Anti-Competitive Effects of Common Ownership

José Azar  
Charles River Associates

Martin Schmalz  
University of Michigan

Isabel Tecu  
Charles River Associates

NY State Bar Association Antitrust Section 2015
Motivation

**Theory**: Firms owned by overlapping sets of investors have reduced incentives to compete

- Rotemberg (1984); Bresnahan & Salop (1986); Gordon (1990); Gilo (2000); O'Brien & Salop (2000); Gilo et al. (2006)

History: JP Morgan, 19th century (voting) trusts

- FTC as an antitrust agency

Could that also happen today?

Strong (but unexamined) prior: no, because

- Most shareholdings are undiversified
- Diversified institutions are just small minority shareholders
- Vanguard etc. are “passive” investors (i.e., they don’t vote)

This paper informs this debate with facts
Motivation

- **Theory**: Firms owned by overlapping sets of investors have reduced incentives to compete
  - Rotemberg (1984); Bresnahan & Salop (1986); Gordon (1990); Gilo (2000); O’Brien & Salop (2000); Gilo et al. (2006)
Motivation

- **Theory**: Firms owned by overlapping sets of investors have reduced incentives to compete
  - Rotemberg (1984); Bresnahan & Salop (1986); Gordon (1990); Gilo (2000); O’Brien & Salop (2000); Gilo et al. (2006)

- **History**: JP Morgan
Motivation

- **Theory**: Firms owned by overlapping sets of investors have reduced incentives to compete
  - Rotemberg (1984); Bresnahan & Salop (1986); Gordon (1990); Gilo (2000); O’Brien & Salop (2000); Gilo et al. (2006)

- **History**: JP Morgan, 19th century (voting) trusts
Motivation

**Theory**: Firms owned by overlapping sets of investors have reduced incentives to compete

- Rotemberg (1984); Bresnahan & Salop (1986); Gordon (1990); Gilo (2000); O’Brien & Salop (2000); Gilo et al. (2006)

**History**: JP Morgan, 19th century (voting) trusts

- FTC as an antitrust agency
Motivation

- **Theory**: Firms owned by overlapping sets of investors have reduced incentives to compete
  - Rotemberg (1984); Bresnahan & Salop (1986); Gordon (1990); Gilo (2000); O’Brien & Salop (2000); Gilo et al. (2006)

- **History**: JP Morgan, 19th century (voting) trusts
  - FTC as an antitrust agency
  - Could that also happen today?
Motivation

- **Theory**: Firms owned by overlapping sets of investors have reduced incentives to compete
  - Rotemberg (1984); Bresnahan & Salop (1986); Gordon (1990); Gilo (2000); O’Brien & Salop (2000); Gilo et al. (2006)

- **History**: JP Morgan, 19th century (voting) trusts
  - FTC as an antitrust agency
  - Could that also happen today?

- **Strong (but unexamined) prior**: no
Motivation

**Theory**: Firms owned by overlapping sets of investors have reduced incentives to compete

- Rotemberg (1984); Bresnahan & Salop (1986); Gordon (1990); Gilo (2000); O’Brien & Salop (2000); Gilo et al. (2006)

**History**: JP Morgan, 19th century (voting) trusts

- FTC as an antitrust agency
- Could that also happen today?

**Strong (but unexamined) prior**: no, because

- Most shareholdings are undiversified
Motivation

- **Theory**: Firms owned by overlapping sets of investors have reduced incentives to compete
  - Rotemberg (1984); Bresnahan & Salop (1986); Gordon (1990); Gilo (2000); O’Brien & Salop (2000); Gilo et al. (2006)

- **History**: JP Morgan, 19th century (voting) trusts
  - FTC as an antitrust agency
  - Could that also happen today?

- **Strong (but unexamined) prior**: no, because
  - Most shareholdings are undiversified
  - Diversified institutions are just small minority shareholders
Motivation

- **Theory**: Firms owned by overlapping sets of investors have reduced incentives to compete
  - Rotemberg (1984); Bresnahan & Salop (1986); Gordon (1990); Gilo (2000); O’Brien & Salop (2000); Gilo et al. (2006)

- **History**: JP Morgan, 19th century (voting) trusts
  - FTC as an antitrust agency
  - Could that also happen today?

