

# Selecting Your Business Partner

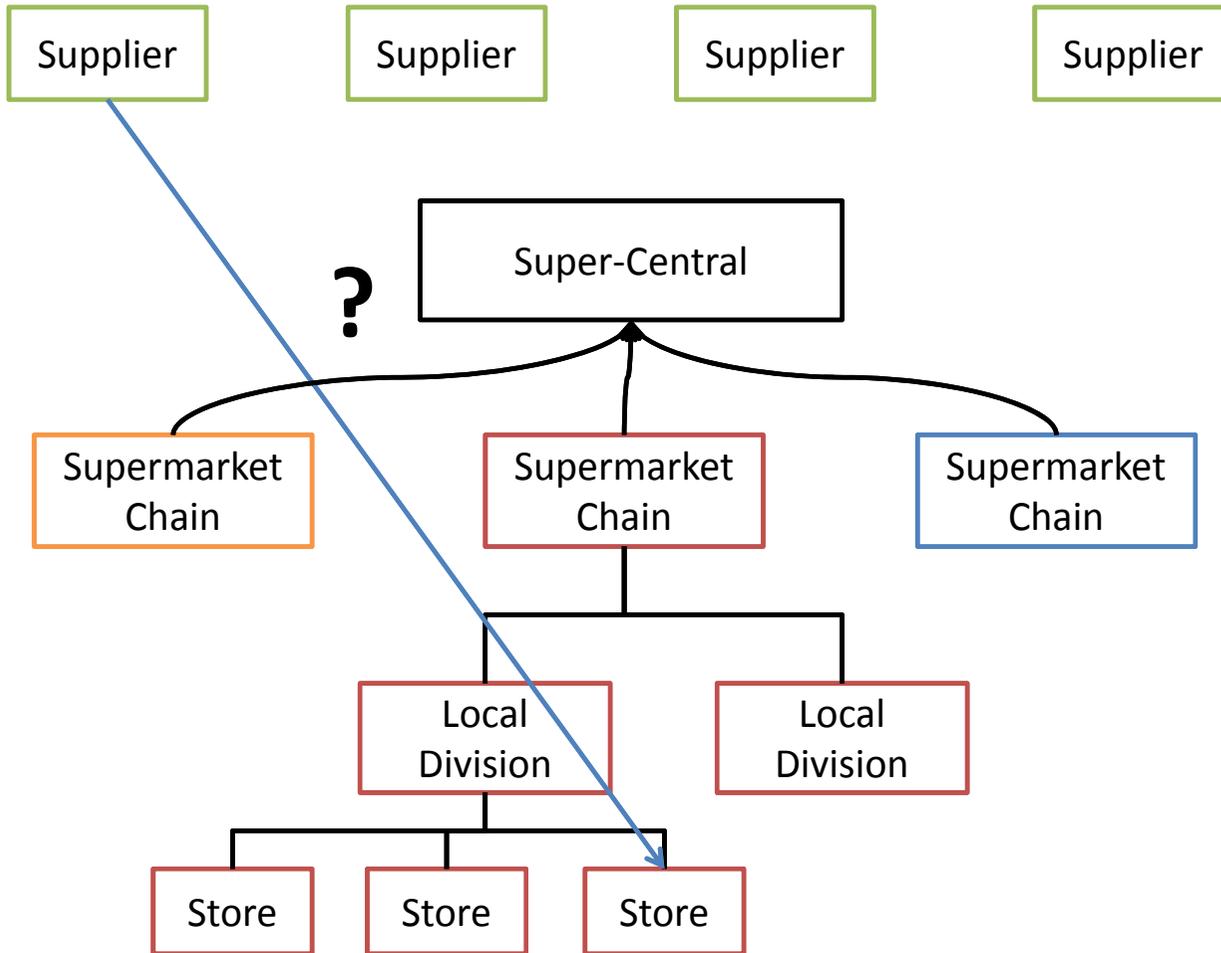
# Supermarket Supply Chain

- The contractual organization of the supply chain is a key driver for the success of supermarkets
- Optimization of logistics
  - Reliability and flexibility
  - Inventory minimization
  - Financial cycle
- Finding efficient, motivated supplier is critical.
  - Failure is costly (category management)

