

Technology Industries as Antitrust Targets

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Why Should Antitrust Target High Technology Industries?

- Economic importance
 - Innovation competition is economic lifeblood
 - Innovation drives economic welfare
- High technology markets may be prone to dominance and foreclosure
 - Barriers to entry
 - High sunk entry costs
 - IP rights
 - Potential for tipping
 - Network effects
 - Economies of scale
 - Importance of interoperability
 - Vertical integration, exclusivity and foreclosure potential
- Exclusion can have significant long term effects
 - Exclusionary/Foreclosing conduct (exclusivity, threats, refusals to deal)
 - Vertical (or, complementary product) mergers
- High margins and other factors above also raise unilateral effects concerns for horizontal mergers

Innovation Incentives & Antitrust: US Case Law

- Innovation incentives are a claimed general rationale for restricting antitrust cases against monopolists
 - “The ability to charge monopoly prices – at least for a short period – is what attracts “business acumen” in the first place.” *Trinko (2003)*
 - “The successful competitor, having been urged to compete, must not be turned upon when he wins.” *Alcoa (1945)*
- *But*, economic basis and significance of concern about monopolists’ innovation incentives are unclear
 - “Immunity from competition is a narcotic, and rivalry is a stimulant to industrial progress.” *Alcoa (1945)*
- Kai-Uwe Kuhn will discuss the emerging empirical evidence

The Theory of Innovation and Competition

- “The Schumpeterian Effect”
 - Monopoly Rents Reward Innovation
- The “Escape Competition Effect”
- Market Dynamics
 - Intense Competition enhances innovation when firms are neck-to-neck
 - Intense Competition reduces innovation by laggards
 - Revolving Leadership vs. Increasing or Persistent Dominance
- Which Effect Dominates?

A Clearer Empirical Picture Emerges

- Evidence from the 1980s was mixed: Competition often was seen to reduce innovation
 - Severe Statistical Problems
 - Geroski (1995): Controlling for endogeneity of competition and heterogeneity across industries, there is a positive relationship between competition and innovation.
 - If one did not control for these effects: similar results to the old literature
- Patent Count data:
 - Blundell, Griffith, and Van Reenen (1999): Larger Firms innovate more, but competition helps. Consistent with pre-emptive investments.
 - Aghion, Bloom, Blundell, Griffith, Howitt (2005): The inverted U-shaped relationship
- Impact of Competition on Cost improvements:
 - Baily and Gersbach (1995), Galdon-Sanchez and Schmitz (2002), Carlin, Schaffer, and Seabright (2004): benefit of (some) competition

Evidence from Structural Models

- Maceira (2009): Super-computers
 - Competition (over a large range) increases innovation rate
- Goettler and Gordon (2009): processors (Intel vs. AMD)
 - Duopoly competition leads to slightly less innovation than Intel monopoly.
 - But price effects (static efficiency) considerably outweigh the R&D effects (dynamic efficiency)
- Syverson (2004): Ready Mixed Concrete
 - More competition (higher density of producers) leads to higher lower bound on productivity, higher average productivity, and lower productivity dispersion

The Message from Empirical Work

- Little evidence that more competition in highly concentrated market harms dynamic efficiency
- Should Competition Policy be more aggressive in R&D-intensive industries?
 - Foreclosure cases?
 - Merger control?

