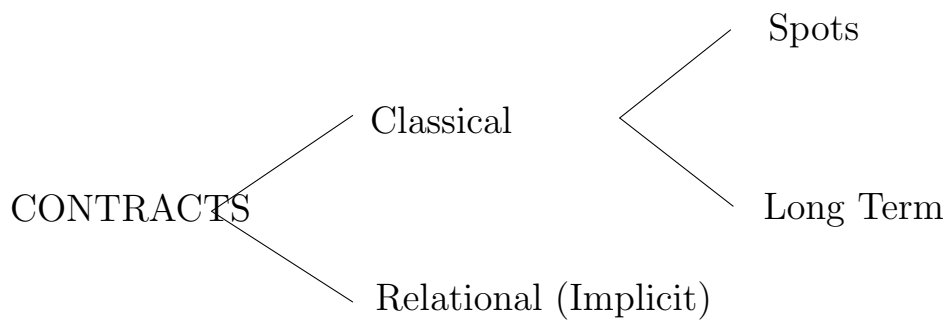# Lectures 5 and 6 - Contracts, Holdup Problem and Vertical Integration

Note: The material for these lectures is broadly based around Chapters 3,4 and 5 of B-D-S second edition (or chapters 3 and 4 from third edition) and Chapter 4 of Kay.

Reference Chapter 4 of B-D-S second edition (or chapter 3 in third edition); Chapter 4 of Kay. Why Contracts?

- Most Economic transactions are sequential. Need of safeguards.

- Contracts are mechanisms through which incentives are provided.

- Contracts are mechanism through which risk is shared/reduced/increased.

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                                          Spots
                         Classical    <
          CONTRACTS  <                    Long Term
                         Relational (Implicit)

              Types of Contracts
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Examples

(1) Spots

Buying pen, tea, most standardised items. Characteristcs:

- One time transactions
- Standardised product

- Cheap to transact

- Dealt at prevalent market prices.

When spots come with warranty, they have some elements of longer term contracts.

(2) <u>Classical Long</u>

Examples

(a) <u>Insurance Contracts</u>. Characteristics:

- Designed to share risks

- Informational problems handled through risk classes

- Other safeguards - deductibles; reputation of insurance firm

   (a) <u>Franchises</u> Macdonald's, Bottlers. Characteristics:

- Usually full risk on franchisee. Best for incentives. Fixed payments by franchisees.

- Safeguards - Minimal conformity to brand name by franchisee

- Franchiser may behave opportunistically

   (c) <u>Landlord-Tenant</u>. Characteristics:

- Pure renting at market price

- Safeguards - Long set of conditions on wear and tear

- Caution Deposit

- x-months notice before termination of contract.

 (d) <u>Dedicated lines</u>. Car assemblers/ component suppliers, Marks and Spencer, Benetton

Characteristics:

- High asset specificity

- Large relational componenets

- Safeguards - Mutual Dependence (mutual hostage)

- When relationships work, incentives are good

- Possible opportunistic behaviour

(2) <u>Largely Relational Contracts</u>

Examples

(a) <u>Employer-Employee</u>. Characteristics:

- Salaries, medical, other allowances/perks; bonuses and promotion possibilities often not

- Job description loosely specified

- Safeguards - Possibly (?) Mutual Dependence (mutual hostage), reputation, sacking, threats from a repeated relationship

- Possible opportunistic behaviour

(a) <u>Marriage as a contract</u>. Characteristics:

• Very little is specified except possibly for divorce clauses

• Mutual understanding

• Safeguards - Possibly (?) Mutual Dependence (mutual hostage), potential threat of unhappy marital life/divorce, threats from a repeated relationship

• Opportunistic behaviour possible

Many of the above contracts are <u>Incomplete</u>. Possible reasons

• Bounded rationality

• Difficulties in measurement of performance; verifiability

• Asymmetric information

  -Hidden Action

  -Hidden information

Relational (implicit) contracts are incomplete and depend significantly on the repeated nature of the relationship. Advantages:

• instant retaliation

• punishment can be conditioned on soft observables (on which a

formal contract cannot be based)

• cheap to transact (no legal costs and associated delays)

• punishments can be coordinated to fit the crime (formal contracts based on precedence and maybe inappropriate to the magnitude of the crime)

Disadvantages of relational contracts

• Vital that the relationship continues - switching partnerships can destroy a current relationship; outside opportunities must be significantly less than inside the relationship.