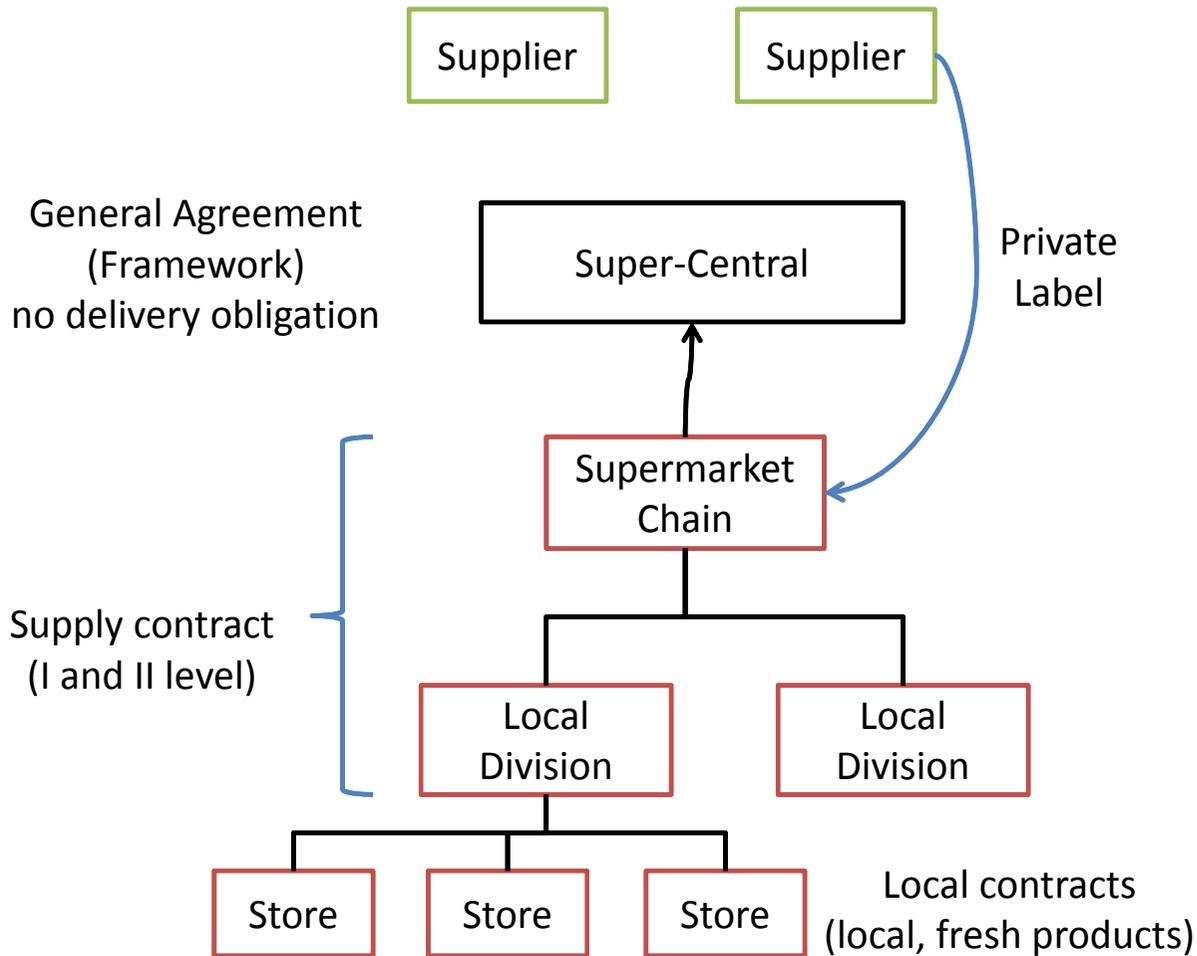
# What we will learn from this example

- It is possible to design contracts to ‘drive away’ inefficient partners.
  - Who wants to deal with ‘bad’ suppliers?
- Separating equilibria
  - Contract menu
  - Revelation principle
  - Information rents

# The Negotiation Process



# The Negotiation Process



# The General Agreement

- Provides a 'Framework' for level I and II negotiations
  - Prices
  - Discount(s)
  - Promotion
  - **Trade Spending**
  - **Private Standard**
- The supplier is 'listed in'
  - Only listed suppliers can sell to the associated supermarket

# Supply Contract (I and II level)

- Detailed agreement with obligation to deliver.
  - Quantities
  - Timing and conditons
  - Changes in the General Agreement
  - Everything is not included in the GA (new openings, special sales etc.)

# The Supermarket Problem

- The profit maximization requires that suppliers deliver:
  - High-quality products,
  - At the exact time,
  - In the specified way
- Reliability is of the essence
- Flexibility is required

# The Supermarket Problem

- If the supermarket bought input only when needed:
  - No bargaining power
  - Supplier opportunism
- If the supermarket bought input in advance:
  - Cost of storage
  - Sub-optimal financial cycle.

# The Supermarket Problem

- Solution: Negotiate in advance (when the supermarket has bargaining power), buy when needed.
- Hold-up problem:
  - Supplier might renegotiate
  - Opportunistic behavior
- Selection problem:
  - How to select efficient suppliers that will not defect?

