公司金融/Fall 2022/ HW#2

Chapter 10

Question 1

Calculating Returns Suppose a stock had an initial price of $75 per share, paid a dividend of $1.20 per share during the year, and had an ending share price of $86. Compute the percentage total return.

Question 2

Calculating Returns and Variability You've observed the following returns on Mary Ann Data Corporation's stock over the past five years: 27 percent, 13 percent, 18 percent, −14 percent, and 9 percent.

a. What was the arithmetic average return on Mary Ann's stock over this five-year period?

b. What was the variance of Mary Ann's returns over this period? The standard deviation?

Question 3

Arithmetic and Geometric Returns A stock has had the following year-end prices and dividends:

Year	Price	Dividend
1	$61.18	—
2	64.83	$ .72
3	72.18	.78
4	63.12	.86
5	69.27	.95
6	76.93	1.08

What are the arithmetic and geometric returns for the stock?

Question 4

Holding Period Return A stock has had returns of 16.12 percent, 12.11 percent, 5.83 percent, 26.14 percent, and −13.19 percent over the past five years, respectively. What was the holding period return for the stock?

Chapter 11

Question 1

Portfolio Expected Return You have $10,000 to invest in a stock portfolio. Your choices are Stock X with an expected return of 14 percent and Stock Y with an expected return of 9 percent. If your goal is to create a portfolio with an expected return of 12.9 percent, how much money will you invest in Stock X? In Stock Y?

Question 2

Calculating Returns and Standard Deviations Based on the following information, calculate the expected return and standard deviation for the two stocks:

State of Economy	Probability of State of Economy	Rate of Return if State Occurs	
		Stock *A*	Stock *B*
Recession	.20	.06	−.20
Normal	.55	.07	.13
Boom	.25	.11	.33

Question 3

Calculating Portfolio Betas You own a stock portfolio invested 10 percent in Stock Q, 35 percent in Stock R, 20 percent in Stock S, and 35 percent in Stock T. The betas for these four stocks are .75, 1.90, 1.38, and 1.16, respectively. What is the portfolio beta?

Question 4

Using CAPM A stock has an expected return of 10.2 percent, the risk-free rate is 4 percent, and the market risk premium is 7 percent. What must the beta of this stock be?

Question 5

Covariance and Correlation Based on the following information, calculate the expected return and standard deviation of each of the following stocks. Assume each state of the economy is equally likely to happen. What are the covariance and correlation between the returns of the two stocks?

State of Economy	Return on Stock *A*	Return on Stock *B*
Bear	.102	−.045
Normal	.115	.148
Bull	.073	.233

Chapter 13

Question 1

Calculating WACC Mullineaux Corporation has a target capital structure of 70 percent common stock and 30 percent debt. Its cost of equity is 13 percent, and the cost of debt is 6 percent. The relevant tax rate is 35 percent. What is Mullineaux's WACC?

Question 2

Finding the Capital Structure Fama's Llamas has a weighted average cost of capital of 9.8 percent. The company's cost of equity is 13 percent, and its cost of debt is 6.5 percent. The tax rate is 35 percent. What is Fama's debt–equity ratio?

Question 3

SML and WACC An all-equity firm is considering the following projects:

Project	Beta	IRR
W	.80	9.4%
X	.95	10.9
Y	1.15	13.0
Z	1.45	14.2

The T-bill rate is 3.5 percent, and the expected return on the market is 11 percent.

a. Which projects have a higher expected return than the firm's 11 percent cost of capital?
b. Which projects should be accepted?
c. Which projects would be incorrectly accepted or rejected if the firm's overall cost of capital was used as a hurdle rate?

Question 4

Flotation Costs and NPV Photochronograph Corporation (PC) manufactures time series photographic equipment. It is currently at its target debt–equity ratio of .55. It's considering building a new $50 million manufacturing facility. This new plant is expected to generate aftertax cash flows of $6.7 million a year in perpetuity. The company raises all equity from outside financing. There are three financing options:

1. *A new issue of common stock:* The flotation costs of the new common stock would be 8 percent of the amount raised. The required return on the company's new equity is 14 percent.
2. *A new issue of 20-year bonds:* The flotation costs of the new bonds would be 4 percent of the proceeds. If the company issues these new bonds at an annual coupon rate of 8 percent, they will sell at par.
3. *Increased use of accounts payable financing:* Because this financing is part of the company's ongoing daily business, it has no flotation costs, and the company assigns it a cost that is the same as the overall firm WACC. Management has a target ratio of accounts payable to long-term debt of .20. (Assume there is no difference between the pretax and aftertax accounts payable cost.)

What is the NPV of the new plant? Assume that PC has a 35 percent tax rate.