- **Strong (but unexamined) prior**: no, because
  - Most shareholdings are undiversified
  - Diversified institutions are just small minority shareholders
  - Vanguard etc. are “passive” investors
Motivation

**Theory**: Firms owned by overlapping sets of investors have reduced incentives to compete

- Rotemberg (1984); Bresnahan & Salop (1986); Gordon (1990); Gilo (2000); O’Brien & Salop (2000); Gilo et al. (2006)

**History**: JP Morgan, 19th century (voting) trusts

- FTC as an antitrust agency
- Could that also happen today?

**Strong (but unexamined) prior**: no, because

- Most shareholdings are undiversified
- Diversified institutions are just small minority shareholders
- Vanguard etc. are “passive” investors (i.e., they don’t vote)
Motivation

- **Theory**: Firms owned by overlapping sets of investors have reduced incentives to compete
  - Rotemberg (1984); Bresnahan & Salop (1986); Gordon (1990); Gilo (2000); O’Brien & Salop (2000); Gilo et al. (2006)

- **History**: JP Morgan, 19th century (voting) trusts
  - FTC as an antitrust agency
  - Could that also happen today?

- **Strong (but unexamined) prior**: no, because
  - Most shareholdings are undiversified
  - Diversified institutions are just small minority shareholders
  - Vanguard etc. are “passive” investors (i.e., they don’t vote), so firms ignore diversified investors’ interests
Motivation

- **Theory:** Firms owned by overlapping sets of investors have reduced incentives to compete
  - Rotemberg (1984); Bresnahan & Salop (1986); Gordon (1990); Gilo (2000); O’Brien & Salop (2000); Gilo et al. (2006)

- **History:** JP Morgan, 19th century (voting) trusts
  - FTC as an antitrust agency
  - Could that also happen today?

- **Strong (but unexamined) prior:** no, because
  - Most shareholdings are undiversified
  - Diversified institutions are just small minority shareholders
  - Vanguard etc. are “passive” investors (i.e., they don’t vote), so firms ignore diversified investors’ interests

- **This paper informs this debate with facts**
This talk

- **Facts** about ownership of firms
- **Overview** of empirical setting and results
- **Theory**
  - Competition under common ownership (O’Brien & Salop, 2000)
- **Empirics**
  1. Measure concentration due to common ownership
  2. Identify effect of common ownership on prices
- **Potential mechanisms & legal implications**
Facts about corporate ownership
## Technology

<table>
<thead>
<tr>
<th><strong>Apple</strong></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BlackRock</td>
<td>5.58</td>
</tr>
<tr>
<td>Vanguard</td>
<td>4.95</td>
</tr>
<tr>
<td>State Street gA</td>
<td>4.59</td>
</tr>
<tr>
<td>Fidelity</td>
<td>3.28</td>
</tr>
<tr>
<td>Northern Trust Corp.</td>
<td>1.53</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Microsoft</strong></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BlackRock</td>
<td>5.33</td>
</tr>
<tr>
<td>Capital Group</td>
<td>4.78</td>
</tr>
<tr>
<td>Bill Gates</td>
<td>4.52</td>
</tr>
<tr>
<td>Vanguard</td>
<td>4.49</td>
</tr>
<tr>
<td>State Street gA</td>
<td>4.39</td>
</tr>
<tr>
<td>Fidelity</td>
<td>3.08</td>
</tr>
</tbody>
</table>
## Pharmacies

<table>
<thead>
<tr>
<th>CVS</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BlackRock</td>
<td>5.9</td>
</tr>
<tr>
<td>Fidelity</td>
<td>5.1</td>
</tr>
<tr>
<td>Vanguard</td>
<td>4.78</td>
</tr>
<tr>
<td>State Street gA</td>
<td>4.61</td>
</tr>
<tr>
<td>Wellington</td>
<td>4.21</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Walgreens</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vanguard</td>
<td>5.26</td>
</tr>
<tr>
<td>State Street gA</td>
<td>4.49</td>
</tr>
<tr>
<td>BlackRock</td>
<td>4.44</td>
</tr>
<tr>
<td>Fidelity</td>
<td>3.07</td>
</tr>
<tr>
<td>Wellington</td>
<td>2.29</td>
</tr>
</tbody>
</table>
### JPMorgan Chase

