On the Competitive Effects of Bidding Syndicates

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Motivation

Industry Motivation

- Mergers in auction markets
- Joint exploration of oil fields
- Syndicated bids in IPOs

Theoretical Conjectures

- Joint bidding reduces the winner's curse
- Leads to more aggressive bidding and higher revenues

  Krishna & Morgan 1997, Pinske & Tan 2005

Antitrust Concerns

- Unlike private value auctions, "synergies" are built in
- A hands-off approach to common value auctions

Conjectures

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Joint bidding leads to higher industry concentration
and higher information concentration

Regulatory Response

- DOJ investigation, private law suits, and Supreme Court cases stemming from financial syndicates

Syndicates may dampen competitive pressures, as rivals bid *with* rather than *against* each other

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SEC commissioner Paul Atkins:

"This suit ... could devastate America's process of capital formation, wreak unprecedented havoc, and will jeopardize the stability in our capital markets."

However...

When the auctioneer uses an optimal mechanism:

- Joint bidding reduces revenue when signals are independent
  Competition effect always dominates information pooling effect
  Mares & Shor 2008a & 2008b

- Joint bidding has no effect when signals are affiliated
  Auctioneer always extracts full surplus
  Myerson 1981, Crémer and McLean 1985 & 1988

Affiliation & Optimal Mechanisms

- Independence of signals is not often observed in practice
- Auctions in financial markets, in particular, are likely to have bidders with correlated values:
  - Estimates of company value among private equity firms
  - Estimates of credit risk among lenders
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What if non-optimal mechanisms are used?

Impact of joint bidding depends on the structure of information and the choice of market mechanism

Model

- w is distributed uniformly (with a diffuse prior)
- Bidders receive i.i.d. private signals, $s_i \sim U[w - \theta, w + \theta]$.
- Winner receives value of $v(w, \mathbf{s}) = v(w, s_1, \ldots, s_n)$
  - The "classic" model: $v = w$
  - Order statistics model: $v = \alpha \min\{\mathbf{s}\} + (1 - \alpha) \max\{\mathbf{s}\}$

Model

- We compare two industry structures:
  - n bidders, each with one signal
  - 2 bidders, with n signals among them
    (Alleviates equilibrium existence issues
    Jackson 2005, Armstrong & Rochet 1999)
- Under two selling mechanisms:
  - sealed-bid auctions (second-price)
  - open auctions (English)

- Start with the “classic" model: $v = w$
  Signals are drawn uniformly around the true value

Inference

Note that a signal is an unbiased estimate of the value

$$E[v|s_i] = s_i \ \ (\pm\theta)$$

More signals lowers the uncertainty

$$E[v|\mathbf{s}] = \frac{1}{2}(\min\{\mathbf{s}\} + \max\{\mathbf{s}\})$$

For a given number of signals, the smallest signals carry as much information as the biggest signals

- Auctions always reveal biggest signals
- Key is the extent to which small signals are incorporated

Equilibrium Bids

- Sealed bid: one must shade to account for winner's curse:

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Competition Effect:

As $n \to \infty$

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$$\text{winning } s \to v + \theta$$

$$\text{price} \to v$$

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- Syndicate bidding (2 syndicates): no winner's curse correction
  A syndicate with signals $s_1, \ldots, s_m$ bids

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Information Pooling Effect:

As $m \to \infty$ $\qquad$ $b(s) \to v$

price $\to v$

Results

With independent signals, syndicates cause revenues to decline
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Theorem

Two syndicates (with n total signals) yield higher revenue than n individual bidders as long as neither syndicate has more than $\approx 75\%$ market share

Why the Difference?

With correlated values, bidders are doubly pessimistic:

- Signal forms basis of bid, considering winner's curse
  Bid within possible value range
  assuming you have the highest signal
- Signal forms basis of estimating others' signals, and thus range
  Equilibrium estimate of range is $[s - 2\theta, s]$

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Consider a minimum value auction: $v = \min\{\mathbf{s}\}$

- An n^{th} price auction is full-revenue extracting
- A k^{th}-price auction revenue dominates a $k-1^{th}$-price auction
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Consider a maximum value auction: $v = \max\{\mathbf{s}\}$

- In second price auction, $b(s) = s$.
- Only competition effect present

Benefit of syndicates tied to importance of lower order statistics

Robustness

For a value function, $v = \alpha \max\{\mathbf{s}\} + (1 - \alpha) \min\{\mathbf{s}\}$

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In sealed-bid auctions, syndicates are often pro-competitive

Open Auctions

- Infer information from lowest bidder

$$b(s) = \alpha s + (1 - \alpha) s_{min}$$

Even without syndication,
price already reflects lowest signal

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For all models:

Theorem

Two syndicates yield lower revenue than n individual bidders.

Intuition

- The more information bidders have, the more confidently they bid
  - Information about value *and* range of others' signals
- Uncertainty in open auctions is quite low
  Syndication reduces competition
  without adding much to information
- Uncertainty in sealed-bid auctions is very high
  Information pooling within syndicates
  offsets loss of competition among syndicates

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  Information pooling within syndicates
  offsets loss of competition among syndicates
- Not so much that syndicates are good,
  as sealed-bid auctions are very bad.

Unsyndicated open auction
$>$ Syndicates
$>$ Unsyndicated sealed bid auction

Summary

Effect of industry concentration offsets benefits of information sharing

- This is true if the auctioneer uses an optimal auction
- This is true if the auctioneer uses an English auction
- This may not be true if the auctioneer is very silly

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SYNDICATION **syn ′ di • ca ′ tion** *noun.*
In finance, a euphemism for joint bidding

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SYNDICATION **syn ′ di • ca ′ tion** *noun.*
In finance, a euphemism for joint bidding

> *“In the course of mounting their “indiscriminate” . . . attack on the syndicate system, the plaintiffs accuse the banks of having “frequent communications among themselves” . . . the sharing of information.*
>
> *It is ludicrous to suggest that communications within a syndicate violate the antitrust laws.*
>
> — *Amicus Brief, Robert Bork et al.*

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If I were a Supreme Court justice, it might have been 7–2.