Exclusivity as inefficient insurance

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Outline of talk

- Introduction
- Model
- Analysis with investors
- Analysis without investors
- Conclusion

Hypothetical Situation

- Large incumbent energy producer signs long term exclusivity contracts with large industrial consumers
- Competition authorities are worried as it may foreclose the market and keep more efficient entrants out of the market. Should it forbid those contracts?
- The defendants have two claims:
  1. The long-term exclusivity contract is required for risk hedging purposes
  2. There are no other parties (financial investors, banks) willing to insure this risk by offering a contract
- Concerns that lack of contracts will create market power, destabilize markets (*c.f. Californian Energy Crisis*) and hamper investments
- How should competition authorities deal with this?

Exclusion and Risk Sharing

- It is well known that an incumbent firm can use exclusivity contracts to monopolize an industry or deter entry
- Exclusive dealing contracts also help with efficiency by solving various problems (intrabrand competition, hold-up problems, etc.)
  - We focus on *risk sharing*.
- An anticompetitive practice could be tolerated if it were associated to large efficiency gains
- Can the insurance provided by a long-term exclusivity contract be invoked to justify its use in the face of its negative impact on competition?

What we do

- We revisit the Aghion-Bolton (1987) model
  - One of the standard models to study exclusion
- And extend it in different ways:
  - by introducing risk-aversion on the part of the buyer
  - by introducing financial investors
- Study the trade-off between
  - Risk allocation (**+**)
  - Exclusion of efficient entrant (**-**)

What we find (1)

- An exclusivity contract indeed induces efficient risk-sharing
  - So, although exclusionary, it can be preferred to no contract at all
- However, risk sharing should **not** be allowed as an insurance defense for the exclusivity contract
- If exclusivity contracts would be allowed then in equilibrium
  - The entrant will be foreclosed from the product market
    → Inefficient production
  - The financial investors will be excluded from the insurance market
    → Incumbent has monopoly power in providing insurance

What we find (2)

- Hence, both claims of the defendants are true:
  1. Exclusivity contracts improve risk sharing
  2. No other party wants to hedge the price risk
- But it is the very existence of the exclusivity contract that leads to the break down of the financial market
- Hence, as long as financial investors can provide risk sharing exclusivity contracts should not be allowed
- So should exclusivity contracts be allowed if financial investors are not present?

What we find (3)

- If there are no financial investors, then the exclusivity contract may indeed be better than a situation without contracts.
  - The risk sharing benefits may outweigh the welfare loss of excluding the entrant

- However, an alternative contract can achieve risk sharing without reducing entry
  - The incumbent and the buyer can sign a **bilateral** financial forward contract.
  - There is no need for the financial market to be liquid, The only requirement is that a spot market exists

Related Literature (1)

- Exclusion literature: It is well known that an incumbent firm can use exclusivity contracts to monopolize an industry or deter entry
- Two “theories of harm” from exclusive contracts
  - “naked exclusion”: Rasmusen et al. (1991), Segal and Whinston (2000): incumbent denies viable scale to potential entrant by signing up enough customers
  - Aghion and Bolton (1987): incumbent uses contractual provisions to force the entrant to price low, and capture efficiency gains

- Vertical restraints literature: Exclusive dealing contracts help efficiency by solving various problems (intrabrand competition, hold-up problems, etc.) Focus here is on *risk sharing*.

- Few papers study the trade-off between exclusion and efficiency gains of contracts

Related Literature (2)

- Financial instruments and product market competition
- Hedging / Vertical integration improve competition in wholesale spot market.
  - In a Cournot game, producers will sell forward contracts in order to commit to competing more aggressively (for quantities are strategic substitutes) Allaz and Vila (1993), Willems (2005).
  - In a Bertrand oligopoly, producers buy forward contract to commit to being less aggressive (for prices are strategic complements) Mahenc and Salanié (2004).
  - Contract regulation can be used as market power mitigation tool with Virtual Power Plants, Willems (2006), or by regulation Willems and De Corte (2008)
- This literature can be criticized for not looking at impact on incentives to enter
- We show that if firms use financial contracts to hedge, there is no negative effect on entry

