. measure of the expected percent change in the excess return of a security for a 1% change in the

excess return of the second factor portfolio. | | | c. measure of the expected percent change in the excess return of a security for a 1% change in the excess return of the first factor portfolio. | | | d. constant term. | | Question 4 Use the equation for the question(s) below. Consider the following regression model: $R_s - r_f = a_s + (RF1 - r_f) + (RF2 - r_f) + e$ The term is a

Choose one answer. | a. error term that has an expectation of zero and is uncorrelated with either factor. | | | b. constant term. | | | c. measure of the expected percent change in the excess return of a security for a 1% change in the excess return of the first factor portfolio. | | | d. measure of the expected percent change in the excess return of a security for a 1% change in the excess return of the second factor portfolio. | | Question 6 Use the information for the question(s) below. Assume that Rose Corporation's (RC) EBIT is not expected to grow in the future and that all earnings are paid out as dividends.

RC is currently an all equity firm. It expects to generate earnings before interest and taxes (EBIT) of \$6 million over the next year. Currently RC has 5 million shares outstanding and its stock is trading for a price of \$12.00 per share. RC is considering borrowing \$12 million at a rate of 6% and using the proceeds to repurchase shares at the current price of \$12.00. Following the borrowing of \$12 and subsequent share repurchase, the value of a share for RC is closest to: Choose one answer. | a. \$10.80 | | | b. \$13.20 | | | c. \$14.00 | | | d. \$12.00 | $EPS = (EBIT) / \text{Shares outstanding} = (\$6M) / 5M \text{ shares} = \1.0 EPS (unlevered) $V = \$12.00 = \text{so } r_U = .10$ $r_E = r_U + (r_U - r_D) r_E = .10 + (.10 - .06) = .11$ or 11% $\$12 \text{ million} / \$12 \text{ per share} = 1 \text{ million}$ shares repurchased, so 5M shares initially - 1M shares repurchased = 4M

total shares outstanding. $EPS = (EBIT - Interest) / \text{Shares outstanding} = (\$6M - .06 \times \$12) / 4M \text{ shares} = \1.32 EPS $V = \$12.00$ | Question 8 Use the information for the question(s) below. Luther is a successful logistical services firm that currently has \$5 billion in cash. Luther has decided to use this cash to repurchase shares from its investors, and has already announced the stock repurchase plan.

Currently Luther is an all equity firm with 1.25 billion shares outstanding. Luther's shares are currently trading at \$20 per share. The market value of Luther's non-cash assets is closest to: Choose one answer. | a. \$25 billion | | b. \$20 billion | = $1.25B \times \$20 \text{ per share} = \$25 \text{ billion} - \$5 \text{ billion cash} = \20 billion | | c. \$24 billion | | | d. \$19 billion | | Question 9 Use the information for the question(s) below. Rockwood Enterprises is currently an all equity firm and has just announced plans to expand their current business. In order to fund this expansion, Rockwood will need to raise \$100 million in new capital.

After the expansion, Rockwood is expected to produce earnings before interest and taxes of \$50 million per year in perpetuity. Rockwood has already announced the planned expansion, but has not yet determined how best to fund the expansion. Rockwood currently has 16 million shares outstanding and following the expansion announcement these shares are trading at \$25 per share. Rockwood has the ability to borrow at a rate of 5% or to issue new equity at \$25 per share. If Rockwood finances their expansion by issuing new stock, what will Rockwood's cost of equity capital be? Choose one answer. | a. 0% | First, since the project is already announced, any positive NPV is already reflected into Rockwood's current stock price. So, to raise the needed \$100 million at \$25 per share, Rockwood

will need to issue = 4 million new shares for a total of $16 + 4 = 20$ million shares outstanding. So EPS per share = $\$50/20 = \2.50 . $V = \$25.00 =$, so $r_U = .10$ | | b. 8% | | c. 15% | | d. 12% | | Question 10 Use the information for the question(s) below. Assume that Rose Corporation's (RC) EBIT is not expected to grow in the future and that all earnings are paid out as dividends. RC is currently an all equity firm.