<table>
<thead>
<tr>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BlackRock</td>
<td>6.7</td>
</tr>
<tr>
<td>Vanguard Group</td>
<td>4.78</td>
</tr>
<tr>
<td>State Street gA</td>
<td>4.56</td>
</tr>
<tr>
<td>Fidelity</td>
<td>3.16</td>
</tr>
<tr>
<td>Capital Group</td>
<td>2.7</td>
</tr>
</tbody>
</table>

### Bank of America

<table>
<thead>
<tr>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BlackRock</td>
<td>5.38</td>
</tr>
<tr>
<td>Vanguard Group</td>
<td>4.51</td>
</tr>
<tr>
<td>State Street gA</td>
<td>4.45</td>
</tr>
<tr>
<td>Fidelity</td>
<td>2.56</td>
</tr>
</tbody>
</table>

### Citigroup

<table>
<thead>
<tr>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BlackRock</td>
<td>9.29</td>
</tr>
<tr>
<td>Capital Group</td>
<td>6.64</td>
</tr>
<tr>
<td>GIC Private Limited</td>
<td>5</td>
</tr>
<tr>
<td>State Street gA</td>
<td>4.4</td>
</tr>
<tr>
<td>Vanguard</td>
<td>4.4</td>
</tr>
<tr>
<td>Fidelity</td>
<td>3.83</td>
</tr>
</tbody>
</table>
Who are these investors? Example: BlackRock

- **Large**: BlackRock has $4.7trn Assets under Management
  - NYSE market capitalization: $19trn
Who are these investors? Example: BlackRock

**Large:** BlackRock has $4.7trn Assets under Management
  - NYSE market capitalization: $19trn

**Growing:** Size doubled by acquiring BGI in 2009
  - Continued growth through index funds / ETFs (iShares)
Who are these investors? Example: BlackRock

- **Large:** BlackRock has $4.7trn Assets under Management
  - NYSE market capitalization: $19trn

- **Growing:** Size doubled by acquiring BGI in 2009
  - Continued growth through index funds / ETFs (iShares)

- **Powerful:** largest shareholder of $\frac{1}{5}$ of all public US firms
Who are these investors? Example: BlackRock

- **Large:** BlackRock has $4.7tn Assets under Management
  - NYSE market capitalization: \( \approx $19\text{trn} \)

- **Growing:** Size doubled by acquiring BGI in 2009
  - Continued growth through index funds / ETFs (iShares)

- **Powerful:** largest shareholder of \( \frac{1}{5} \) of all public US firms
  - Also largest shareholder of BNP Paribas, Deutsche Bank...
Who are these investors? Example: BlackRock

- **Large:** BlackRock has $4.7trn Assets under Management
  - NYSE market capitalization: $\approx 19trn

- **Growing:** Size doubled by acquiring BGI in 2009
  - Continued growth through index funds / ETFs (iShares)

- **Powerful:** largest shareholder of $\frac{1}{5}$ of all public US firms
  - Also largest shareholder of BNP Paribas, Deutsche Bank...
  - Minority shareholder
Who are these investors? Example: BlackRock

- **Large:** BlackRock has $4.7trn Assets under Management
  - NYSE market capitalization: $\approx 19\text{trn}$

- **Growing:** Size doubled by acquiring BGI in 2009
  - Continued growth through index funds / ETFs (iShares)

- **Powerful:** largest shareholder of $\frac{1}{5}$ of all public US firms
  - Also largest shareholder of BNP Paribas, Deutsche Bank...
  - Minority shareholder

- **Active in corporate governance**
Who are these investors? Example: BlackRock

- **Large:** BlackRock has $4.7trn Assets under Management
  - NYSE market capitalization: $\approx 19\text{trn}$

- **Growing:** Size doubled by acquiring BGI in 2009
  - Continued growth through index funds / ETFs (iShares)

- **Powerful:** largest shareholder of $\frac{1}{5}$ of all public US firms
  - Also largest shareholder of BNP Paribas, Deutsche Bank...
  - Minority shareholder

- **Active in corporate governance**
Vanguard’s CEO & Chairman F. William McNabb

- Passive investor, not passive owner

- Some have mistakenly assumed that our predominantly passive management style suggests a passive attitude with respect to corporate governance. Nothing could be further from the truth.

