

**EC372 Economics of Bond and Derivatives Markets****Exercise 10: Financial Intermediation, II**

1. In the HT model with fixed investment:

- (a) Show that if  $A = \bar{A}$ , then  $R_f = B^*/\Delta p$ .  
 [Hint: use  $p_H R_u = \gamma I_u$  and  $R_f = R^* - R_u$ .]
- (b) Show that if  $A = \underline{A}$ , then  $R_f = b^*/\Delta p$ .

Interpret these two results.

2. In the HT model with fixed investment, suppose that:

$$p_H = 5/6; \quad I = 144; \quad R^* = 180;$$

$$p_L = 1/2; \quad B^* = 36; \quad b^* = 12;$$

$$\gamma = 1; \quad \beta = 3/2; \quad c^* = 18$$

- (a) Calculate  $\bar{A}$ , the level of a firm's initial capital such that for any  $A \geq \bar{A}$  the firm will have access to the bond market (for uninformed investors' capital).
- (b) For  $A = \bar{A}$  obtain the payoff on the firm's own (initial) capital.
- (c) Calculate  $\underline{A}$ , the level of a firm's initial capital such that for any  $A \geq \underline{A}$  the firm will be granted bank finance (from informed intermediaries which monitor the firm). How much intermediary finance would the firm be offered?
- (d) For  $A = \underline{A}$  obtain the payoff on the firm's own (initial) capital.
- (e) Interpret the financing decision of a firm (direct and indirect) for a firm with initial capital in the range  $\underline{A} < A < \bar{A}$ .

3. Using the market equilibrium conditions in the HT model, explain the implications of the following:

- (a) A collateral squeeze (i.e., a fall in the aggregate amount of firms' initial capital).
- (b) A savings squeeze (i.e., a reduction in uninformed investors' saving at each bond rate of interest).

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