

# Course: Economics of Industry



## Lecture 4: The Vertical Boundaries of the Firm

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# The Vertical Chain

- The *vertical chain*
  - begins with the acquisition of raw materials and
  - ends with the sale of finished goods/services.
- Organizing the vertical chain is an important part of business strategy

# Make versus Buy

- There is a continuum of possibilities between the two extremes
  - Arms length transactions
  - Long term contracts
  - Strategic alliances and joint ventures
  - Parent/subsidiary relationship
  - Activity performed internally

# Make-or-Buy Continuum

Arm's-length market transactions	Long-term contracts	Strategic alliances and joint ventures	Parent/subsidiary relationships	Perform activity internally
Less integrated			More integrated	

# Defining Boundaries

- Firms need to define their vertical boundaries.
- Outside specialists who can perform vertical chain tasks are *market firms*.
- Market firms are often recognized leaders in their field (Example: UPS).

# Market Firms

- Benefits of using market firms
  - Economies of scale achieved by market firms
  - Value of market discipline
- Costs
  - Problems in coordination of production flows
  - Possible leak of private information
  - Transactions costs

# Some Make-or-Buy Fallacies

- Firm should make rather than buy assets that provide competitive advantages
- Outsourcing an activity eliminates the cost of that activity
- Making instead of buying captures the profit margin of the market firms
- Vertical integration insures against the risk of high input prices
- Making ties up the distribution channel and denies access to the rivals
- A firm may believe that a particular asset is a source of competitive advantage
- But if the asset is easily available in the market the belief regarding competitive advantage will have to be reevaluated

# Agency Costs

- Agency costs are due to *slacking* by employees and the administrative effort to deter slacking.
- When there are joint costs measuring and rewarding individual unit's performance is difficult.
- It is difficult to internally replicate the incentives faced by market firms

# Influence Costs

- Performing a task in-house will lead to *influence costs*.
- *Internal Capital Markets* allocates scarce capital within the firm
- Allocations can be favorably affected by influence activities
- Resources consumed by influence activities represent influence costs.

# Role of Contracts

- Firms often use contracts when certain tasks are performed outside the firm.
- The contracts list
  - the set of tasks that need to be performed and
  - the remedies if one party fails to fulfill its obligation.

# Contracts

- Contracts protect each party to a transaction from opportunistic behavior of other(s)
- Contracts' ability to provide this protection depends on
  - the “completeness” of contracts
  - the body of contract law

# Complete Contract

- A complete contract stipulates what each party should do for every possible contingency
- No party can exploit others' weaknesses
- To create a complete contract one should be able to contemplate all possible contingencies

# Complete Contract (Cont.)

- A complete contract maps each possible contingency to a set of stipulated actions
- One should be able to define and measure performance
- The contract must be enforceable

# Complete Contract (Cont.)

- To enforce a contract, an outside party (judge, arbitrator) should be able to
  - observe the contingency
  - observe the actions by the parties
  - impose the stated penalties for non-performance
- Real life contracts are usually incomplete contracts

# Incomplete Contracts

- Incomplete contracts involve some ambiguities
- They do not anticipate all possible contingencies
- They do not spell out rights and responsibilities of parties completely

# Factors that Prevent Complete Contracting

- Bounded rationality
- Difficulties in specifying/measuring performance
- Asymmetric information

# Bounded Rationality

- Individuals have limited capacity to
  - process information
  - deal with complexity
  - pursue rational aims
- Individuals cannot foresee all possible contingencies

# Asymmetric Information

- Parties to the contract may not have equal access to contract-relevant information.
- The knowledgeable party can misrepresent information with impunity.
- Contracting on items that rely on this information is difficult.

# Limitations of Contract Law

- Doctrines of contract law are in broad language that could be interpreted in different ways
- Litigation can be a costly way to deal with breach of contract
  - Litigation can be time consuming
  - Litigation weakens the business relationship

# Coordination Problems

- Coordination is especially important when *design attributes* are present
- Design attributes are attributes that need to relate to each other in a precise fashion.  
Some examples are:
  - Fit of auto sunroof glass to aperture
  - Timely delivery of a critical component
- Small errors can be extremely costly.