- By involvement in hundreds of direct discussions every year ... we can accomplish much more than through voting ... we put issues on the table that aren’t on the proxy ballot.
Vanguard’s CEO & Chairman F. William McNabb

- Passive investor, not passive owner

- Some have mistakenly assumed that our predominantly passive management style suggests a passive attitude with respect to corporate governance. Nothing could be further from the truth.

- By involvement in hundreds of direct discussions every year ... we can accomplish much more than through voting ... we put issues on the table that aren’t on the proxy ballot.
Passive investment, active ownership

- Most large mutual fund companies
  - Have central corporate governance & proxy voting offices that “engage” with portfolio firms “behind the scenes”
  - Pool votes across funds in family (few within-family fights)
Passive investment, active ownership

Most large mutual fund companies
  ▶ Have central corporate governance & proxy voting offices that “engage” with portfolio firms “behind the scenes”
  ▶ Pool votes across funds in family (few within-family fights)

All of the large asset managers are active in corporate governance – even if they have passive investment strategies
Facts on corporate ownership: summary

- Corporate ownership by institutional investors
  - Is not small
  - Is not undiversified
  - Is not passive
Facts on corporate ownership: summary

- Corporate ownership by institutional investors
  - Is not small
  - Is not undiversified
  - Is not passive

- We therefore find it not entirely absurd to ask...
Questions

1. Do current levels of common ownership significantly increase market concentration?
   ▶ How to quantify?

2. Does higher common ownership concentration cause higher product prices?
   ▶ How to identify?
What we do
What we do
What we do

t = 0

Fund B
owns
Airline 2

Fund A
owns
Airline 1

Fund C
owns
Airline 3

JFK
DCA
BOS

Airline 1
Airline 2
Airline 3

HHI_JFK-BOS
HHI_JFK-DCA
HHI_DCA-BOS
What we do

At $t=0$:
- Fund B owns Airline 2
- Fund A owns Airline 1
- Fund C owns Airline 3

At $t=1$:
- Fund B
- Fund A
- Fund C

Diagram:
- Airline 1
- Airline 2
- Airline 3
- JFK
- DCA
- BOS
What we do

<table>
<thead>
<tr>
<th>Time</th>
<th>Fund B</th>
<th>Fund A</th>
<th>Fund C</th>
</tr>
</thead>
<tbody>
<tr>
<td>t=0</td>
<td>owns Airline 2</td>
<td>owns Airline 1</td>
<td>owns Airline 3</td>
</tr>
<tr>
<td>t=1</td>
<td>Fund B</td>
<td>Fund A</td>
<td>Fund C</td>
</tr>
</tbody>
</table>

Price increase

HHI JFK-DCA
HHI JFK-BOS
HHI DCA-BOS

Airline 1
Airline 2
Airline 3
What we do

<table>
<thead>
<tr>
<th>t=0</th>
<th>t=1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund B owns Airline 2</td>
<td>Fund B</td>
</tr>
<tr>
<td>Fund A owns Airline 1</td>
<td>Fund A</td>
</tr>
<tr>
<td>Fund C owns Airline 3</td>
<td>Fund C</td>
</tr>
</tbody>
</table>

**Price increase**

... compared to these routes

- Airline 1
- Airline 2
- Airline 3
What we do

**t=0**
- **Fund B** owns **Airline 2**
- **Fund A** owns **Airline 1**
- **Fund C** owns **Airline 3**

**t=1**
- **Fund A-B**
- **Fund C**

---

**Price increase**

- **Compared to these routes**
- **Airline 1**
- **Airline 2**
- **Airline 3**

---

8 / 1
What we find

1. Measure market ownership-adjusted concentration
   - Anti-competitive incentives due to common ownership in the average US airline route: **2,200 HHI points**
   - 10 times larger than what DoJ/FTC horizontal merger guidelines presume “likely to enhance market power”

