Potential "Non-Unilateral" Effects From a Merger

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Unilateral Effects

- "Under individual rivalry firms take their competitors' behavior in some sense given, and not open to influence by the firm's own actions" (Ivaldi, *et al*. DG Comp 03-2003

  http://europa.eu.int/comm/competition/mergers/review/the_economics_of_unilateral_effects_en.pdf)

- A merger may diminish competition … because merging firms may find it profitable to alter their behavior unilaterally following the acquisition by elevating price and suppressing output. (U.S Merger Guidelines)

- Parties to the merger are able to raise price post-merger because of increased market power and/or elimination of competition between them
  - Dominant Firm
  - Sufficiently Close Substitutes
  - Maverick

Cournot and Bertrand

- Notice that the standard oligopoly models, Cournot and Bertrand, are models of unilateral effects
  - *Each competitor assumes that its competitors do not react to it own actions*
- Bertrand and Cournot models are "curious" models of competition *in concentrated industries*
  - No "real" competition
  - No strategizing/competitive interaction
  - At best, Cournot and Bertrand are *metaphors* for equilibrium

Nash Equilibria

- "The fact that Nash equilibria pass the test of being consistent predictions does not make them good predictions, and in situations it seems rash to think that a precise prediction is available. By "situations" we mean to draw attention to the fact that the likely outcome of a game depends on more information than is provided by the strategic form [the payoff functions, strategic choice possibilities, etc.]."
  (Fudenberg & Tirole, *Game Theory*, p. 13).

Nash Equilibria

- "Thus, even assuming that behavior follows some sort of adjustment process does not imply that play must converge to a Nash equilibrium. And the adjustment processes [discussed earlier] are not compelling as a description of players' behavior. *One problem with all the processes we have discussed so far is that the players ignore the way their current action will influence their opponents [and customers] actions in the next period.* That is, the adjustment process itself may not be an equilibrium of the "repeated game" where players know they face one another repeatedly." (Fudenberg & Tirole, *Game Theory*, p. 26).

Coordinated Interaction

- "Tacit collusion … requires that a firm make a choice that would not be in its interest if it assumed that other firms would be uninfluenced by its choice." (Ivaldi, *et al.*, DG Comp 3/2003)

  http://europa.eu.int/comm/competition/mergers/review/the_economics_of_unilateral_effects_en.pdf)

- "Coordinated interaction is comprised of actions by a group of firms that are profitable for each of them only as a result of the accommodating reactions of the others. This behavior includes tacit or express collusion, and may or may not be lawful in and of itself." (U.S. Merger Guidelines)

Coordinated Interaction Theory

- Stigler "Theory of Oligopoly" (actually, a theory of Collusion)
  - Basis of Posner "Check List"
- Dynamic Game Theory
  - An embarrassment of "riches" – lots of outcomes are consistent with theory, and theory does not provide much guidance other than
    - Consensus, Detection, Punishment — "requirements" for a "collusive" outcome

See EU *AirTours* decision (http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexplus!prod!CELEXnumdoc&lg=en&numdoc=61999A0342)

  - Most of dynamic game theory focuses on potential properties of *long run* equilibrium – which might be the wrong focus given the dynamic nature of competition in most markets these days
  - Dynamic game theory predicts retaliation in the form of price wars, targeted punishment, *etc.* which appear to be rare
- These are theories of (tacit) Collusion

Oligopolistic Interdependence

- "Oligopolistic Interdependence":
  Major firms (at least) understand that their actions impact their rivals who will be expected to respond
- Oligopolistic Interdependence is not the same as tacit collusion or coordinated interaction
  - "… a necessary condition of tacit collusion is that firms should be acting with the intention of influencing future actions of their competitors" [*i.e.*, recognizing and acting on Oligopolistic Interdependence] (Ivaldi, *et al.*, DG Comp 3/2003)
  - Tacit collusion may be too stringent a test for a merger in a concentrated industry
    - BUT – you need a factual basis – not just "stories"

"Non-Unilateral"

- Evidence does not support a unilateral effects theory
- Merger may be anticompetitive because it changes the nature of or intensity of competition amongst some or all of the competitors, *i.e.*, impacts *Oligopolistic Interdependence* in a manner that raises prices

What is "Non-Unilateral"?