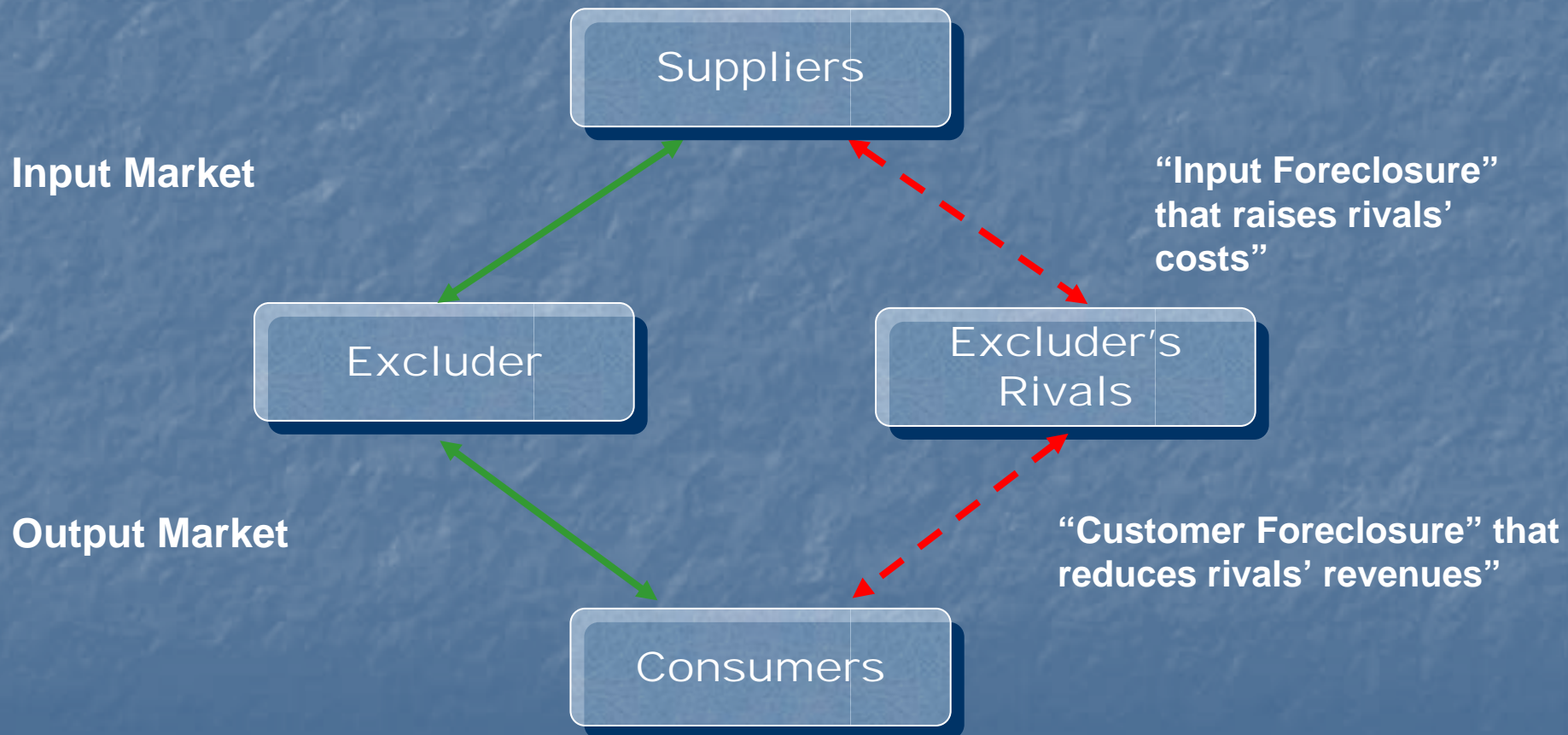
Introduction to Foreclosure

*Foreclosure is often a concern in
High Tech markets*

Anticompetitive Exclusion/Foreclosure

- ✓ Conduct that allows a firm (or group of firms), *to ...*
 - ✓ Achieve, enhance or maintain market power, *by ...*
 - ✓ Disadvantaging competitors, *and thus ...*
 - ✓ Harming consumers
 - ✓ Harming competitive process

Foreclosure and Exclusion



Sources of Foreclosure

- Vertically integrated dominant firm
 - Dominant firm refuses to supply “inputs” to rivals (or raises prices)
 - Real inputs (e.g., patent licenses; CPUs)
 - IP/license required to interoperate
 - Dominant firm refuses to purchase output from rivals (or purchases much less)
- Dominant firm achieves exclusivity with critical input suppliers or critical customers
- Examples: IMS? Microsoft? Intel? Google?
- *Foreclosure issues can arise in mergers as well as “conduct” matters*

Application to High Tech Markets

What is special in High Tech Markets?

