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## Part TQ Problems created by your teacher

### TQ1 Explanations for the overpayment premium in mergers

Studies about thousands of mergers and acquisitions shows that the acquiring company (the “Raider”) pays a premium to shareholders of the acquired company (the “Target”) that averages about 30%. Which statement provides a plausible explanation for such a huge premium?

{ANSWER: A ; xlADDRESS: TeacherQuestions!$B$222 }

/\a. Raider management may perceive that the acquisition will lead to increases in profitability due to synergies associated with horizontal or vertical integration.

/\b. Raider management may believe that Target assets probably are being used with maximum efficiency possible.

/\c. Raider management may be repairing a principal-agent problem by transferring wealth from Raider to Target shareholders.

/\d. Two choices, A and C, are correct

/\e. None of the A-B-C choices are correct

### TQ2 Find net equity issues

Last year’s equity book value per share was $19.10 . This year’s is $20.37 . The number of shares increased from 31,100 last year to 34,990 this year (but maybe there was a stock split; maybe not). This year the company has *New retained earnings* of $95,000 . Find the value of *Net equity issues* for the company this year.

{ANSWER: E ; xlADDRESS: TeacherQuestions!$B$172; CLUES: *SE2525*= $594,010 , *SE2526*= $712,810 }

/\a. Net repurchases equal $20.7 thousand

/\b. Net sales equal $20.7 thousand

/\c. Net sales equal $27.4 thousand

/\d. Net repurchases equal $23.8 thousand

/\e. Net sales equal $23.8 thousand

### TQ3 Find and partition capital expenditures

The balance sheet shows *PP&E2525* equals $25,500 and *Total assets2525* equal $36,000 . *Sales2526* are $112,900 . The company sets its target asset turnover ratio (=*Sales2526 ÷ Total assets2526* ) at 2.80. *PP&E* is the only asset that increases during 2526. Suppose *Depreciation2526* equals 18% of beginning of year *PP&E*. Find the *Capital expenditures* in 2526 and partition into expansion versus replacement investment.

{ANSWER: E ; xlADDRESS: TeacherQuestions!$B$157; CLUES: target TA = $40,321 , target PPE= $29,821 }

/\a. Total *Capital expenditures2526* comprises expansion investment of $3,758 and replacement investment of $5,279

/\b. Total *Capital expenditures2526* comprises expansion investment of $3,268 and replacement investment of $5,279

/\c. Total *Capital expenditures2526* comprises expansion investment of $4,321 and replacement investment of $5,279

/\d. Total *Capital expenditures2526* comprises expansion investment of $3,268 and replacement investment of $4,590

/\e. Total *Capital expenditures2526* comprises expansion investment of $4,321 and replacement investment of $4,590

### TQ4 Contrast ror and roe from financial statements

Find below information from the Company’s financial statements.

*Balance Sheet, 12/31/2525 Income, 1/1 – 12/31/2526*

$3,960 Current assets $4,200 Debt Sales $31,680

$4,840 PP&E $4,600 Stockholders’ equity total costs $30,001

$8,800 Total assets $8,800 net income $1,679

dividends $1,007

The equity price-to-book ratio is constant at 1.32 and the company neither issues nor repays debt or equity. Find for year 2526 the return-on-equity (=*Net income2526 ÷ Stockholders equity2525* , “ROE”) and stockholder’s rate of return (“ROR”).

{ANSWER: B ; xlADDRESS: TeacherQuestions!$B$191; CLUES: SE2526= $5,272 ; MarketCap2526= $6,959 }

/\a. Stockholder’s ROR is 41.3% and book ROE is 42.0%

/\b. Stockholder’s ROR is 31.2% and book ROE is 36.5%

/\c. Stockholder’s ROR is 35.9% and book ROE is 36.5%

/\d. Stockholder’s ROR is 31.2% and book ROE is 42.0%

/\e. Stockholder’s ROR is 41.3% and book ROE is 36.5%

### TQ5 Find EFN given sources and uses

During year 2526 the company expects changes in *Total assets* to represent a $13,200 source of funds. They also expect that spontaneous changes in liabilities will represent a $15,600 source of funds. *New retained earnings2526* should equal $23,200 . Compute the external financing need (“EFN2526”) and determine whether the forecast is a surplus or deficit.

{ANSWER: C ; xlADDRESS: TeacherQuestions!$B$206 }

/\a. The EFN2526 suggests a deficit of $59.8 thousand

/\b. The EFN2526 suggests a deficit of $52.0 thousand

/\c. The EFN2526 suggests a surplus of $52.0 thousand

/\d. The EFN2526 suggests a deficit of $45.2 thousand

/\e. The EFN2526 suggests a surplus of $59.8 thousand

### TQ6 Partition simple lump sum interest

Exactly 19 years ago your guardian angel deposited $4,000 in an account for you. The account is left untouched and earns 10.5% compounded annually. You are unable to touch the account until 12 more years from today. Compute how much at that time is the total interest-on-interest and interest-on-principal.