2. Identify price effect
   - Prices 3-11% higher, compared to separate ownership
   - Single merger of asset managers causes 0.6% price increase
     - Compares to 1-4% profit margins (IATA)
Theory
Competition under common ownership

(Salop & O’Brien, 2000)

- **Assumption**: firm $j$ maximizes a weighted average of its owners’ economic interests
Competition under common ownership

(Salop & O’Brien, 2000)

- **Assumption**: firm $j$ maximizes a weighted average of its owners’ economic interests: their **portfolio** profits
Competition under common ownership

(Salop & O’Brien, 2000)

- **Assumption**: firm $j$ maximizes a weighted average of its owners’ economic interests: their *portfolio* profits
  - Weights: control rights $\gamma_{ij}$, cash flow rights $\beta_{ik}$

$$
\max_{x_j} \Pi_j = \sum_{i=1}^{M} \gamma_{ij} \sum_{k=1}^{N} \beta_{ik} \pi_k
$$
Competition under common ownership

(Salop & O’Brien, 2000)

- **Assumption**: firm $j$ maximizes a weighted average of its owners’ economic interests: their **portfolio** profits
  
  - Weights: control rights $\gamma_{ij}$, cash flow rights $\beta_{ik}$

  \[
  \max_{x_j} \Pi_j = \sum_{i=1}^{M} \gamma_{ij} \sum_{k=1}^{N} \beta_{ik} \pi_k \propto \pi_j + \sum_{k \neq j} \frac{\sum_{i} \gamma_{ij} \beta_{ik}}{\sum_{i} \gamma_{ij} \beta_{ij}} \pi_k
  \]
Competition under common ownership

(Salop & O’Brien, 2000)

- **Assumption**: firm $j$ maximizes a weighted average of its owners’ economic interests: their portfolio profits
  - Weights: control rights $\gamma_{ij}$, cash flow rights $\beta_{ik}$

  $$
  \max_{x_j} \Pi_j = \sum_{i=1}^{M} \gamma_{ij} \sum_{k=1}^{N} \beta_{ik} \pi_k \propto \pi_j + \sum_{k \neq j} \frac{\sum_{i} \gamma_{ij} \beta_{ik}}{\sum_{i} \gamma_{ij} \beta_{ij}} \pi_k
  $$

- **Result**: Cournot $\Rightarrow$ markup $\propto \text{MHHI}$
Competition under common ownership

(Salop & O’Brien, 2000)

- **Assumption**: firm $j$ maximizes a weighted average of its owners’ economic interests: their portfolio profits
  - Weights: control rights $\gamma_{ij}$, cash flow rights $\beta_{ik}$
  
  $$
  \max_{x_j} \Pi_j = \sum_{i=1}^{M} \gamma_{ij} \sum_{k=1}^{N} \beta_{ik} \pi_k \propto \pi_j + \sum_{k \neq j} \frac{\sum_i \gamma_{ij} \beta_{ik}}{\sum_i \gamma_{ij} \beta_{ij}} \pi_k
  $$

- **Result**: Cournot $\Rightarrow$ markup $\propto \text{MHHI} = \text{HHI} + \text{MHHI delta}$
Competition under common ownership

(Salop & O’Brien, 2000)

**Assumption**: firm $j$ maximizes a weighted average of its owners’ economic interests: their *portfolio* profits

- Weights: control rights $\gamma_{ij}$, cash flow rights $\beta_{ik}$

$$\max_{x_j} \Pi_j = \sum_{i=1}^{M} \gamma_{ij} \sum_{k=1}^{N} \beta_{ik} \pi_k \propto \pi_j + \sum_{k \neq j} \frac{\sum_{i} \gamma_{ij} \beta_{ik}}{\sum_{i} \gamma_{ij} \beta_{ij}} \pi_k$$

**Result**: Cournot $\Rightarrow$ markup $\propto$ MHHI = HHI + MHHI delta

$$\eta \sum_{j} s_j \frac{P - C_j'(x_j)}{P} = \sum_{j} s_j^2 + \sum_{j} \sum_{k \neq j} s_j s_k \frac{\sum_{i} \gamma_{ij} \beta_{ik}}{\sum_{i} \gamma_{ij} \beta_{ij}}$$
Competition under common ownership