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Model: Market

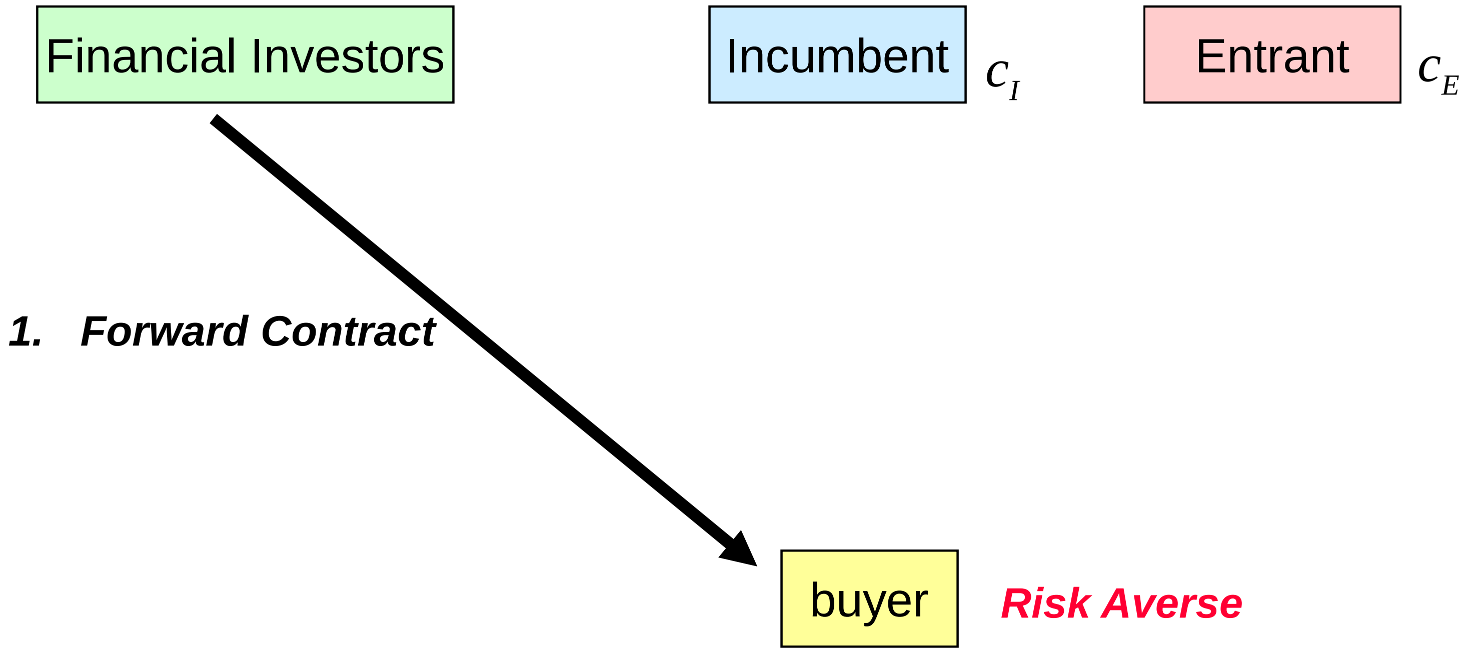
Financial Investors

Incumbent c_I

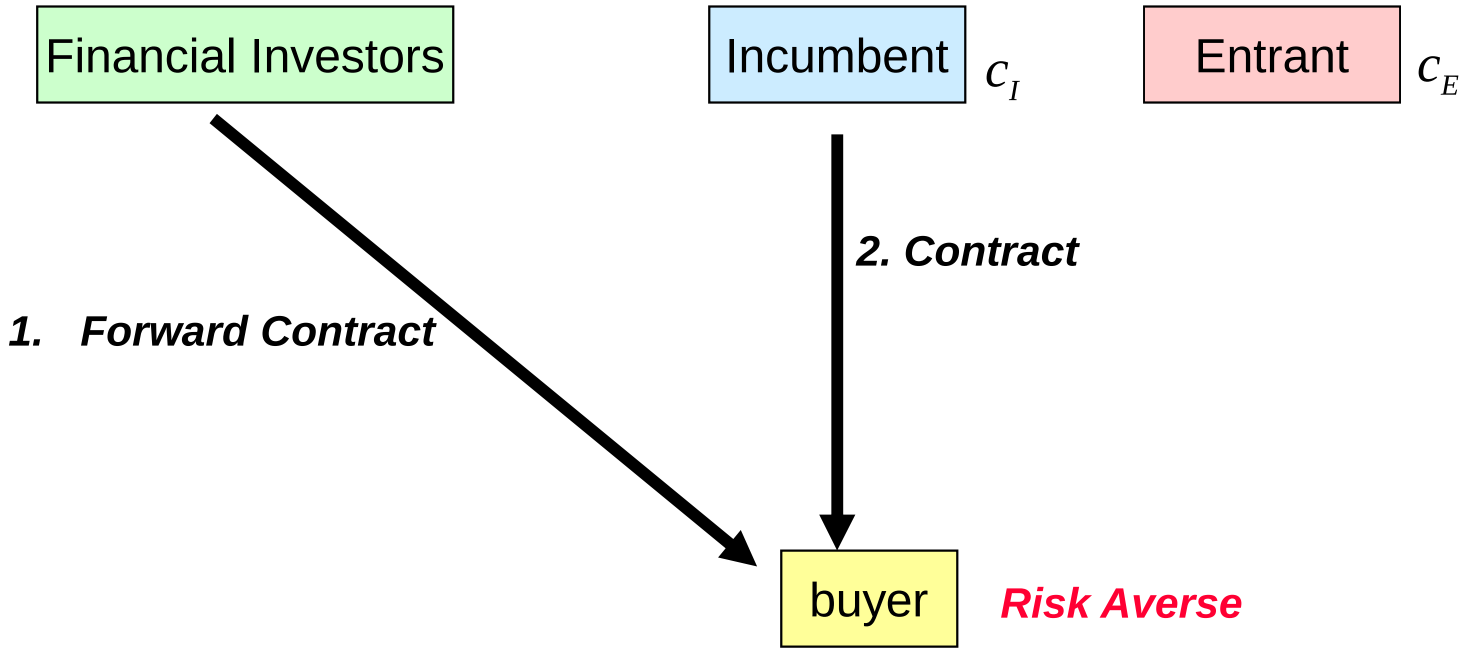
Entrant c_E

buyer ***Risk Averse***

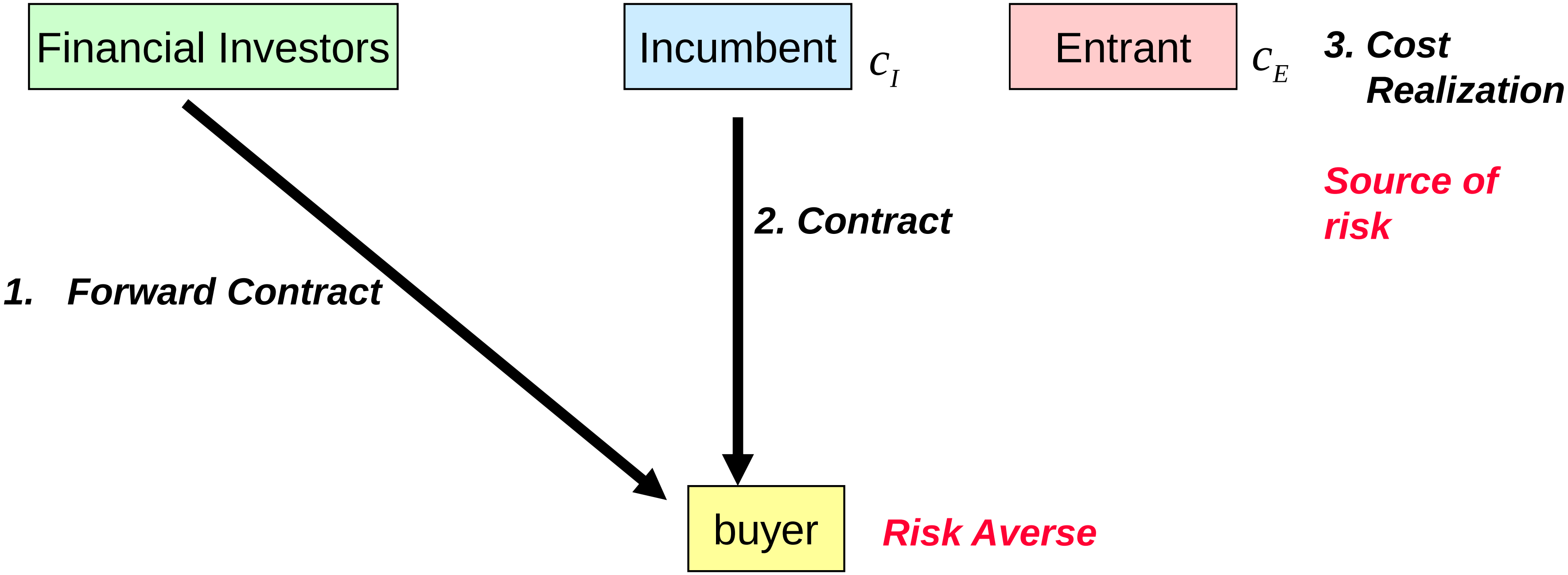
Model: Market