{ANSWER: C ; xlADDRESS: TeacherQuestions!$B$252; CLUES: FV= $88,367 }

/\a. Total interest-on-interest is $94,357 and interest on principal is $13,020

/\b. Total interest-on-interest is $71,347 and interest on principal is $11,322

/\c. Total interest-on-interest is $71,347 and interest on principal is $13,020

/\d. Total interest-on-interest is $82,049 and interest on principal is $11,322

/\e. Total interest-on-interest is $82,049 and interest on principal is $13,020

### TQ7 Find total interest for FV of two irregular and non-consecutive deposits

Exactly 8 months from today you deposit $900 . Then, exactly 11 months from today you deposit $1,600 . Your account earns annual interest of 8.3% compounded monthly. There are no other deposits or withdrawals and finally, exactly 15 months from today, you withdraw the entire accumulation. How much total interest did the account earn?

{ANSWER: E ; xlADDRESS: TeacherQuestions!$B$21; CLUE: FV=$2,589 }

/\a. $108 b. $81 c. $74 d. $98 e. $89

### TQ8 Find FV for a regular annuity given a beginning balance

This morning your account balance is $1,300 , and this afternoon you wish to begin a new savings plan with this account. You plan to deposit $110 each month, with the first deposit today and last in 45 months. The account earns annual interest of 7.3% compounded monthly. Find the account balance immediately after the last deposit.

{ANSWER: E ; xlADDRESS: TeacherQuestions!$B$38 }

/\a. $5,655 b. $6,220 c. $8,279 d. $6,842 e. $7,527

### TQ9 IRR for a simple cash flow stream

You pay $4,000 today for an investment. You receive $1,162 in one year and $2,444 in two years. Then in three years you receive $1,040 plus sell the asset for $2,074 . Find the annual average geometric rate of return.

{ANSWER: A ; xlADDRESS: TeacherQuestions!$B$267 }

/\a. 26.3% b. 23.9% c. 31.8% d. 28.9% e. 35.0%

### TQ10 Find change in bond price

A bond with exactly 10 years until maturity paid its semiannual coupon yesterday. The annual coupon rate is 3.30% and the bond price today is $813 . Suppose that the yield-to-maturity remains constant. Immediately after receiving the coupon in 6 months find the capital gain or loss that the bond will generate.

{ANSWER: A ; xlADDRESS: TeacherQuestions!$B$297; CLUE: ytm= 5.79% }

/\a. the bond generates a capital gain of $7.03

/\b. the bond generates a capital gain of $9.30

/\c. the bond generates a capital gain of $8.09

/\d. the bond generates a capital loss of $7.03

/\e. the bond generates a capital loss of $9.30

### TQ11 DJIA average price move required to reach a new milepost

A recent newspaper article says that the DJIA is 150 points away from reaching the 11,000 point milepost. You check the *Wall Street Journal* tables and see that the divisor equals 0.1480. Find how much the average price of the thirty stocks in the DJIA must change to reach the milepost.

{ANSWER: D ; xlADDRESS: TeacherQuestions!$B$51 }

/\a. $0.67 b. $0.56 c. $0.81 d. $0.74 e. $0.61

### TQ12 Find intrinsic value with zero dividends until time N, and flat thereafter

The stock for a start-up company probably will pay no dividends until exactly 7 years from today. At that time it will pay $9.60 per year forever. You assess the intrinsic value of the stock with a 15.7% discount rate. Find the stock’s intrinsic value today.

{ANSWER: B ; xlADDRESS: TeacherQuestions!$B$64; CLUE: FV(intrinsic value = $61.15 }

/\a. $33.93 b. $25.49 c. $30.84 d. $37.32 e. $28.04

### TQ14 Find portfolio average ror

At the beginning of last month about 40% of your $3,750 portfolio was in stock *X;* stock *Y* accounted for 35% and stock *Z* for the rest. Monthly rates of return equaled 32% for stock *X,*  -24% for *Y,* and 16% for *Z*. Find last month’s percentage change in total portfolio wealth.

{ANSWER: B ; xlADDRESS: TeacherQuestions!$B$284 }

/\a. 6.9% b. 8.4% c. 9.2% d. 7.6% e. 6.3%

### TQ15 Find diversification benefits given equal probabilities and forced weights

Each of the listed paired-outcomes for securities Alpha and Zed is equally likely:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *%return Alpha* | 3.2% | 10.2% | 22.8% | 17.8% |
| *%return Zed* | 21.4% | 17.5% | 13.2% | -6.9% |

Suppose you form a portfolio that allocates 60% to Alpha and the remainder in Zed. What is the portfolio risk (standard deviation) and how much diversification benefits (in basis points, “BP”) does the portfolio offer?

