

Problem Set 9

Corporate Finance, Sections 001 and 002
Due Thursday, April 22nd

Suggested problems:

RWJ Problems 12.1, 12.9, 12.11, 12.15

(Use revised problems on <http://finance.wharton.upenn.edu/~jwachter/fnce100>.)

Required problems:

1. Nero Violins has the following capital structure:

Security	Beta	Total market value (millions of dollars)
Debt	0	100
Equity	1.2	200

Assume no taxes or costs of financial distress.

- (a) What is the firm's asset beta (i.e. the beta of a portfolio of all the firm's securities)?
 - (b) Assume the CAPM is correct. What discount rate should Nero use for projects similar to its current projects (that is, what discount rate should Nero use to expand the scale of its investments)? Assume that the riskfree rate is 5%, and that the expected return on the market is 13%.
 - (c) Now assume that Nero decides to issue an additional \$100 million of equity and used the cash to repurchase all the debt. How does Nero's equity beta change? How does Nero's asset beta change? Explain your answer.
2. Assume that Juniper Hats has \$300,000 of debt outstanding, 10,000 shares of common stock, and a stock price of \$50. Assume that the expected rate of return on stock is 15%, while the expected rate of return on debt is 8%. Assuming no taxes or costs of financial distress, calculate Juniper's weighted average cost of capital.
 3. The Netherfield Corporation's equity has a beta of 1.4. Its debt has a beta of 0.2. Its ratio of debt to equity is 0.3. The Longbourn Corporation's equity has a beta of 2. Its debt has a beta of zero. Longbourn's ratio of debt to equity is 0.5. The riskfree rate is 8%, and the expected return on the market portfolio is 19%. Assuming the CAPM holds, and that there are no taxes or costs of financial distress, answer the following:
 - (a) The Netherfield Corporation is thinking of investing in the same line of business that Longbourn is engaged in. What discount rate should it use?
 - (b) Now suppose the Netherfield Corporation has decided to invest in Longbourn's line of business. These projects now constitute 10% of the overall value of the Netherfield Corporation. Given that its debt/equity ratio and the beta of its debt remain unchanged, what will the beta of Netherfield's equity be now?