Finance 4335 Class Problem – Credit Risk

April 10, 2018

- Consider two banks that are identical in all respects except for their financial leverage. Both banks have assets in place with a market value of $1,000,000. The standard deviation of the return on these banks' assets is 40%.
- Assume that both banks will be liquidated one year from today and that the rate of interest is 3%.
- Assume that bank 1 has issued zero coupon deposits with a face value of $500,000, whereas bank 2 has issued zero coupon deposits with a face value of $800,000.
- Questions to Answer
  - What are the fair market values for the deposits held by banks 1 and 2? What are the values of the limited liability put options for these banks? What are the probabilities of bankruptcy? What are the yields to maturity? What are the credit risk premiums?
  - Suppose the government institutes a deposit insurance scheme. What are the fair premiums for deposit insurance for these banks? What impact does the presence of the deposit insurance have upon these yields to maturity and credit risk premiums?
  - Now suppose the government charges premiums based upon the average of the fair premiums that banks 1 and 2 should pay. Analyze the implications of such a pricing scheme. Specifically, who wins and who loses, and what incentives are conveyed by such a scheme?