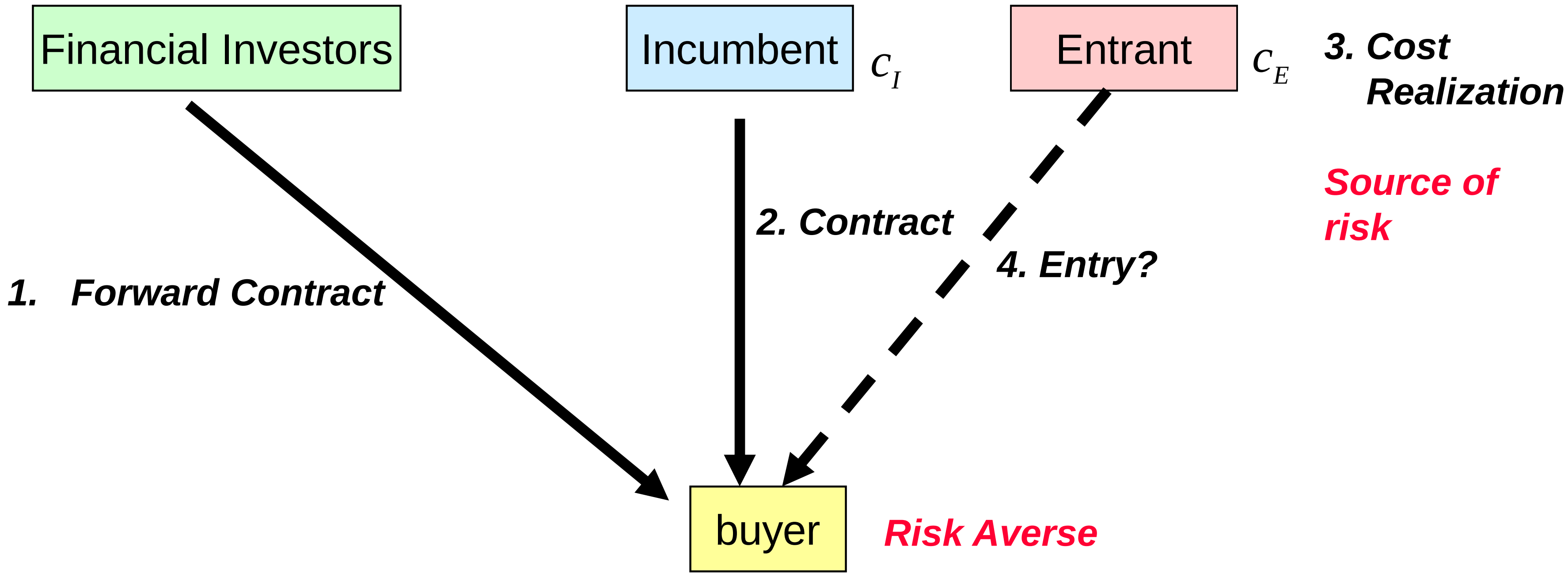
Model: Market



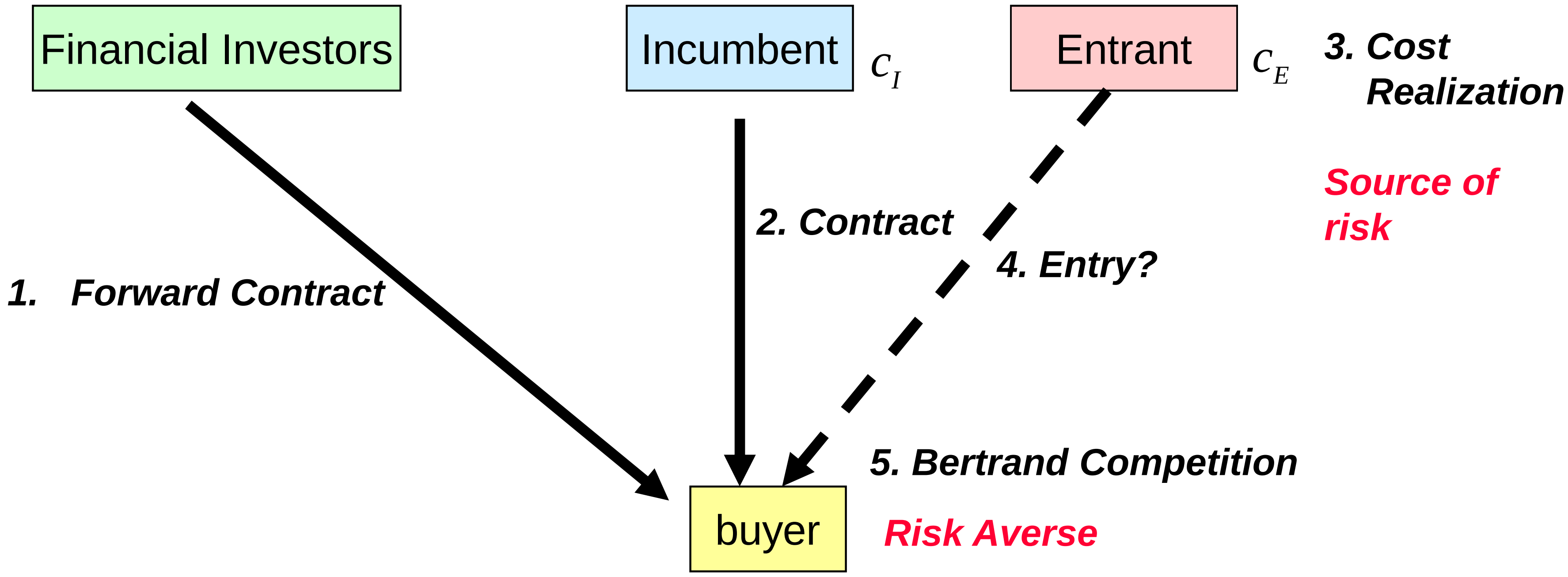
Model: Market



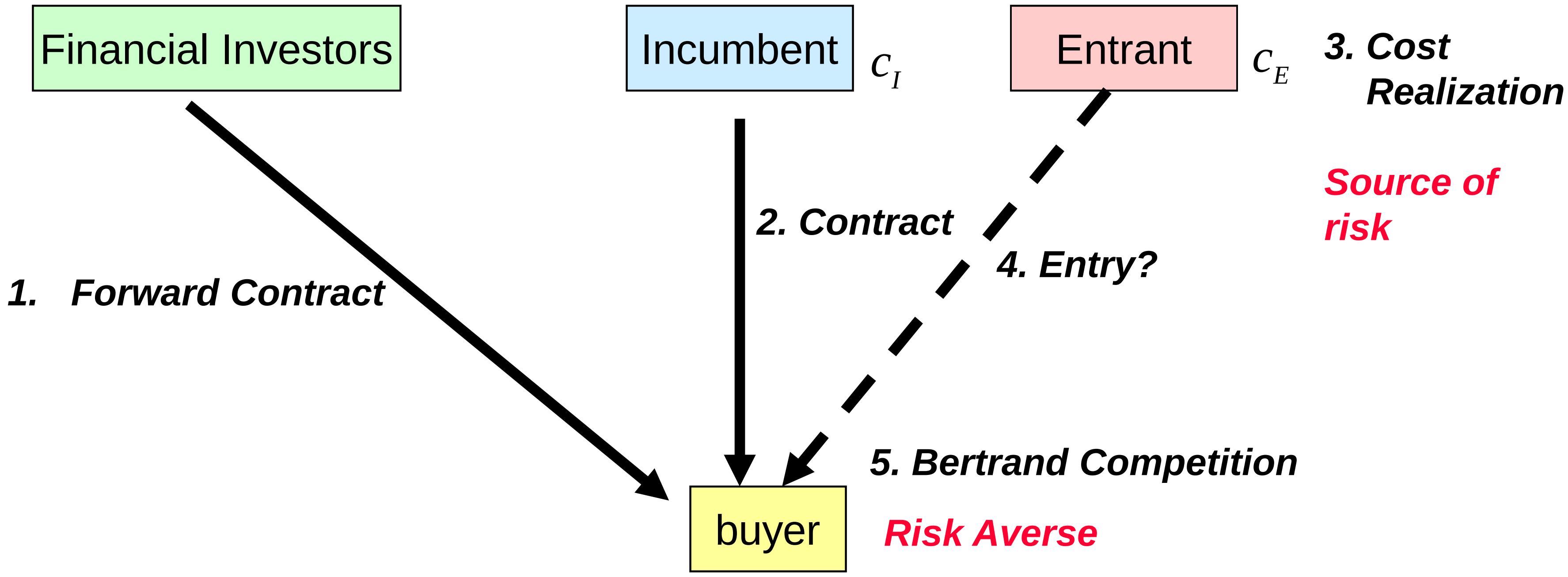
Model: Market



Model: Market



Model: Market



- Efficiency requires that:
  - Buyer is insured: It buys the good at a fixed price
  - Efficient entry: Entrant enters iff $c_E < c_I$

No Contracts: benchmark

- Buyer faces risk (-)
  - Low price if entry
  - High price if no entry

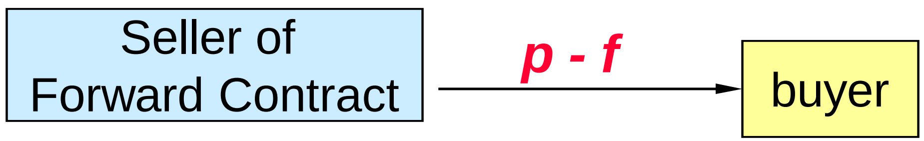
- Entry is efficient (+)
  - Entrant will enter as long as he has a lower cost than the incumbent

Type of Contracts

1. No contract
   - Benchmark case

2. Exclusivity contract
   - Buyer commits not to buy from the entrant; can be breached against payment of penalty
   - Price for delivery of the good P
   - Penalty for beaching the contract P_0

3. Financial Forward contract (= contract for difference)
   - Insurance contract on the spot price p sold at price f



   - Pure financial contract, no need for physical delivery of the good

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Results with Investors

(1) If the incumbent is allowed to offer an exclusivity contract, then this is bad twice!