- Winner Take All
- Many Complementary Products
- Large Innovations are protected by many small patents
- Patent Thickets

Not all Winners Are the Same

- Changing Winners
 - Example: Medical Testing Equipment
 - Good from the point of view of innovation
- Persistent or Increasing Dominance
 - Windows, IBM z/OS, Microsoft Office
 - Potentially bad for innovation: no escaping the competition effect. Laggards Drop Out
 - Causes:
 - Specific Investment in Platform
 - Brand specific network effects

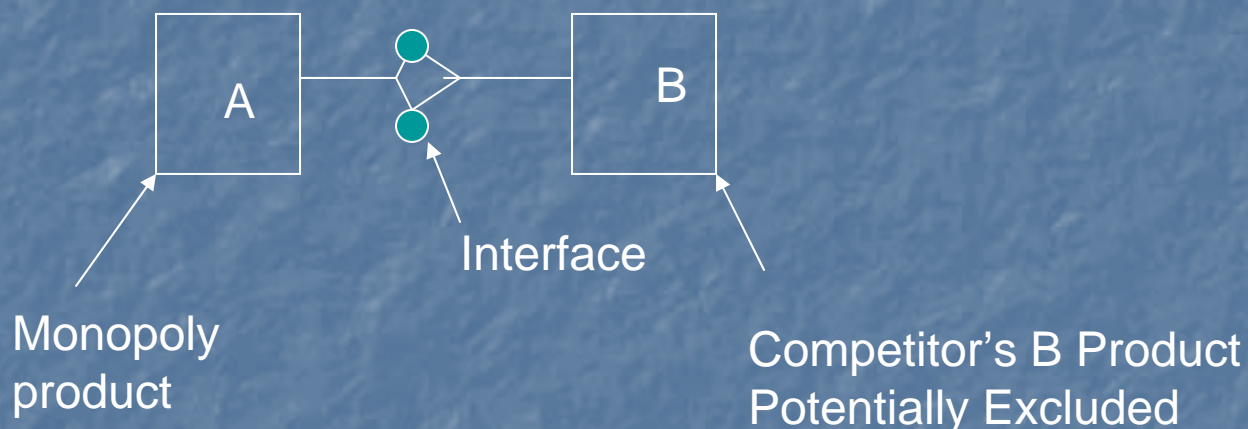
The Role of Interoperability

- Turning brand specific investments and brand specific network effects into industry specific ones
- Interoperability important for success:
 - Apple
 - Open Office

Some Examples for Interoperability Issues

- Microsoft server case
 - Refusal to provide information that would allow accessing functionality on non-Microsoft servers including licensing of IP rights
- KAL (multiplatform cash machine software)
- IBM mainframe investigation
 - Does Interoperability solution constitute violation of IP rights?
 - Is refusal to license IP rights an anticompetitive foreclosing act?
- Apple: Refusal to allow Flash Player on the platform
 - Refusal not based on IP rights
 - Potentially like the Windows Media Player case

Do Interoperability Remedies hurt Dynamic Efficiency



- Competitor Limits Rent Extraction
 - But isn't rent extraction good for innovation?
- B Competitor allows development of substitute to A in future
 - Isn't this what patent protection is all about?

Should an Innovation on A allow rent extraction on B

- If the innovative product A creates the opportunity to create a complement B, shouldn't A extract that benefit from the innovation
- Analogue of product improvements (Green and Scotchmer): Too much protection prevents good ideas for improvements of others to be implemented.
- Optimal IP Incentives should give incentives to others to produce new ideas for complements to A!