(Salop & O’Brien, 2000)

- **Assumption:** firm \( j \) maximizes a weighted average of its owners’ economic interests: their portfolio profits
  
  \[ \max_{x_j} \Pi_j = \sum_{i=1}^{M} \gamma_{ij} \sum_{k=1}^{N} \beta_{ik} \pi_k \propto \pi_j + \sum_{k \neq j} \frac{\sum_{i} \gamma_{ij} \beta_{ik}}{\sum_{i} \gamma_{ij} \beta_{ij}} \pi_k \]

- **Result:** Cournot \( \Rightarrow \) markup \( \propto \) MHHI = HHI + MHHI delta

  \[ \eta \sum_{j} s_j \left( \frac{P - C_j'(x_j)}{P} \right) = \sum_j s_j^2 + \sum_j \sum_{k \neq j} s_j s_k \frac{\sum_{i} \gamma_{ij} \beta_{ik}}{\sum_{i} \gamma_{ij} \beta_{ij}} \]

- **Unilateral effects** \( \Rightarrow \) no coordination or communication
Symmetric example: 2 firms, 50/50 market share

- Separate ownership: fund A owns firm 1, fund B owns firm 2
  - $HHI = 5,000; MHHI = 5,000; MHHI \text{ delta} = 0$

- Funds diversify (or A buys B)
  - $HHI = 5,000; MHHI = 10,000; MHHI \text{ delta} = 5,000$
Symmetric example: 2 firms, 50/50 market share

- Separate ownership: fund A owns firm 1, fund B owns firm 2
  - \( HHI = 5,000; \ MHHI = 5,000; \ MHHI \ delta = 0 \)

- Funds diversify (or A buys B)
  - \( HHI = 5,000; \ MHHI = 10,000; \ MHHI \ delta = 5,000 \)
Distribution of MHHI delta across routes

![Diagram showing distribution of MHHI delta across routes for 2001Q1 and 2013Q1. The x-axis represents MHHI delta, ranging from 0 to 6000, and the y-axis represents density, ranging from 0 to 0.01. The chart compares the density distribution for 2001Q1 (in dark green) and 2013Q1 (in white), highlighting differences in the distribution of MHHI delta between the two periods.](image-url)
Average MHHI and HHI over time

BlackRock acquires BGI
Average MHHI and HHI over time

- Horizontal merger guidelines: +200 “presumed likely to enhance market power” & shifts burden of proof
Average MHHI and HHI over time

- Horizontal merger guidelines: +200 “presumed likely to enhance market power” & shifts burden of proof
- 2,200 additional HHI points due to common ownership: worse than going from 4 → 2 competitors
Horizontal merger guidelines: +200 “presumed likely to enhance market power” & shifts burden of proof

2,200 additional HHI points due to common ownership: worse than going from 4 → 2 competitors, w/o DoJ/FTC involvement
Price effect of common ownership
Empirical hypotheses

H0: Common ownership concentration (MHHI delta) does not affect prices
Empirical hypotheses

- H0: Common ownership concentration (MHHI delta) does not affect prices
  - Corporate governance frictions
  - Informational frictions (too complex)
  - ...

- H1: MHHI delta has a positive effect on ticket prices
- Economic incentives matter for economic outcomes
- Firms act (to some extent) in their owners' economic interest
Empirical hypotheses

- **H0**: Common ownership concentration (MHHI delta) does not affect prices
  - Corporate governance frictions
  - Informational frictions (too complex)
  - ...

- **H1**: MHHI delta has a positive effect on ticket prices
  - Economic incentives matter for economic outcomes
  - Firms act (to some extent) in their owners’ economic interest
Empirical strategy: fixed-effects panel

- Route $i$, carrier $j$, quarter $t$

\[
\log (p_{ijt}) = \beta \cdot \text{MHHI delta}_{it} \\
+ \gamma \cdot \text{HHI}_{it} + \theta \cdot X_{ijt} + \alpha_t + \nu_{ij} (+\nu_{jt}) + \epsilon_{ijt}
\]
Empirical strategy: fixed-effects panel