• For punishment to work, each party need to have weaknesses. Learning may reduce the weakness of a party (relative to the other) in which case this party cannot be punished effectively.

Relation-Specific Assets

(1) Site Specificity - Blast furnaces, steel making furnaces, casting units located side by side

(2) Physical Asset Specificity

-refractory bricks in furnaces

-moulds for car parts/glass making machines

(3) Dedicated Assets

(4) Human Asset Specificity

Ex-ante (Before event) - Lots of Potential partners

Event - Partner chosen, contract signed, specific assets sunk.

Ex-post (After Event) - Very few alternative uses of assets possible at this stage. Bargaining strength falls.

To understand bargaining strengths, we have to understand the concept of quasi-rents.

Asset Specificity and the Holdup Problem

To understand how Williamson's 'fundamental transformation' interacts with 'asset specific investments' and create problems in incomplete contracts, we need to understand the difference between *economic rents* and *quasi-rents*.

Definition: <u>Rent</u>: The difference between the revenue the seller actually receives and the minimum amount of revenue the seller must receive to make it worthwhile to enter the relationship (opportunity costs).

Rents = Expected Revenues on entry − Opportunity costs to enter

- Ex-ante (before) investment concept
- Can be highly positive if seller has monopoly power
- Can be close to zero if there is competitive bidding for seller's services.

Definition: <u>Quasi-Rent</u>: The difference between the revenue the seller actually receives and the minimum amount of revenue the seller must receive not to exit the relationship (Ex-post opportunity

costs).

$$Quasi - Rents \ (after \ investment \ concept)$$

$$= \ Expected \ Revenues \ on \ entry - Any \ already \ received \ payments$$

$$- \ Opportunity \ costs \ to \ exit$$

- Ex-post (after) investment concept
- Can be a lot bigger than rents if assets have few alternative uses
- Can be close to rents if assets have a lot of alternative uses.

Definition: <u>Holdup Problem</u>: Opportunistic behaviour by one party to exploit the other's vulnerability due to Relation Specific Investments (RSIs).

Sources of holdup problem: (a) incompleteness of contract; (b) presence of high quasi-rents for seller may induce the buyer to start a fresh round of haggling (in an unspecified contingency) to get a share of seller's quasi-rents.

Illustration of above concepts

Suppose that a leading software firm holds the copyright to a statistical software package. It wishes to hire an expert statistician to develop a new model that it will then market as an indepen-

dent add-on to the basic package - hence it contacts Dr. Smith, a reputed statistician.

Dr. Smith estimates that he will take 250 hours to develop the software. He routinely consults at £300 an hour. Hence his *ex-ante opportunity costs* are £75,000.

Dr. Smith also estimates (based on sales for a competing stat. package) that the new software can gross £160,000.

Dr. Smith signs the following contract with the firm. An upfront fee of £10,000 and royalties of 50% of gross sales.

Based on gross sale estimates Dr. Smith would get £80,000 royalties plus £10,000 upfront fee - i.e. an estimated sum of £90,000. So, his

$$Economic\ rents \ = \ £90,000 \ - \ £75,000 \ = \ £15,000$$

The project in reality took 200 hours to complete.