Patent Thickets and the role of licensing

- High Tech companies have very large patent portfolios
- Impossible to check whether patents of others cover (parts of) an innovative idea
- Firms do not imitate but develop a solution that might infringe
- Large firms form patent pools to avoid this problem preemptively
- Smaller firms seek to acquire licenses even if they do not believe they infringe existing IP

Compulsory Licensing/Interoperability Remedies – A threat to innovation?

- Many Reasons why IP may be overprotected in the industry:
 - Only in case of high degree of dominance. Thus pro-competitive measures good for innovation
 - Extension of protection to complementary products
 - Ubiquitous Cross-licensing among the large, but difficulties for small innovators
- Evidence from past cases:
 - Did Microsoft remedies reduce innovation on PC and/or server operating systems?
- How costly is the implementation of remedies?
- Is there a reason to presume that important platforms should offer full interoperability?

Merger Control for High Tech Markets

High Tech Mergers

- Multiple dimensions of competition
 - Price/Non-price (“static” competition)
 - New products/Innovation (“dynamic” competition)
- Competitive concerns
 - Horizontal merger (unilateral, not coordinated effects)
 - Potential competition merger
 - Vertical merger
- Expanded concerns because of network effects, interoperability, tipping, foreclosure
- Potentially greater synergies/benefits as well
- Broader remedial potential
 - Licensing IP to reduce entry barriers and/or reduce rivals’ costs
 - Compulsory license to maintain interoperability
 - Requiring licensing or JV as “less restrictive alternative” to merger
 - Example: Google-Yahoo search advertising proposed JV

Framework for Merger Analysis: Standard ("Static") Analysis

- Standard static analysis = price and quality competition
- Basic Analysis
 - Higher GUPPIs because margins usually high
 - Coordinated effects concerns less likely
 - Potentially larger synergies because of new/improved product benefits
 - *Currently and over time*
 - Potentially larger number of potential entrants over time from repositioning and development of new products
 - More complex GUPPIs may be needed
 - Multi-product firms (substitutes and complements)
 - Dynamic pricing incentives
- *Policy issue*
 - Should larger synergies and greater repositioning/entry threat be *presumed*, which would offset high GUPPIs?
 - No discussion in 2010 US HMGs on changing the presumptions

Framework for Merger Analysis: “Dynamic” Analysis

- Dynamic analysis = innovation and new product competition
- Basic Analysis
 - Lower GUPPIs for longer run competition (i.e., new product)
 - Potential synergies: Combining components and complementary R&D
 - Potential harm: Elimination of potential competition
 - Potential harm: Denying inputs/cooperation from other rivals
- *Policy Issue:*
 - What should be the competitive presumptions?
 - No statement in 2010 US HMGs.

Example 1 (Electronic Equipment)

- Basic Structure
 - A+B merger (#1 and #2)
 - High DRs from win/loss data
 - Firms C&D fading in past year
 - Thus, high short-run GUPPIs
 - 2 large potential entrants – likely speed of development/entry controversial
- Analysis
 - Large synergies from combining complementary components
 - Parties argued synergies from combining R&D teams (“smart engineers working together”)
 - Evidence that C&D were “reinventing” themselves and catching back up
 - Evidence on potential entrants remained unclear
- *Outcome*: No second request

Example 2 (Pharma Transaction)

- Basic structure
 - Mature pharmaceutical
 - 2 branded manufacturers; both face generic competition
 - 2 other molecules compete for indication, and 1 is the leading firm
 - Short-run “average” GUPPI > 10%
 - Significant DRs between merging parties
 - Payers retained branded drugs in formulary, but generics led to price reductions, though
 - R&D pipeline for potential rollout in 2015 time frame
 - Merging parties pipeline drugs
 - 2-3 other competitors pipeline drugs too
- Investigation and outcome
 - Detailed “quick-look” over 4 month period
 - Major Issue: Likelihood that merging firms’ products would roll-out, but most others would not.
 - Balancing probabilities
 - *Outcome*: short-run licensing of one brand