It expects to generate earnings before interest and taxes (EBIT) of \$6 million over the next year. Currently RC has 5 million shares outstanding and its stock is trading for a price of \$12.00 per share. RC is considering borrowing \$12 million at a rate of 6% and using the proceeds to repurchase shares at the current price of \$12.00. Prior to any borrowing and share repurchase, RC's EPS is closest to: Choose one answer. | a. \$1.20 | $EPS = EBIT / \text{Shares outstanding} = \$6M / 5M \text{ shares} = \1.20 EPS | | b. \$0.50 | | c. \$0.60 | | d. \$1.00 | | Quiz 2.2 Question 9 Use the information for the question(s) below.

Assume that Rose Corporation's (RC) EBIT is not expected to grow in the future and that all earnings are paid out as dividends. RC is currently an all equity firm. It expects to generate earnings before interest and taxes (EBIT) of \$6 million over the next year. Currently RC has 5 million shares outstanding and its stock is trading for a price of \$12.00 per share. RC is considering borrowing \$12 million at a rate of 6% and using the proceeds to repurchase shares at the current price of \$12.00. Prior to any borrowing and share repurchase, RC's EPS is closest to: Choose one answer. | a. \$1.00 | | b. 0.50 | | c. \$0.60 | | d. \$1.20 | $EPS = EBIT / \text{Shares outstanding} = \$6M / 5M \text{ shares} = \1.20 EPS | Question 10 Use the information for the question(s) below. Rockwood Enterprises is currently an all equity firm and has just

announced plans to expand their current business. In order to fund this expansion, Rockwood will need to raise \$100 million in new capital. After the expansion, Rockwood is expected to produce earnings before interest and taxes of \$50 million per year in perpetuity. Rockwood has already announced the planned expansion, but has not yet determined how best to fund the expansion.

Rockwood currently has 16 million shares outstanding and following the expansion announcement these shares are trading at \$25 per share.

Rockwood has the ability to borrow at a rate of 5% or to issue new equity at \$25 per share. If Rockwood finances their expansion by issuing new stock, what will Rockwood's cost of equity capital be? Choose one answer. | a. 10% | First, since the project is already announced, any positive NPV is already reflected into Rockwoods current stock price. So, to raise the needed \$100 million at \$25 per share, Rockwood will need to issue = 4 million new shares for a total of $16 + 4 = 20$ million shares outstanding.

So EPS per share = $\$50/20 = \2.50 $V = \$25.00 =$, so $r_U = .10$ | | b. 15% |

| | c. 12% | | | d. 8% | | Quiz 3. 1 Question 1 Use the information for the question(s) below. Monsters Incorporated (MI) is ready to launch a new product. Depending upon the success of this product, MI will have a value of either \$100 million, \$150 million, or \$191 million, with each outcome being equally likely. The cash flows are unrelated to the state of the economy (i. e. risk from the project is diversifiable) so that the project has a beta of 0 and a cost of capital equal to the risk-free rate, which is currently 5%.

Assume that the capital markets are perfect. Assume that in the event of default, 20% of the value of MI's assets will be lost in bankruptcy costs and suppose that MI has zero-coupon debt with a \$125 million face value due next year. The initial value of MI's equity is closest to: Choose one answer. | a. \$29 million | VL = = \$28.89 million | | b. \$24 million | | | c. \$30 million | | | d. \$15 million | | Question 2 Use the information for the question(s) below.

Flagstaff Enterprises expected to have free cash flow in the coming year of \$8 million, and this free cash flow is expected to grow at a rate of 3% per year thereafter.

Flagstaff has an equity cost of capital of 13%, a debt cost of capital of 7%, and it is in the 35% corporate tax bracket. If Flagstaff currently maintains a debt to equity ratio of 1, then Flagstaff's after-tax WACC is closest to: Choose one answer. | a. 10.00% | | | b. 10.25% | | | c. 8.75% | | | d. 9.50% | |

Question 3 The idea that when a seller has private information about the value of good, buyers will discount the price they are willing to pay due to adverse selection is known as the Choose one answer. | a. pecking order hypothesis. | | | b. lemons principle. | | | c. redibility principle. | | | d. signaling theory of debt. | | Question 6 Use the information for the question(s) below.

Shepard Industries expects free cash flow of \$10 million each year. Shepard