{ANSWER: E ; xlADDRESS: TeacherQuestions!$B$80 CLUE: avg= 8.83%}

/\a. actual portfolio risk is 4.71%and the diversification benefit is 412 BP

/\b. actual portfolio risk is 3.56% and the diversification benefit is 412 BP

/\c. actual portfolio risk is 4.10% and the diversification benefit is 412 BP

/\d. actual portfolio risk is 4.71% and the diversification benefit is 473 BP

/\e. actual portfolio risk is 4.10% and the diversification benefit is 473 BP

### TQ16 Describe buy-side participants

Participants in the financial markets may be classified, generally speaking, as either buy-side investors or sell-side suppliers. Which statement about buy-side participants is most accurate?

{ANSWER: B ; xlADDRESS: TeacherQuestions!$B$90 }

/\a. The two largest institutional investors in equities are "Mutual funds" and "Insurance companies".

/\b. The single largest type of financial security owned by households is "corporate equities".

/\c. Total financial assets are larger for Commercial banks than for Households.

/\d. Two choices, A and B, are correct

/\e. None of the A-B-C choices are correct

### TQ17 Stock index arbitrage (find pv and strategy)

The SP2 Index equals the sum of stock prices for companies Y and Z. Today's stock prices equal $60 and $76 for stocks Y and Z, respectively. Today's futures price for the SP2 with delivery in 1-year is $140.04 . The interest rate at which you may borrow and invest is 14.3%. How much is the present value of stock index arbitrage profits, and how do you capture it?

{ANSWER: A ; xlADDRESS: TeacherQuestions!$B$104; CLUES: pv(no-arb spot price) = $122.52 }

/\a. Capture the present value of arbitrage profits, $13.48 , by taking a short position in the spot market, investing the proceeds at the interest rate, and also entering a long position in the futures market.

/\b. Capture the present value of arbitrage profits, $11.72 , by taking a short position in the spot market, investing the proceeds at the interest rate, and also entering a long position in the futures market.

/\c. Capture the present value of arbitrage profits, $11.72 , by taking a long position in the spot market by borrowing money at the interest rate and entering a short position in the futures market.

/\d. Capture the present value of arbitrage profits, $10.19 , by taking a long position in the spot market by borrowing money at the interest rate and entering a short position in the futures market.

/\e. Capture the present value of arbitrage profits, $13.48 , by taking a long position in the spot market by borrowing money at the interest rate and entering a short position in the futures market.

### TQ18 Find effect on revenue of currency change

The company wishes to earn target revenue in 4 months of $22,250 (USD) by making a sale to a foreign client that wishes to pay in their native currency (dinar). The current exchange rate is 4.90 dinar per USD. Your boss agrees to accept payment in dinar that, at the current exchange rate, exactly converts into the target revenue. You politely inform the boss that before the payment is received in 4 months most analysts forecast that the dinar will appreciate 8% relative to the USD. How will payment at the forecast exchange rate compare (in USD) to the target revenue?

{ANSWER: E ; xlADDRESS: TeacherQuestions!$B$124; CLUES: payment in foreign currency= 109025; forecast exchange rate per USD= 4.508; actual revenue= $24,185 USD}

/\a. actual revenue will be $2,559 bigger than target revenue

/\b. actual revenue will be $2,559 less than target revenue

/\c. actual revenue will be $2,225 bigger than target revenue

/\d. actual revenue will be $2,225 less than target revenue

/\e. actual revenue will be $1,935 bigger than target revenue

### TQ19 find ending stock price with call option portfolio insurance that gives this ROR

The shareprice of Company stock currently is $27.80 . You have $8,000 available for investing in the good fortunes of the Company. Instead of buying the stock, however, you pursue a portfolio insurance strategy with the following allocation: 85% in a money market account earning 5.30% compounded monthly; 15% in call options on the Company stock with a strike of $32.50 , expiration in 22 months, and option price of $4.00 (assume you can buy fractions of options). Suppose that at the conclusion of your 22-month investment horizon the insurance strategy provides a 60% rate of return. Find the ending price (in 22 months) for the Company stock.

{ANSWER: B ; xlADDRESS: TeacherQuestions!$B$142; CLUES: Wend = $12,800 ; FV(MM)= $7,492 ; payoff per call = $17.69 }

/\a. $45.63 b. $50.19 c. $41.48 d. $37.71 e. $55.21

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