Holdup Threats When Smith goes to deliver product, firm informs that that one of its employees has developed a software package which is nearly as good as Smith's and the firm will promote this product at a lower price than Smith's product - so gross sales would be much lower in the region of £50000. Smith calculates that her expected net returns from the product is Upfront+Royalties-

Expenses=10000+25000-60000 =-£25000. The quasi-rent of Smith arising from lower opportunity cost of 0 (assuming no outside use)

$$Actual\ Revenues\ -\ Upfront\ -\ ex-post\ opportunity\ costs$$

$$= 90,000 - 10,000 - 0 = £80,000$$

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So, Smith is forced to renegotiate to new terms which are '25% of royalties subject to clause that competing product does not enter the market at all'. Even if sales reach projected £160,000, Smith's net return from the new contract is 10,000+40,000-60,000=-£10000

High Quasi-rents and incompleteness of contracts lead to an attack on the quasi-rents - classic case of *holdup*.

Tradeoffs in Vertical Integration - Agency versus Technical Efficiency
Williamson

<u>Agency Efficiency</u> The extent to which a firm's administration and/or production costs are raised due to 'transaction and coordination costs of arm's length market exchanges' OR 'agency and influence costs of internal organization'. Sources include

- direct costs of negotiating contracts

- costs of safeguards against holdup
- inefficiencies due to underinvestment in relation-specific assets and lost opportunities for cost savings due to mistrust
- costs associated with breakdowns in coordination and synchronization when activity is purchased
- agency and influence costs when hard-edged market incentives are replaced by soft-edged incentive of internal organization.

Technical Efficiency The extent to which a firm uses least-cost production techniques.

Let $\Delta T=$ Average Technical Cost of producing in-house - Average Technical Cost of producing by a market specialist assuming both produce as efficiently as possible.

Let $\Delta A=$ Average Transaction Cost of producing in-house - Average Transaction Cost of producing by a market specialist.

Let $\Delta C= \Delta T + \Delta A=$ Full average cost difference between vertical integration and reliance on market specialists.
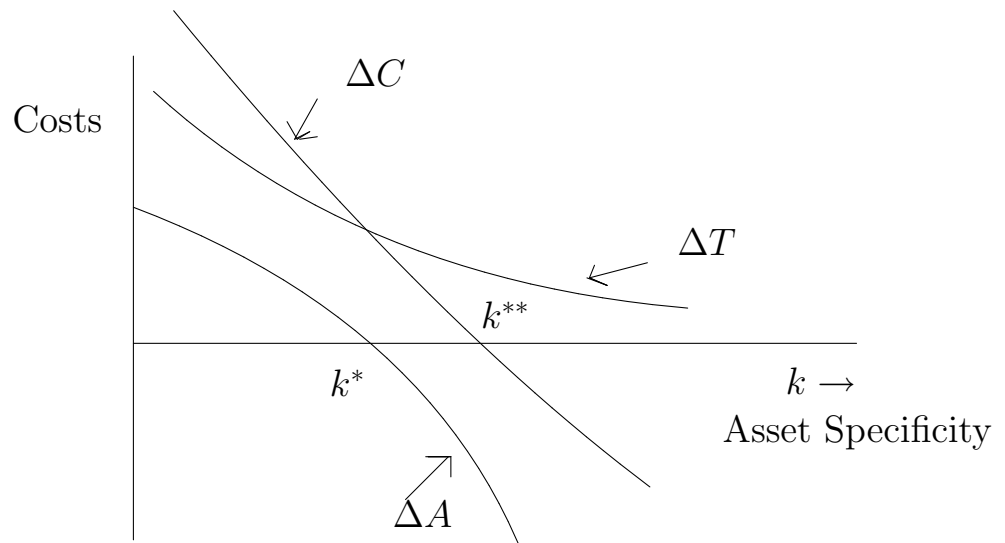
Left of k^{**} market is more efficient.

Right of k^{**} vertical integration is more efficient.

General Managerial Implications as the curves shift

(1) Rely on market for routine items; produce in-house items that require large specific investments in design, engineering or production knowhow.

(2) Rely on markets for items that require large upfront investments in physical capital or organizational capabilities that outside firms already have (economies of scale).

(3) Vertical integration more effective for bigger firms than smaller

firms.

(4) Technological advances in communications and data processing have tended to lower coordination costs, making reliance on the market more attractive (lower coordination costs).