- It will foreclose entry in the product market
- The financial market will break down

(2) If the incumbent is not allowed to offer an exclusivity contract, then

- We have optimal risk sharing (+) and optimal entry (+)
- Incumbent loses market power in insurance market, which is beneficial for the buyer (+)

(1) Incumbent can offer excl. contract

- If the buyer buys a forward contract from investors, then the buyer will be insured against high spot prices.
- It is then profitable for the buyer and the incumbent to sign an exclusivity contract to exclude the entrant as this will increase the spot price, and increase the transfers they receive from investors.
  - Why: the larger transfers from investors outweigh production efficiency gains they could achieve through entry
- Investors will foresee this behavior and only offer forward contracts at a very high price
- At this high price the buyer will not buy the contract
- Market breaks down due to Moral Hazard

Contracting externality: buyer and incumbent sign exclusivity contract → reduce rent of financial investor

(2) Incumbent *cannot* offer excl. contract

- Buyer buys insurance from financial investors at competitive rates
- No long term contract between the incumbent and the buyer
  - There are no gains from trade to be achieved by signing a long term contract
  - Manipulation of spot price in not possible without a an exclusivity contract
- Entrant will enter the market (when it has a cost advantage)

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Results without Investors

(1) If the incumbent is allowed to offer an exclusivity contract

- The buyer buys an exclusivity contracts
- It will foreclose entry in the product market

(2) If the incumbent is not allowed to offer an exclusivity contract, then

- The incumbent offers a financial forward contract

(1) Incumbent *can* offer excl. contract

- Buyer is insured **(+)**
  - When there is no entry, buyer buys the good at the contract price
  - When there is entry: buyer buys good from entrant, and pays penalty for breaching the contract
  - → buyer does not face risk
- Entry is inefficient **(-)** → Aghion-Bolton result
  - Entrant needs to compensate the buyer for the penalty it has to pay to the incumbent
  - Entrant will have to price lower than without contract (gains for incumbent & buyer)
  - Entrant will enter less than socially optimal

Contracting externality: buyer and incumbent sign exclusivity contract → reduce rent of entrant

(2) Incumbent *cannot* offer excl. contract

- Incumbent offers a forward contract to the buyer
- Buyer is insured **(+)**
  - It will pay the forward price specified in the contract
- Entry is efficient **(+)**
  - Incumbent is fully hedged: it will bid competitively in the spot market
  - Incumbent bids at marginal cost
  - Entrant enters efficiently

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Conclusion

- We show that in equilibrium
  - The incumbent and the buyer will sign exclusivity contracts
  - The buyer will be hedged by the exclusivity contract
  - Financial investors will not offer insurance to the buyer
- However, **an insurance defense should not be allowed for a exclusivity contract**
  - Without the exclusivity contract, financial investors will offer insurance to the buyer, and there is no longer a need for contract between the incumbent and the buyer
  - Even if there are no financial investors, other contracts such as a bilateral financial forward contracts will achieve risk sharing without exclusion

Policy Implications (1)

- **Exclusivity contract should be forbidden**, as not only the entrant, but also financial investors are excluded
- In fact, a sales contract which allows resale of products to other buyers, but which specifies a penalty for returning the goods to the incumbent, would be exclusive, and should be forbidden
- **We conjecture that** competition authorities should allow LT contracts as long as the penalty of breach is limited to the (ex-post) “market value of the contract”.
  - Note: This does not mean that the penalty = 0! Otherwise insurance will be impossible.
- Note: Even if only financial contracts are used, foreclosure might still happen: Incumbent offers a speculative contract to the buyer *(follow-up paper)*

Policy Implications (2)

- Take-or-pay contract
  - Often used in the gas sector
  - Pay for the gas even if you do not use it
  - Price that you pay is indexed on the oil price
- Implications
  - Implies a large penalty for not accepting delivery of the quantities specified in the contract → Penalty is larger than the ex-post market value of the contract → Exclusion possible
  - The gas price is indexed on the oil price, which is more or less the price that exporters would have received without contract
    → No risk reduction for exporter
    → Higher risk for importer (correlated energy prices).
- Should take-or-pay contracts be forbidden?
  - Other reasons for exclusivity contract: hold-up in down-stream investments in distribution infrastructure?
  - Volume risk is better hedged with a Take-or-pay-contract than with an forward contract (Assuming that volume risk is non-contractable)
    (Joint work with V.Valencia)