Question 5

Flotation Costs Trower Corp. has a debt–equity ratio of .85. The company is considering a new plant that will cost $145 million to build. When the company issues new equity, it incurs a flotation cost of 8 percent. The flotation cost on new debt is 3.5 percent. What is the initial cost of the plant if the company raises all equity externally? What if it typically uses 60 percent retained earnings? What if all equity investments are financed through retained earnings?

Chapter 15

Question 1

Cumulative Voting An election is being held to fill three seats on the board of directors of a firm in which you hold stock. The company has 7,600 shares outstanding. If the election is conducted under cumulative voting and you own 300 shares, how many more shares must you buy to be assured of earning a seat on the board?

Question 2

Corporate Voting Candle box Inc. is going to elect six board members next month. Betty Brown owns 17.4 percent of the total shares outstanding. How confident can she be of having one of her candidate friends elected under the cumulative voting rule? Will her friend be elected for certain if the voting procedure is changed to the staggering rule, under which shareholders vote on two board members at a time?

Chapter 16

Question 1

EBIT and Leverage Money, Inc., has no debt outstanding and a total market value of $275,000. Earnings before interest and taxes, EBIT, are projected to be $21,000 if economic conditions are normal. If there is strong expansion in the economy, then EBIT will be 25 percent higher. If there is a recession, then EBIT will be 40 percent lower. Money is considering a $99,000 debt issue with an interest rate of 8 percent. The proceeds will be used to repurchase shares of stock. There are currently 5,000 shares outstanding. Ignore taxes for this problem.

a. Calculate earnings per share, EPS, under each of the three economic scenarios before any debt is issued. Also calculate the percentage changes in EPS when the economy expands or enters a recession.

b. Repeat part (a) assuming that Money goes through with recapitalization. What do you observe?

Question 2

Break-Even EBIT Rolston Corporation is comparing two different capital structures, an all-equity plan (Plan I) and a levered plan (Plan II). Under Plan I, Rolston would have 265,000 shares of stock outstanding. Under Plan II, there would be 185,000 shares of stock outstanding and $2.8 million in debt outstanding. The interest rate on the debt is 10 percent and there are no taxes.

a. If EBIT is $750,000, which plan will result in the higher EPS?

b. If EBIT is $1,500,000, which plan will result in the higher EPS?

c. What is the break-even EBIT?

Question 3

MM and Taxes Bruce & Co. expects its EBIT to be $185,000 every year forever. The firm can borrow at 9 percent. Bruce currently has no debt, and its cost of equity is 16 percent. If the tax rate is 35 percent, what is the value of the firm? What will the value be if Bruce borrows $135,000 and uses the proceeds to repurchase shares?

Question 4

MM with Taxes Williamson, Inc., has a debt–equity ratio of 2.5. The firm's weighted average cost of capital is 10 percent, and its pretax cost of debt is 6 percent. Williamson is subject to a corporate tax rate of 35 percent.

a. What is Williamson's cost of equity capital?

b. What is Williamson's unlevered cost of equity capital?

c. What would Williamson's weighted average cost of capital be if the firm's debt–equity ratio were .75? What if it were 1.5?

Question 5

Cost of Capital Acetate, Inc., has equity with a market value of $23 million and debt with a market value of $7 million. Treasury bills that mature in one year yield 5 percent per year, and the expected return on the market portfolio is 12 percent. The beta of Acetate's equity is 1.15. The firm pays no taxes.

a. What is Acetate's debt–equity ratio?
b. What is the firm's weighted average cost of capital?
c. What is the cost of capital for an otherwise identical all-equity firm?

Chapter 17

Question 1

Nonmarketed Claims Dream, Inc., has debt outstanding with a face value of $6 million. The value of the firm if it were entirely financed by equity would be $17.85 million. The company also has 350,000 shares of stock outstanding that sell at a price of $38 per share. The corporate tax rate is 35 percent. What is the decrease in the value of the company due to expected bankruptcy costs?

Question 2

Costs of Financial Distress Steinberg Corporation and Dietrich Corporation are identical firms except that Dietrich is more levered. Both companies will remain in business for one more year. The companies' economists agree that the probability of the continuation of the current expansion is 80 percent for the next year, and the probability of a recession is 20 percent. If the expansion continues, each firm will generate earnings before interest and taxes (EBIT) of $2.7 million. If a recession occurs, each firm will generate earnings before interest and taxes (EBIT) of $1.1 million. Steinberg's debt obligation requires the firm to pay $900,000 at the end of the year. Dietrich's debt obligation requires the firm to pay $1.2 million at the end of the year. Neither firm pays taxes. Assume a discount rate of 13 percent.

a. What is the value today of Steinberg's debt and equity? What about that for Dietrich's?
b. Steinberg's CEO recently stated that Steinberg's value should be higher than Dietrich's because the firm has less debt and therefore less bankruptcy risk. Do you agree or disagree with this statement?