- Route $i$, carrier $j$, quarter $t$

$$\log (p_{ijt}) = \beta \cdot MHHI \, delta_{it}$$

$$+ \gamma \cdot HHI_{it} + \theta \cdot X_{ijt} + \alpha_t + \nu_{ij} (+\nu_{jt}) + \epsilon_{ijt}$$

- Results
  - $\beta > 0$: 5% higher prices compared to $MHHI \, delta = 0$
Empirical strategy: fixed-effects panel

- Route $i$, carrier $j$, quarter $t$

\[
\log(p_{ijt}) = \beta \cdot MHHI_{\text{delta}it} \\
+ \gamma \cdot HHI_{it} + \theta \cdot X_{ijt} + \alpha_t + v_{ij} (+v_{jt}) + \varepsilon_{ijt}
\]

- Results
  - $\beta > 0$: 5% higher prices compared to $MHHI_{\text{delta}} = 0$
  - $\beta \approx \gamma$
Empirical strategy: fixed-effects panel

- Route $i$, carrier $j$, quarter $t$

$$\log (p_{ijt}) = \beta \cdot \text{MHHI delta}_{it}$$

$$+ \gamma \cdot HHI_{it} + \theta \cdot X_{ijt} + \alpha_t + \nu_{ij} (+\nu_{jt}) + \epsilon_{ijt}$$

- Results
  - $\beta > 0$: 5% higher prices compared to $\text{MHHI delta} = 0$
  - $\beta \approx \gamma$
    - Magnitude driven by large MHHI delta, not by a high $\beta$
Empirical strategy: fixed-effects panel

- Route $i$, carrier $j$, quarter $t$

\[
\log(p_{ijt}) = \beta \cdot \text{MHHI delta}_{it} + \gamma \cdot \text{HHI}_{it} + \theta \cdot X_{ijt} + \alpha_t + \nu_{ij} (+\nu_{jt}) + \epsilon_{ijt}
\]

- Results
  - $\beta > 0$: 5% higher prices compared to $\text{MHHI delta} = 0$
  - $\beta \approx \gamma$
    - Magnitude driven by large MHHI delta, not by a high $\beta$
  - Quantity (♯ passengers) is lower ($\beta < 0$)
Empirical strategy: fixed-effects panel

- Route $i$, carrier $j$, quarter $t$

$$\log(p_{ijt}) = \beta \cdot MHHI_{\text{delta}it} + \gamma \cdot HHI_{it} + \theta \cdot X_{ijt} + \alpha_t + \nu_{ij} (+\nu_{jt}) + \varepsilon_{ijt}$$

- Results
  - $\beta > 0$: 5% higher prices compared to $MHHI_{\text{delta}} = 0$
  - $\beta \approx \gamma$
    - Magnitude driven by large MHHI delta, not by a high $\beta$
  - Quantity (# passengers) is lower ($\beta < 0$)
  - Implied $\eta = -1.3$ (IATA: -1.4)
## Price effect of MHHI delta

<table>
<thead>
<tr>
<th></th>
<th>Market-carrier level</th>
<th>Market-level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td><strong>MHHI delta</strong></td>
<td>0.201***</td>
<td>0.128***</td>
</tr>
<tr>
<td></td>
<td>(0.0251)</td>
<td>(0.0232)</td>
</tr>
<tr>
<td><strong>HHI</strong></td>
<td>0.208***</td>
<td>0.150***</td>
</tr>
<tr>
<td></td>
<td>(0.0209)</td>
<td>(0.0182)</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Year-Quarter FE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Market-Carrier FE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Market FE</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Observations</strong></td>
<td>1,115,482</td>
<td>1,089,818</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.095</td>
<td>0.144</td>
</tr>
<tr>
<td>Number of Market-Carrier Pairs</td>
<td>50,659</td>
<td>49,057</td>
</tr>
<tr>
<td>Number of Markets</td>
<td>7,391</td>
<td>7,081</td>
</tr>
</tbody>
</table>

