External Debt Restructuring

1. Consider an economy with an external debt of $D$. Assume that the economy’s capacity to honor its debt is state dependent. Specifically, suppose that there are 2 states, denoted good and bad. In the good state the country can pay its debt in full. In the bad state the country can at most pay 20. The probability of the bad state, which we will denote by $\pi(D)$, is given by $\pi(D) = 0.01D$.

   (a) Debt Forgiveness
   Suppose that the country’s debt is 80. What is the secondary market price of debt? Would it be in creditors collective interest to forgive 10 units of debt?

   (b) A Third-Party Debt Buy-Back
   Suppose now that the country’s debt is 50 and the a debt relief agency agrees to buy back 10 units of debt in the secondary market. (The debt relief agency will then forgive the debt it holds.) What price will the agency have to pay for each unit of debt it buys back? What is the total cost of the operation? By how much does the expected income of creditors increase? By how much do the expected payments of the debtor country decline?

2. A Debt Swap
Suppose a country has 100 units of debt outstanding. In the good state of the world the country can repay its debts in full, in the bad state of the world, the country can repay only 40. The good and the bad states occur with equal probability.

   (a) Calculate the repayments the creditors are expecting to receive.
   (b) Find the secondary market price of one unit of debt.

Now assume that the country wants to restructure its debt. It announces that it will introduce two new securities, of type A and B, respectively, to replace the 100 old securities outstanding by means of a debt swap. It issues 40 units of securities of type A, which will pay in full in the good and the bad states, and 20 units of securities of type B, which pay in full only in the good state of the world. Both new securities are senior to the old existing debt.

   (c) At what rate can the government swap old securities for new securities of type A.
   (d) At what rate can the government swap old securities for new securities of type B.
   (e) What is the net effect of this debt restructuring on the expected repayments to creditors.