# Leakage of Private Information

- Firms do not want to compromise the source of their competitive advantage .
- Private information on product design or production know-how may be compromised when outside firms are used in the vertical chain.

# Leakage of Private Information

- Well defined patents can help but may not provide full protection
- Contracts with non-compete clauses can be used to protect against leakage of information
- In practice, non-compete clauses can be hard to enforce

# Transactions Costs

- If the market mechanism improves efficiency, why do so many of the activities take place outside the price system?  
(Coase)
- Costs of using the market that are saved by centralized direction – transactions costs
- Outsourcing entails costs of negotiating, writing and enforcing contracts

# Transactions Costs

- Costs incurred due to opportunistic behavior of parties to the contract and efforts to prevent such behavior are transaction costs as well.
- Transactions costs explain why economic activities occur outside the price system (inside the firm).

# Transactions Costs

## Sources of transactions costs

- Investments that need to be made in relationship specific assets
- Possible opportunistic behavior after the investment is made (holdup problem)
- Quasi-rents (magnitude of the holdup problems)

# Relationship-Specific Assets

- Relation-specific assets are assets essential for a given transaction
- These assets cannot be redeployed for another transaction without cost
- Once the asset is in place, the other party to the contract cannot be replaced without cost, because the parties are locked into the relationship to some degree

# Forms of Asset Specificity

- Relation-specific assets may exhibit different forms of specificity
  - Site specificity
  - Physical asset specificity
  - Dedicated assets
  - Human asset specificity

# Site Specificity

- Assets may have to be located in close proximity to economize on transportation costs and inventory costs and to improve process efficiency
  - Cement factories are usually located near lime stone deposits
  - Can-producing plants are located near can-filling plants

# Physical Asset Specificity

Physical assets may have to be designed specifically for the particular transaction

- Molds for glass container production custom made for a particular user
- A refinery designed to process a particular grade of bauxite ore

# Dedicated Assets

Some investments are made to satisfy a single buyer, without whose business the investment will not be profitable.

- Ports investing in assets to meet the special needs of some customers
- A defense contractor's investment in manufacturing facility for making certain advanced weapon systems

# Human Asset Specificity

Some of the employees of the firms engaged in the transaction may have to acquire relationship-specific skills, know-how and information

- Clerical workers acquire the skills to use a particular enterprise resource planning software
- Salespersons possess detailed knowledge of customer firm's internal organization

# Fundamental Transformation

- Prior to the investment in relationship specific assets there are many trading partners.
- Once the investment is made the situation becomes a bargaining situation with a small number partners
- Relationship specific assets cause a fundamental transformation in the relationship

# Rents and Quasi-Rents

- Firm A makes an investment to produce a component for Firm B after B has agreed to buy from A at a certain price
- At that price A can earn an economic profit of  $\pi_1$
- If B were to renege on the agreement and A is forced to sell its output in the open market, the economic profit will be  $\pi_2$
- Rent is the minimum economic profit needed to induce A to enter into this agreement with B ( $\pi_1$ )
- Quasi-rent is the economic profit in excess on the minimum needed to retain A in the selling relationship with B ( $\pi_1 - \pi_2$ )

# The Holdup Problem

- Whenever  $\pi_1 > \pi_2$ , Firm B can benefit by holding up A and capturing the quasi-rent for itself
- A complete contract will not permit the breach.
- With incomplete contracts and relationship-specific assets, quasi-rent may exist and lead to the *holdup* problem

# Effect on Transactions Costs

The holdup problem raises the cost of transacting exchanges

- Contract negotiations become more difficult
- Investments may have to be made to improve the ex-post bargaining position
- Potential holdup can cause distrust
- There could be underinvestment in relationship specific assets

# Holdup and Contract Negotiations

- When there is potential for holdup, contract negotiations become tedious as each party attempts to build in protections for itself
- Temptations on the part of either party to holdup can lead to frequent renegotiations
- There could be costly disruptions in the exchange

