Chapter 3
Practice Problems

1. Gumby, Inc. has total assets of $1,000,000 and a debt-to-equity ratio of 3/7. Currently it has sales of $2,500,000, total costs (including depreciation) of $1,000,000, and EBIT of $50,000. If Gumby pays 10% interest to debtholders, and the corporate tax rate is 42%, then what is the firm's ROE?
2. Given the following information, calculate the market price per share of Coconut Enterprises.
    - NI = $200,000
    - Book equity = $2,000,000
    - EPS = 2.00
    - Market-to-book ratio = 0.20
3. If Revenues are $1,000, Costs are $500, Depreciation is $100, NI=$70, and the average tax rate is 30%, what is Interest Expense?
4. What happens to a firm's ROE if its leverage increases? *Explain*.
5. A broker calls to sell you a stock. The broker explains that the firm's liquidity position is "wonderful." In particular, its current ratio and quick ratio are ten times the industry average. Can a firm ever have too much liquidity? Why or why not?
6. If Revenues are $1,000, Interest Expense are $175, Costs (other than depreciation) are $400, Depreciation is $100, and the average tax rate is 42%, then what is the firm's Net Income?
7. Marcus Corp. has a debt ratio of 20%, total asset turnover of 2.5 and net income relative to sales of 10%. The board of directors is unhappy with its current ROE, and thinks it can be doubled. A new operating plan implies NI/S will be 15%, with no change to total assets turnover. What is the new debt ratio that doubles ROE?
8. You are an analyst that specializes in studying firms in the grocery industry. One of the firms you follow (Tesco) has typically been around the median for the industry in terms of both the current and quick ratio. However, you notice that the last year has seen a decline in both ratios relative to the industry median. What do you conclude about Tesco's liquidity?
9. You are an analyst that covers the coffee industry. A key company is Starbucks (SBUX). As SBUX expanded globally, not only did their total assets increase, but so did their debt. Of course, there were income statement changes too: revenues increased, but so did various costs, especially interest expense. Do you think SBUX's credit rating would have changed, and if so, in what direction?
10. You are an analyst following RIM, the maker of Blackberry. They have been struggling, and their ROA has been less than their average interest rate paid on debt. In an attempt to turn things around, the firm raised capital to invest in development of a new phone with a touch-screen keyboard. Because of their low stock price, the firm turned to debt markets to raise cash. Does the increase in debt—relative to equity—have a positive or negative effect on their ROE?

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Practice Problems (w/ answers)

1. Gumby, Inc. has total assets of $1,000,000 and a debt-to-equity ratio of 3/7. Currently it has sales of $2,500,000, total costs (including depreciation) of $1,000,000, and EBIT of $50,000. If Gumby pays 10% interest to debtholders, and the corporate tax rate is 42%, then what is the firm's ROE? **ROE = 1.65714%**
2. Given the following information, calculate the market price per share of Coconut Enterprises.
    - NI = $200,000
    - Book equity = $2,000,000
    - EPS = 2.00
    - Market-to-book ratio = 0.20
3. If Revenues are $1,000, Costs are $500, Depreciation is $100, NI=$70, and the average tax rate is 30%, what is Interest Expense? **Int = $300**
4. What happens to a firm's ROE if its leverage increases? *Explain*. **Leverage increases variance/volatility of ROE. Whether or not leverage increases ROE depends on the firm's after-tax ROA relative to its after-tax interest expenses: ROE increases if the firm is able to cover its expenses, but not otherwise (see the formula in the notes).**
5. A broker calls to sell you a stock. The broker explains that the firm's liquidity position is "wonderful." In particular, its current ratio and quick ratio are ten times the industry average. Can a firm ever have too much liquidity? Why or why not? **Sure—imagine the most liquid firm possible: its assets are entirely cash. If all assets are cash, what generates profits (cash is not a productive asset)? The firm needs some illiquid assets to be productive and profitable.**
6. If Revenues are $1,000, Interest Expense are $175, Costs (other than depreciation) are $400, Depreciation is $100, and the average tax rate is 42%, then what is the firm's Net Income? **NI = $188.50**
7. Marcus Corp. has a debt ratio of 20%, total asset turnover of 2.5 and net income relative to sales of 10%. The board of directors is unhappy with its current ROE, and thinks it can be doubled. A new operating plan implies NI/S will be 15%, with no change to total assets turnover. What is the new debt ratio that doubles ROE? **D/A = 0.4**
8. You are an analyst that specializes in studying firms in the grocery industry. One of the firms you follow (Tesco) has typically been around the median for the industry in terms of both the current and quick ratio. However, you notice that the last year has seen a decline in both ratios relative to the industry median. What do you conclude about Tesco's liquidity? **Tesco's liquidity position has degenerated. Both the current ratio and quick ratio measure the firm's liquidity position. While higher numbers are generally viewed as better, there can be such a thing as too much liquidity (see above). That is not the case for Tesco, which has tended to be around the industry median.**
9. You are an analyst that covers the coffee industry. A key company is Starbucks (SBUX). As SBUX expanded globally, not only did their total assets increase, but so did their debt. Of course, there were income statement changes too: revenues increased, but so did various costs, especially interest expense. Do you think SBUX's credit rating would have changed, and if so, in what direction? **We can't say whether SBUX's credit-worthiness changed. A firm's ability to meet its debt obligations depends on ratios more than on levels. We don't know if D/TA rose or fell because both items rose; we don't know whether**

interest coverage (EBIT/Int) rose or fell because we only know that the denominator rose.

10. You are an analyst following RIM, the maker of Blackberry. They have been struggling, and their ROA has been less than their average interest rate paid on debt. In an attempt to turn things around, the firm raised capital to invest in development of a new phone with a touch-screen keyboard. Because of their low stock price, the firm turned to debt markets to raise cash. Does the increase in debt—relative to equity—have a positive or negative effect on their ROE?
    Negative. When after-tax ROA is less than the after-tax interest rate, then a higher D/E ratio reduces ROE.