Question 3

Financial Distress Good Time Company is a regional chain department store. It will remain in business for one more year. The probability of a boom year is 60 percent and the probability of a recession is 40 percent. It is projected that the company will generate a total cash flow of $185 million in a boom year and $76 million in a recession. The company's required debt payment at the end of the year is $110 million. The market value of the company's outstanding debt is $83 million. The company pays no taxes.

a. What payoff do bondholders expect to receive in the event of a recession?
b. What is the promised return on the company's debt?
c. What is the expected return on the company's debt?

Chapter 18

Question 1

NPV and APV Zoso is a rental car company that is trying to determine whether to add 25 cars to its fleet. The company fully depreciates all its rental cars over five years using the straight-line method. The new cars are expected to generate $175,000 per year in earnings before taxes and depreciation for five years. The company is entirely financed by equity and has a 35 percent tax rate. The required return on the company's unlevered equity is 13 percent, and the new fleet will not change the risk of the company.

a. What is the maximum price that the company should be willing to pay for the new fleet of cars if it remains an all-equity company?

b. Suppose the company can purchase the fleet of cars for $480,000. Additionally, assume the company can issue $390,000 of five-year, 8 percent debt to finance the project. All principal will be repaid in one balloon payment at the end of the fifth year. What is the adjusted present value (APV) of the project?

Question 2

FTE Milano Pizza Club owns three identical restaurants popular for their specialty pizzas. Each restaurant has a debt–equity ratio of 40 percent and makes interest payments of $41,000 at the end of each year. The cost of the firm's levered equity is 19 percent. Each store estimates that annual sales will be $1.3 million; annual cost of goods sold will be $670,000; and annual general and administrative costs will be $405,000. These cash flows are expected to remain the same forever. The corporate tax rate is 40 percent.

a. Use the flow to equity approach to determine the value of the company's equity.

b. What is the total value of the company?

Question 3

APV, FTE, and WACC Seger, Inc., is an unlevered firm with expected annual earnings before taxes of $21 million in perpetuity. The current required return on the firm's equity is 16 percent, and the firm distributes all of its earnings as dividends at the end of each year. The company has 1.3 million shares of common stock outstanding and is subject to a corporate tax rate of 35 percent. The firm is planning a recapitalization under which it will issue $30 million of perpetual 9 percent debt and use the proceeds to buy back shares.

a. Calculate the value of the company before the recapitalization plan is announced. What is the value of equity before the announcement? What is the price per share?

b. Use the APV method to calculate the company value after the recapitalization plan is announced. What is the value of equity after the announcement? What is the price per share?

c. How many shares will be repurchased? What is the value of equity after the repurchase has been completed? What is the price per share?

d. Use the flow to equity method to calculate the value of the company's equity after the recapitalization.

Chapter 19

Question 1

Stock Splits and Stock Dividends Roll Corporation (RC) currently has 330,000 shares of stock outstanding that sell for $64 per share. Assuming no market imperfections or tax effects exist, what will the share price be after:

a. RC has a five-for-three stock split?
b. RC has a 15 percent stock dividend?
c. RC has a 42.5 percent stock dividend?
d. RC has a four-for-seven reverse stock split?

Determine the new number of shares outstanding in parts (a) through (d).

Question 2

Regular Dividends The balance sheet for Levy Corp. is shown here in market value terms. There are 12,000 shares of stock outstanding.

Market Value Balance Sheet			
Cash	$ 55,000	Equity	$465,000
Fixed assets	410,000		
Total	$465,000	Total	$465,000

The company has declared a dividend of $1.90 per share. The stock goes ex dividend tomorrow. Ignoring any tax effects, what is the stock selling for today? What will it sell for tomorrow? What will the balance sheet look like after the dividends are paid?

Question 3

Share Repurchase In the previous problem, suppose Levy has announced it is going to repurchase $22,800 worth of stock. What effect will this transaction have on the equity of the firm? How many shares will be outstanding? What will the price per share be after the repurchase? Ignoring tax effects, show how the share repurchase is effectively the same as a cash dividend.

Question 4

Dividend Policy Gibson Co. has a current period cash flow of $1.1 million and pays no dividends. The present value of the company's future cash flows is $15 million. The company is entirely financed with equity and has 600,000 shares outstanding. Assume the dividend tax rate is zero.

a. What is the share price of the Gibson stock?

b. Suppose the board of directors of Gibson Co. announces its plan to pay out 50 percent of its current cash flow as cash dividends to its shareholders. How can Jeff Miller, who owns 1,000 shares of Gibson stock, achieve a zero payout policy on his own?