Problem Assignment #2

APRIL 23, 2002

Fin 480/Mba 628

1. Do problem 11.23.

2. Use your software to value the equity, senior debt, and junior debt in a firm worth 10 million dollars with five years to maturity for both debts. The volatility of the assets is 30%. Use 20 periods in the binomial mode.

   (a) The riskless rate is 10% (continuous) over that period. Both debts are zero coupon and have promised repayments of 4 and 6 million respectively?

   (b) Suppose that the debts have coupon rates of 8% and 12% respectively. Interest is annual. No dividends are paid to the stock. Give approximate values for each security class. State any assumptions you need to make.

3. Using the data for IBM stock and options from the Wednesday, April 17th Wall Street Journal,

   (a) Compute implied standard deviations for all of the 85 and 95 April and May calls and puts.

   (b) Present these implied standard deviations in two tables. The first table should present the April data and the second table should present the May tables.

   (c) Graph these Implied Standard Deviations against the exercise price. Is any pattern prevalent? (see the discussion from Chapter 14)

   (d) What would you estimate the implied standard deviation to be?

   (e) How should you trade to profit if Black-Scholes is correct (be specific).