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PRACTICE EXERCISES LECTURE 5

- Q1.** Your firm is planning to invest in an automated packaging plant. You identify Peck Industries as a comparable firm as Peck, which is an all-equity firm, specializes in this business. Suppose Peck's equity beta is 0.88, the risk-free rate is 3.9%, and the market risk premium is 4.9%. If your firm's project is all equity financed, estimate its cost of capital.
- Q2.** Consider the setting of Question 1. You decided to look for another comparable firm to reduce estimation error in your cost of capital estimate. You find a second firm, Wrapbinar Design, which is also engaged in a similar line of business. Wrapbinar, however, is different from Peck Industries as it is a levered firm. Wrapbinar has a stock price of \$16 per share, with 16 million shares outstanding. It also has \$110 million in outstanding AA-rated debt, with a yield on the debt of 4.1%. Wrapbinar's equity beta is 1.00.
- Assume Wrapbinar's debt has a beta of zero. Estimate Wrapbinar's unlevered beta. Use the unlevered beta and the CAPM to estimate Wrapbinar's unlevered cost of capital.
 - Estimate Wrapbinar's equity cost of capital using the CAPM. Then assume its debt cost of capital equals its yield, and using these results, estimate Wrapbinar's unlevered cost of capital.
- Q3.** In mid-2015, Cisco Systems had a market capitalization of \$99 billion. It had an A-rated debt of \$18 billion as well as cash and short-term investments of \$52 billion, and its estimated equity beta at the time was 1.16.
- What was Cisco's enterprise value?
 - Assuming Cisco's debt had a beta of zero, estimate the beta of Cisco's underlying business enterprise.
- Q4.** You would like to estimate the weighted average cost of capital for a new airline business. Based on its industry asset beta, you have already estimated an unlevered cost of capital for the firm of 10%. However, the new business will be 22% debt financed, and you anticipate its debt cost of capital will be 6%. If its corporate tax rate is 33%, what is your estimate of its WACC?
- Q5.** Suppose Visa Inc. (V) has no debt and an equity cost of capital of 9.2%. However, the average debt-to-value ratio for the credit services industry is 13%. What would its cost of equity be if it took on the average amount of debt for its industry at a cost of debt of 6%?
- Q6.** Great Plains (GP) has common stock with a market value of \$470 million and debt with a value of \$299 million. Investors expect a 13% return on the stock and a 5% return on the debt. Assume perfect capital markets. Suppose GP issues \$71 million of new debt to repurchase stock. If the risk of the debt does not change, what is the expected return of the stock after this transaction?

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- Q7.** Mercer Corp. is a firm with 10 million shares outstanding and \$84 million worth of debt outstanding. Its current share price is \$73. Mercer's equity cost of capital is 8.5%. Mercer has just announced that it will issue \$354 million worth of debt. It will use the proceeds from this debt to pay off its existing debt, and use the remaining \$270 million to pay an immediate dividend. Assume perfect capital markets.
- Estimate Mercer's share price just after the recapitalization is announced, but before the transaction occurs.
 - Estimate Mercer's share price at the conclusion of the transaction. (*Hint:* Use the market value balance sheet.)
 - Suppose Mercer's existing debt was risk free with a 4.39% expected return, and its new debt is risky with a 4.93% expected return. Estimate Mercer's equity cost of capital after the transaction.
- Q8.** You are CEO of a high-growth technology firm. You plan to raise \$160 million to fund an expansion by issuing either new shares or new debt. With the expansion, you expect earnings next year of \$31 million. The firm currently has 9 million shares outstanding, with a price of \$67 per share. Assume perfect capital markets.
- If you raise the \$160 million by selling new shares, what will the forecast for next year's earnings per share be?
 - If you raise the \$160 million by issuing new debt with an interest rate of 8%, what will the forecast for next year's earnings per share be?
 - What is the firm's forward P/E ratio (that is, the share price divided by the expected earnings for the coming year) if it issues equity? What is the firm's forward P/E ratio if it issues debt? How can you explain the difference?
- Q9.** Arnell Industries has just issued \$15 million in debt (at par). The firm will pay interest only on this debt. Arnell's marginal tax rate is expected to be 35% for the foreseeable future.
- Suppose Arnell pays interest of 7% per year on its debt. What is its annual interest tax shield?
 - What is the present value of the interest tax shield, assuming its risk is the same as the loan?
- Q10.** Kurz Manufacturing is currently an all-equity firm with 27 million shares outstanding and a stock price of \$15 per share. Although investors currently expect Kurz to remain an all-equity firm, Kurz plans to announce that it will borrow \$65 million and use the funds to repurchase shares. Kurz will pay interest only on this debt, and it has no further plans to increase or decrease the amount of debt. Kurz is subject to a 38% corporate tax rate.
- What is the market value of Kurz's existing assets before the announcement?
 - What is the market value of Kurz's assets (including any tax shields) just after the debt is issued, but before the shares are repurchased?
 - What is Kurz's share price just before the share repurchase?
 - How many shares will Kurz be able to repurchase with the \$65 million debt?
 - What are Kurz's market value balance sheet and share price after the share repurchase?

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- Q11. Markum Enterprises is considering permanently adding \$127 million of debt to its capital structure. Markum's corporate tax rate is 40%.**
- a. Absent personal taxes, what is the value of the interest tax shield from the new debt?**
 - b. If investors pay a tax rate of 35% on interest income, and a tax rate of 25% on income from dividends and capital gains, what is the value of the interest tax shield from the new debt?**