Homework Assignment 5

1) These questions examine the effect of leverage-increasing transactions – issuing debt and repurchasing equity – on a firm's finances. You should start with your spreadsheets from Homework 1. Assume there are initially 1.8 million shares outstanding.

   A) Swing and Pool has decided to issue $20 million of debt. The loan will have a 5% interest rate and will be an amortizing loan. Thus total payment on the loan – interest plus principal – will be the same each year. Assume the loan has a five-year maturity. Calculate the annual interest payments, principal payments, and remaining principal at the end of each year. There are Excel functions that should make this question easy.

   B) The proceeds of the loan issue will be used to repurchase shares at the market price. If the stock price at which the shares must be repurchased is $33.36, how many shares are outstanding after the debt issue and repurchase? We will discuss how we found $33.36 below.

2) Valuation of levered firms. In this exercise, you will value Swing and Pool (from Homework 1) conditional on it levering up.

   A) Construct a revised pro forma balance sheet and income statement for the levered Swing and Pool. The proceeds of the loan income is after-tax income. Remember, the balance sheet must balance. Remember, dividends are equal to free cash flow to assets minus required debt payments (principal plus after tax interest payments).

   B) What is the value of the levered firm? Assume that cash flows grow at 6.15% forever starting in 2018. Use APV to value the firm. You may assume there are no costs of financial distress and the debt is correctly priced.

   C) Verify that the repurchase price of $33.36 assumed in 1-B is correct. This is the stock price after the announcement of the leverage increasing transaction, but prior to its execution. Then calculate the price of the equity after the debt issue and equity repurchase have been executed.

   D) What is the expected return on equity for the levered firm in 2013? To calculate this number, you will need to know the expected return on the firm's total assets. Remember, this return should depend upon all of the firm's assets.

   E) Value the firm using WACC. Why does your answer differ than the answer you obtained in 2-B?

3) Valuations using ratios. There are two basic ways to value firms. The one we teach extensively in the introductory finance courses is discounted cash flow. You take the expected cash flows to the firm and discount them at the risk adjusted discount rate. An alternative (short cut) often used in addition to DCF is multiples. The advantage of multiples is they are simple. You multiply the multiple by the correct variable for the firm and you have an estimate of the firm's value. As you should expect, simplicity has its risks.

A) Leverage altering transactions can change both the numerator and the denominator of valuation ratios. Compare the price to cash flow multiple for an all equity firm (as you did in Homework 1) and for the levered firm (based on the numbers in question 2). Explain why it changes. Price is the enterprise value or the value of the entire firm. Cash flow is the cash flow available to capital providers. Calculate the ratio based on 2015 numbers.

B) Price to earnings multiples. A second way to value firms is to multiply their earnings by the price to earnings multiple of comparable firms. I want you to think about what 'comparable' means. Compare the price (firm value) to earnings (net income) multiples for 2015 and 2018. Why is the 2015 multiple so much higher than the multiple for 2018? To make sure that you have a complete story, compare the change in the P/E multiples to the change in the price to cash flow multiples.