1. Number of competitors makes a difference but cannot connect directly to a viable unilateral theory
   - 3-to-2 presumption
   - Some bidding theories
   - Evidence from *Natural Experiments*

2. "Maverick"
   - One competitor is an important factor in the type or intensity of competition and the merger removes that Maverick

What is "Non-Unilateral"?

3. "Coordinated Interaction"

   "A merger may diminish competition by enabling the firms selling in the relevant market more likely, more successfully, or more completely to engage in coordinated interaction that harms consumers. Coordinated interaction is comprised of actions by a group of firms that are profitable for each of them only as a result of the accommodating reactions of the others. This behavior includes tacit or express collusion, and may or may not be lawful in and of itself." (Merger Guidelines)

Theoretical Foundation: *Dynamic Oligopoly Theory* — Consensus/Detection/Punishment paradigm

See EU *AirTours* decision (http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexplus!prod!CELEXnumdoc&lg=en&numdoc=61999A0342)

"Check List" (Merger Guidelines)

(i) Availability of key information concerning market conditions, *transactions*, and individual competitors

(ii) The extent of firm and product heterogeneity

(iii) Pricing or marketing practices typically employed by firms in the market

(iv) Characteristics of buyers and sellers

(v) Characteristics of typical transactions

(vi) Previous express collusion

"Check List"

- The viability of Consensus/Detection/Punishment and of "successful" oligopolistic interdependence requires

  Simplicity and *Transparency*

Simplicity à la Guidelines

- Reaching Consensus:

  "At some point, however, imperfections cause the profitability of abiding by the terms of coordination to decrease and, depending on their extent, may make coordinated interaction unlikely in the first instance. "

- Detection and Punishment

  "If orders for the relevant product are frequent, regular and small relative to the total output of a firm in a market, it may be difficult for the firm to deviate in a substantial way without the knowledge of rivals and without the opportunity for rivals to react. If demand or cost fluctuations are relatively infrequent and small, deviations may be relatively easy to deter. "

Transparency à la Guidelines

- Reaching Consensus

  "Key information about rival firms and the market may also facilitate reaching terms of coordination. Conversely, reaching terms of coordination may be limited or impeded by product heterogeneity or by firms having substantially incomplete information about the conditions and prospects of their rival's businesses, perhaps because of important differences among their current business operations."

- Detection and Punishment

  "… if key information about specific transactions or individual price or output levels is available routinely to competitors, it may be difficult for a firm to deviate secretly."

Operationalizing Simplicity and Transparency

- What would be the "ultimate" *Simple* and *Transparent* market?
  - Stable, or predictable demand
  - (Approximately) one price or predictable relationships between prices, (reasonably) known in real time to everyone
  - No large customers/bargaining
  - Notice that these conditions would necessarily fit the major Check List structural factors
    - Homogeneous product/no customization or bargaining
    - Frequent transactions/no significant buyer power
  - Real world approximation:
    - Gasoline retailing
      (But what does evidence indicate re: "coordination"?)

Operationalizing Simplicity and Transparency

- More realistic conditions:
  - Prices largely determined by sellers' standard terms (quantity discounts, *etc*.)
  - Prices move together relatively closely
  - If there are large customers, there is a reasonable amount of transparency about different sellers' positions across most major customers

Beyond the "Check List"

Quantitative Evidence

- Quantitative analyses of pricing with different numbers of competitors over time or across geography – i.e., "*Natural Experiments*"
- Quantitative analyses of transactions prices, and other customer-specific information, *etc.* bearing on Simplicity and Transparency
- Quantitative analyses of capacity changes, product development activities, *etc*.
- Quantitative analyses bearing on Maverick
- How does merger change things?

See Scheffman and Coleman, "Quantitative Analyses of Potential Competitive Effects From a Merger," (with M. Coleman) www.ftc.gov/be/quantmergeranalysis.pdf