Back-up slides

Refusals to Deal and Price Squeezes:

US Supreme Court Skepticism

US: Trinko & linkLine

- Central Holding: Antitrust adds nothing to regulation of entry
- Dicta: “forced dealing” faces a high bar, whether refusal to deal or price squeeze
 - Compelling negotiation can facilitate collusion.
 - Compelling firms to share may inhibit investment incentives of both dominant firm and victims
 - Enforced sharing requires courts to act as “central planners,” which can lead to high costs of error
- Exception: *Aspen Ski*
 - At the “outer boundary” of Section 2
 - History of voluntary dealing
 - Refused to sell to rival at the bulk price charged to others

Impact on Investment Incentives: Is Trinko's Concern Valid?

- Leap-frog competition by entrant to enter input market would be unlikely in situations where this refusal to deal rule applies.
 - Defendant's has monopoly power *only if* there are durable entry barriers in the input market
- Market competition will increase innovation incentives
 - Monopolists have weaker incentives than competitors
 - Monopolists have stronger incentives when monopoly is being threatened with competition
 - Exclusionary conduct reduces innovation incentives of entrants and rivals, by reducing or eliminating their market prospects
- Labelling an entrant a free-rider simply because it competes with a defendant with proven monopoly power in only one market (rather than entering both markets) is an extreme view
- ***Well-formulated price standard can protect monopolist's investment incentives***
 - Compensates defendant for monopoly profits on lost customers, while permitting competition to occur.

Central Planning Concern: Can Courts Set a Price Standard?

- Task is not beyond the capabilities of courts and agencies
 - Market prices often provide a good price benchmark
 - Predatory pricing standards rely on judicial price-cost comparison
 - Refusal to deal law by courts in these limited circumstances can serve as an episodic intervention short of full regulation

Non-Exclusion Benchmark Price: Potential Alternatives

- Incremental cost
 - Problematical since does not compensate legitimate monopolist for investment
- Market prices
 - Price previously charged to plaintiff (if prior voluntary dealing) or other buyers
 - Problematical if world has changed; or, if no such market prices exist.
- “Protected-Profits Benchmark” (constructed price benchmark)
 - Price that compensates defendant for monopoly profits on output sales lost to “equally efficient” competitor
 - Derived from the “Efficient Components Pricing Rule” (ECPR) used in regulation
 - Failure of defendant to accept an offer equal/above PPB is evidence of an anticompetitive refusal to deal
 - Wholesale price above PPB is evidence of a price (or margin) “squeeze”
- PPB Implementation Issues
 - Must distinguish “refusal to deal” from mere “bargaining failure.”
 - PPB can be extended to differentiated products, which lead to a significantly lower benchmark price (Armstrong et al (1996))
- Application to Competition Law
 - Appears to be EU standard. US much less clear
 - PPB as a possible “upper bound” for compulsory licensing remedy or natural monopoly regulation

Protected-Profits Benchmark: Refusal to Deal Example

- PPB : Input price to compensate defendant for monopoly profits on output sales lost to plaintiff
- Example
 - Current monopoly price = \$100
 - Monopolist's current margin = \$50
 - Monopolist's input costs = \$10
 - Monopolist's downstream costs of output (beyond input costs) = \$40
- Benchmark input price = \$60
 - Monopolist will earn \$50 on input sales (\$60-\$10)
 - Same \$50 profits as earned on output sales
- Thus, refusal to deal if monopolist refuses an input price offer above \$60.
- Equivalent to below-cost downstream pricing standard, where monopolist "opportunity cost" includes the revenue it could earn on input sales
 - Price = \$100
 - Cost = \$40 downstream costs + \$60 (opportunity cost on input sales) = \$100
- Equally efficient entrant will just survive
 - More efficient entrant will prosper and lead to price competition
 - Monopolist not compensated for the impact of this price competition on its profits
- PPB would be lower if differentiated products: *Monopolist would lose less sales*