

Lecture VI: Agency and Investment in the Firm

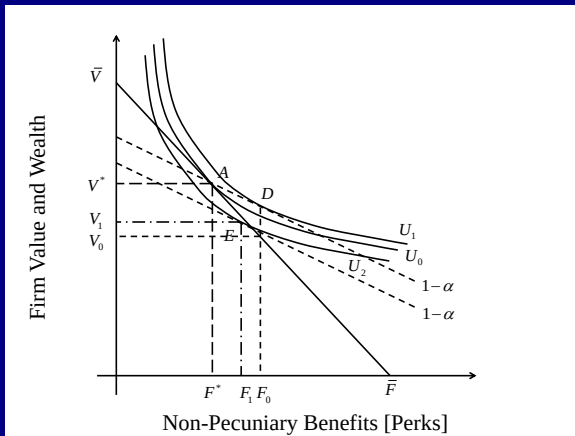
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September 15, 2013

Agency and Investment in the Firm

Firm Expansion

Choice of Firm Value and Non-pecuniary Benefits by Sole Proprietorship

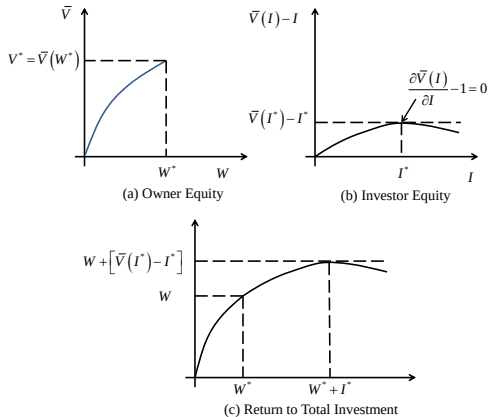


- ▶ The loss in firm value associated with the principal/agent problem is $\bar{V} - V_0$.
- ▶ This decline in value is entirely borne by the owner/operator.
- ▶ The owner/operator is forced to choose point E (at a utility of U_2). He gets perks of F_1 which is greater than his original perks of F^* and he is able to sell an ownership share of αV_1 . However, we notice that the value of the firm is still less than its original value ($V^* - V_1 > 0$).
- ▶ It is clear that the owner/operator would never choose to sell a share of the equity of an existing firm because the principal/agent problem implies that the loss in the value of the firm exceeds the gain in perks (i.e., the resulting level of utility U_2 is lower than the original level of utility).

Firm Expansion

- ▶ One possible reason for selling a share of the firm to an outsider is to expand the scale of the enterprise.
- ▶ Jensen and Mickling develop the scenario of choosing the optimal size of a monopolist.
- ▶ As presented in Figure 6, Jensen and Meckling consider the scenario where the original owner/operator desires to expand the size of the firm beyond his original equity.

Optimal Investment Size



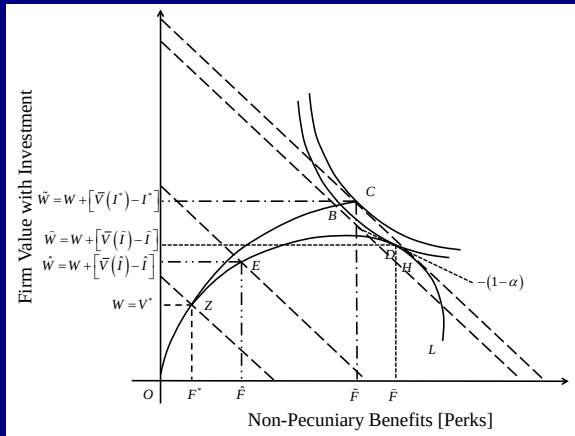
- ▶ The original equity of the firm is taken to be $V^* = \bar{V}(W^*)$ (which is equal to V^* in Figure 3). The return to this original investment is presented in Panel (a) of Figure 6.
- ▶ The return from additional (outside) investment is then presented in Panel (b) of Figure 6.
- ▶ The return from the sum of equity from the original owner/operator and the outside investor is presented in Panel (c) of Figure 6.
- ▶ Notice that each of the frontiers are initially increasing and concave over their entire range of possible investment amounts; hence, some level of investment I^* defined as

$$\frac{\partial (\bar{V}(I) - I)}{\partial I} = \frac{\partial \bar{V}(I)}{\partial I} - 1 = 0 \quad (1)$$

can be found that maximizes the value of the firm.

- ▶ Figure 9 then presents the trade-off between the value of the firm and perks to the original owner/operator with outside investment that expands the size of the firm (i.e., the expansion of Figure 3).

Choice of Firm Value and Non-pecuniary Benefits with Firm Expansion



- ▶ Without agency cost the optimal level of capital invested in the firm is $\hat{W} = W + \left[\bar{V}(\hat{I}) - \hat{I} \right]$ and the optimal level of non-pecuniary benefits is $\hat{F}$ (represented by point *C*).
- ▶ The expansion path (the optimal levels of firm value and non-pecuniary benefits) without agency cost is the locus of points *OZBC*.
- ▶ The agency cost is represented by the divergence from the *OZBC*.
- ▶ Consider the equilibrium at point *E* which captures the agency cost developed in Figure 3.
- ▶ At point *E* the owner/operator chooses a level of non-pecuniary benefits ($\hat{F}$) above the optimum level (i.e., the level of non-pecuniary benefits determined by Equation A.1 (Moss)).

- ▶ This action yields a value of the firm $\hat{W} = W + [\bar{V}(\hat{I}) - \hat{I}]$ below the possible value of the firm with the same amount of investment.
- ▶ The point D in Figure 3 represents the optimum value of the firm under agency cost assuming that α is the ownership share to outside investors.
- ▶ The cost of the agency problem is represented by the lost value of the firm between the locus of points $OZBC$ and the locus of choices under the agent problem depicted as $OZEDHL$.

- ▶ The development of the agency problem in Figures 3 and 9 assumes that the outside investor can take no actions to offset the actions of the original owner/operator. The question is whether certain actions can be taken by the investors to reduce the agency cost

In the above analysis we have ignored the potential for controlling the behavior of the owner-manager through monitoring and other controlling activities. In practice, it is usually possible by expending resources to alter the opportunity the owner-manager has for capturing non-pecuniary benefits. These methods include auditing, formal control systems, budget restrictions, and the establishment of incentive compensation systems which serve to more closely identify the manager's interest with those of the outside equity holders (Jensen and Meckling p.323).