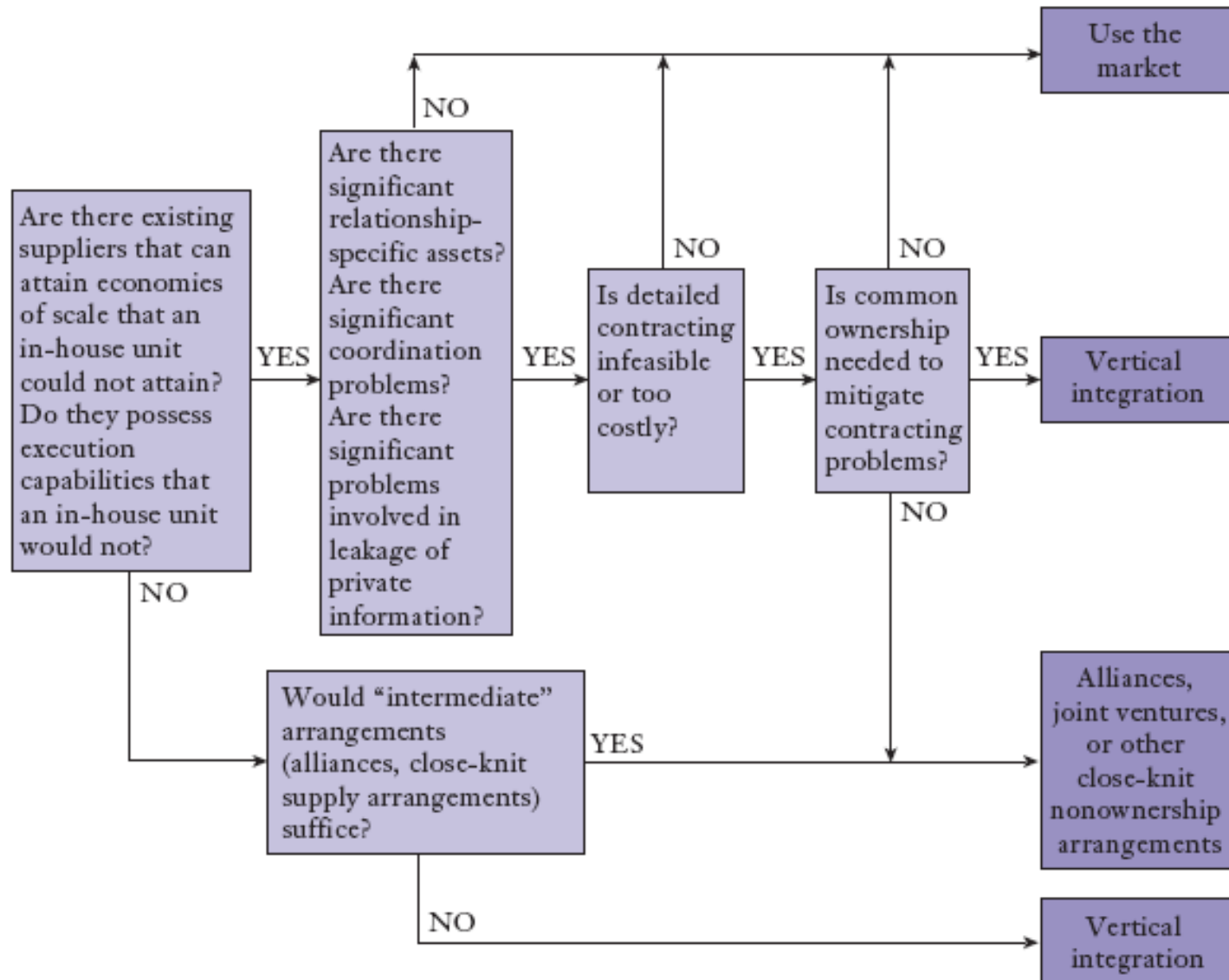
# The Holdup Problem: Summary

- Relation-specific assets support a particular transaction
- Redeploying to other uses is costly
- Quasi rents become available to one party and there is incentive for a holdup
- Potential for holdups lead to
  - Underinvestment in these assets
  - Investment in safeguards
  - Reduced trust

# Double Marginalization

- Vertical integration helps if both the upstream firm and the downstream firm have market power
- Upstream firm sets its price above marginal cost
- Vertical integration increases output, lowers the final price and increases the profits

# The Make-or-Buy Decision Tree



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