# Solving the Hold-Up Problem

- A supplier will defect a contract if: immediate benefit from defection is greater than the present value of future punishment.
- To attenuate the risk of defection:
  - Reduce present benefit (monitoring, early warning, deferred payment,...)
  - Increase the future punishment (fines, retaliation,...)

# De-Listing

- A super-central can de-list a supplier, if unhappy with him/her.
- De-listed supplier:
  - Cannot sell anymore to any of the associated supermarket chains
  - Take a long-term loss of future profits
- De-listing is easy: it is sufficient not to renew the GA
  - Low potential for litigation
  - Self-enforcing contract: incentives are aligned with supermarket's objectives

# The Selection Problem

- De-Listing works well if the supplier has a long-run horizon.
- What if the supplier attaches little value to future benefits?
  - High discount rates
  - Risk of bankruptcy
  - **High cost of compliance**
- This type of supplier might prefer a ‘take the money and run’ strategy
  - De-Listing is not sufficient to ensure the success of the transaction
  - The supermarket needs to drive away these suppliers

# The Selection Problem?

- Assume that a supplier sells one unit of a product to a supermarket for a price  $P$ .
- Complying with supermarket's requirements implies that the suppliers incurs in an additional production cost  $c_i$  (which varies with suppliers)
- In an infinite time horizon, a supplier defects if

$$P > \delta(P - c_i)$$

–  $\delta > 1$  is the discount factor

# The Selection Problem

- If the supermarket cannot observe  $c_i$  (the supplier is randomly drawn):
  - Compliance is random
- For example, if there are two types of suppliers
  - $c_i = c_L$  (efficient supplier) → no defection
  - $c_i = c_H$  (inefficient supplier) → defection
  - Defection depends on the unobservable type of supplier

# How to Solve the Selection Problem?

- The supermarket must offer a contract such that ‘Taking the Money and Run’ is unprofitable for the supplier.
  - The contract must be profitable in the long run, unprofitable if the supplier is de-listed

# How to Solve the Selection Problem?

- Consider a fixed, sunk cost  $F$  that the supplier must pay in order to enter the contract.
- The supermarket can offer a contract  $(P, F)$  such that:
  - $P - F \leq 0$  (defection is unprofitable)
  - $\delta(P - c_L) - F > 0$  (compliance is profitable for efficient farmers)
  - $\delta(P - c_H) - F \leq 0$  (compliance is unprofitable for inefficient farmers)
- Solution:  $F = P = c_L \delta / (\delta - 1)$

# Properties of the Solution

- Exercise. Prove that:
  - Inefficient farmers have no incentive to subscribe the contract
  - Efficient farmers subscribe the contract
  - Efficient farmers have no incentive to defect
  - The contract is self-enforcing
- Exercise. Comment the result. What are the economic basic mechanisms at work?

# Conclusions

- The contract you offer determines who your business partners are.
- Make sure that your offer is appealing only to efficient and motivated agents
  - The same offer can have different outcome for different agents
  - Use this fact to let your agents ‘self-select’ in or out
- In our example, efficient suppliers gain a rent:
  - $\delta c_L / (\delta - 1) > c_L$
  - It may be profitable to pay a premium to efficient supplier to prevent opportunism.

# Games!

- Building a win-win deal:
  - How hard can it be?

# Game 1: The Auction

- You are a supplier of product X
  - Your constant marginal cost of production is 10
  - Your goal is to maximize your own profits
- I am willing to buy 100 units of X at the best market price.
- I organize an Auction.
  - Each of you will make a SECRET offer
  - I will buy the 100 units from the producer offering the best price
  - If two producers offer the same price, quantity is split equally
  - You are free to talk and make any agreement you want, but the offer MUST be SECRET
- The producer who achieves the highest profits wins the game.
  - In the case of ties, the producers who sells the largest quantity wins
- The game will NOT be repeated

# Game 2: Coordination and Quality

- The class is randomly split into 2 groups: suppliers and retailers.
- I am the 'representative consumer'
- Suppliers sell to retailers. Retailers sell to consumer.
- Suppliers can sell High or Low quality input. The quality of the final product depends on the quality of the input.
- Retailers **cannot** observe the quality of the input. The consumer **can** observe the quality of the final product
- The consumer is willing to pay €100 for the high quality good and €50 for low quality
- The cost of production is €50 for the high quality input, €10 for the low quality one.
- The consumer buys the product offering the best value: max WTP-Price (if n retailers offer the same value, n units are purchased)
- Retailers and producer CANNOT talk. Retailers can offer a contract to one supplier on take it or leave it basis. Suppliers AFTER seeing the contract decide quality.
- Suppliers must maximize profits. The retailer achieving the highest profits win the game.