Corporate finance theory 2.2: Connection Between Moral Hazard and Asymmetric Information

The Shared Engine: "Cannot Pledge All Future Cash Flows"

Both models begin with the same feasibility question:

Will outsiders fund I given what they can be promised?

If the friction forces the firm/entrepreneur to keep some value *inside* the firm (to preserve incentives or to avoid mispricing), then **pledgeable income falls**, and external financing may fail.

1 Moral Hazard (Hidden Action) ⇒ Incentive Rent

1.1 Where the wedge comes from (incentive compatibility)

Effort is unobservable, so the contract must make behaving privately optimal:

$$(\Delta p)\, R_b \geq B \quad \Longrightarrow \quad R_b \geq \frac{B}{\Delta p}, \qquad \Delta p \equiv p_H - p_L.$$

This is the minimum **"skin in the game"** the borrower must retain.

1.2 How it hits pledgeable income

Because the borrower must keep at least $B/\Delta p$ in the success state, lenders can receive at most:

$$R_\ell = R - R_b \leq R - \frac{B}{\Delta p}.$$

Hence expected pledgeable income is bounded by

$$p_H R_\ell \leq p_H \Big(R - \frac{B}{\Delta p}\Big).$$

1.3 Why credit rationing appears

Lenders break even only if pledgeable income covers the external funding need:

$$p_H \Big(R - \frac{B}{\Delta p}\Big) \geq I - A \quad \Longleftrightarrow \quad A \geq \bar{A}.$$

Key connection: even when the project has positive NPV, it may not be financed because incentives force an **internal rent** $\frac{B}{\Delta p}$, which shrinks what can be pledged.

2   Asymmetric Information (Hidden Type) ⇒ Lemons Tax

2.1   Where the wedge comes from (pooling on average quality)

Type is private (Good p, Bad $q < p$); investors price on average quality:

$$m = \alpha p + (1 - \alpha)q.$$

With a pooling contract, break-even implies

$$m(R - R_b) = I \quad \Longrightarrow \quad R_b^{\text{pool}} = R - \frac{I}{m},$$

which creates cross-subsidy (good "overpays," bad "underpays").

2.2   Lemons tax as reduced effective pledgeable income

Define the adverse-selection index:

$$\chi \equiv (1 - \alpha)\frac{p - q}{p}, \qquad m = p(1 - \chi).$$

Then the good type's effective pledgeable value under pooling is discounted by

$$pR_b^{\text{pool}} = (pR - I) - \frac{\chi}{1 - \chi}I,$$

where $\frac{\chi}{1-\chi}I$ is the **lemons "tax"** induced by pooling.

2.3   When trade collapses (market breakdown)

If average pledgeable income is too low,

$$mR < I \quad \Longleftrightarrow \quad \alpha < \alpha'$$

then no lending occurs. **Key connection:** hidden type forces pooled pricing; pooled pricing forces a penalty on good types (lemons tax), shrinking effective pledgeable income and potentially shutting the market.

3   One Map: "Rent" vs "Tax" (Same Structure, Different Source)

- **Moral hazard:** hidden action ⇒ must leave borrower rent $\frac{B}{\Delta p}$ ⇒ lenders can be promised at most $R - \frac{B}{\Delta p}$ ⇒ pledgeable income falls.

- **Adverse selection:** hidden type ⇒ pooling ⇒ good pays tax $\frac{\chi}{1-\chi}I$ (cross-subsidy) ⇒ effective pledgeable income falls.

In both cases, fundamental surplus can exist, but a wedge is carved out that cannot be pledged to outsiders.

4   Why the Same Downstream Outcomes Appear

4.1   (A) Credit rationing / "price does not clear"

- **Moral hazard:** raising repayment reduces the borrower's stake and worsens incentives (the "why not just raise interest rates?" logic).

- **Adverse selection:** raising required return drives good types out first ⇒ pool quality falls ⇒ expected return can drop (backward-bending supply).

Thus, markets often adjust via **quantity** (rationing/breakdown), not only via price.

4.2 (B) Security design (debt vs equity)

- **Under adverse selection:** flatten investors' payoffs to make claims information-insensitive, which makes debt preferred; canonical ranking:

$$\text{retained earnings} < \text{(safe) debt} < \text{hybrids} < \text{equity}.$$

- **Under moral hazard:** contracts must preserve borrower upside to satisfy IC; overly debt-like promises can violate incentives, which is exactly why pledgeable income is capped by the rent requirement.

4.3 (C) "Friction reducers" are parallel objects

- **Reputation (moral hazard):** effectively lowers private benefit from B to $b < B$, shifting the net-worth threshold down $A(b) < A(B)$ and expanding feasible outside finance.

- **Certification (adverse selection):** reveals type at cost c; the good type certifies iff

$$\frac{c}{I+c} < \chi,$$

and larger χ makes certification more attractive.

Connection: both reputation and certification shrink the wedge (rent/tax), thereby raising pledgeable income and restoring financing capacity.