

Q0: Search for how the CEOs of large public firms are paid (salaries, bonuses, options, shares, etc. how they are combined and packaged).

Q1 (debt covenants): Consider a two-date economy where the risk free interest rate is zero (so the discount rate is 1) and everyone is risk neutral. A firm produces cash flows of \$ 180 if the economy is good and \$ 80 if the economy is bad. The good and bad states occur with equal probability. Initially, the firm has 100 shares outstanding and debt with a face value \$100. The debt is protected by a covenant that it is senior to all newly issued debt. The firm identifies a project that requires investment of \$47 and returns \$52 certainly. Assume that the project has to be financed with new debt issuance.

(ii) What is the face value of the newly issued debt? Show that the manager who acts in the interest of equity holders will not carry out the project.

(iii) Show that if the debt covenant is absent so that the new debt is as senior as the existing debt, then the manager will carry out the project. Are the holders of existing debt better off?

Q2 (Debt Negotiation): Suppose the manager of a firm identifies a project that requires investment of \$10 and returns \$15. The situation of the current asset and the debt outstanding is given by the following table.

| | curr. asset R. | debt outstanding |
|------------------|----------------|------------------|
| good state (0.5) | \$20 | -\$18 |
| bad state (0.5) | £2 | -\$18 |

Assume that the project has to be financed with new debt issuance.

(i) Show that the manager will not carry out the project.

(ii) Suppose now the holders of existing debt are willing to lower the face value of their debt. What is the optimal face value to them?