*Dependent Variable: Log(Average Fare)*
## Price effect of MHHI delta

<table>
<thead>
<tr>
<th></th>
<th>Market-carrier level</th>
<th>Market-level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td><strong>MHHI delta</strong></td>
<td>0.201***</td>
<td>0.128***</td>
</tr>
<tr>
<td></td>
<td>(0.0251)</td>
<td>(0.0232)</td>
</tr>
<tr>
<td><strong>HHI</strong></td>
<td>0.208***</td>
<td>0.150***</td>
</tr>
<tr>
<td></td>
<td>(0.0209)</td>
<td>(0.0182)</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Year-Quarter FE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Market-Carrier FE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Market FE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Observations</strong></td>
<td>1,115,482</td>
<td>1,089,818</td>
</tr>
<tr>
<td><strong>R-squared</strong></td>
<td>0.095</td>
<td>0.144</td>
</tr>
<tr>
<td>Number of Market-Carrier Pairs</td>
<td>50,659</td>
<td>49,057</td>
</tr>
<tr>
<td>Number of Markets</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Panel-IV: BlackRock buys BGI
Testing for reverse causality with panel-IV

- BlackRock announces acquisition of BGI in 2009:Q2, consummated in 2009:Q4
Testing for reverse causality with panel-IV

- BlackRock announces acquisition of BGI in 2009:Q2, consummated in 2009:Q4

- Airlines a small fraction of both firms’ portfolios
  - Assume acquisition was not caused by differences across routes in expected ticket price changes
Testing for reverse causality with panel-IV

- BlackRock announces acquisition of BGI in 2009:Q2, consummated in 2009:Q4

- Airlines a small fraction of both firms’ portfolios
  - Assume acquisition was not caused by differences across routes in expected ticket price changes

- Route-level treatment variable:

  **2009:Q1-Implied change in MHHI delta**

  \[ = \text{Hypothetically-combined MHHI}_{2009:Q1,i} - \text{Separate MHHI}_{2009:Q1,i} \]
Treatment: Implied change in MHHI delta

Mean: 91.3
Treatment: Implied change in MHHI delta

H0: constant relative price across treated & control routes
Treatment vs. control prices

Control
Treatment
Consummation of acquisition

BlackRock announces acquisition of BGI

Log of Average Price (Normalized)

Consummation of acquisition
Treatment vs. control prices

- $\beta^{IV}$: up to 11% higher prices due to total common ownership
- BlackRock-BGI-implied increase in common ownership alone caused 0.6% higher prices
## Panel-IV first stage

<table>
<thead>
<tr>
<th>Post-period:</th>
<th>2011Q1</th>
<th>2012Q1</th>
<th>2013Q1</th>
<th>2011-2013 Q1</th>
<th>2011Q1</th>
<th>2012Q1</th>
<th>2013Q1</th>
<th>2011-2013 Q1</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent Variable: MHHI delta</th>
<th>Treat × Post</th>
<th>Impl Chg (MHHI delta) × Post</th>
<th>HHI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.0651***</td>
<td>-0.365***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.00504)</td>
<td>(0.0273)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0885***</td>
<td>-0.377***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.00508)</td>
<td>(0.0213)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0879***</td>
<td>-0.376***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.00519)</td>
<td>(0.0225)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0749***</td>
<td>-0.354***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.00447)</td>
<td>(0.0162)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.050***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.291)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.756***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.295)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.740***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.313)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.742***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.273)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.050***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.291)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.756***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.295)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.740***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.313)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.742***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.273)</td>
<td></td>
</tr>
</tbody>
</table>

| Controls | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Market-Carrier FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

| Within-R-squared | 0.562 | 0.659 | 0.710 | 0.590 | 0.534 | 0.647 | 0.715 | 0.584 |
| # of Market-Carrier Pairs | 7,414 | 7,414 | 7,414 | 7,414 | 11,667 | 11,667 | 11,667 | 11,667 |
## Panel-IV Second Stage: Price Effect

<table>
<thead>
<tr>
<th>Post-period:</th>
<th>Discrete Treatment</th>
<th>Continuous Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011Q1</td>
<td>2012Q1</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
</tbody>
</table>

### MHHI Delta

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHII Delta</td>
<td>-0.0150</td>
<td>0.519***</td>
<td>0.521***</td>
<td>0.299**</td>
<td>-0.149</td>
<td>0.483***</td>
<td>0.440***</td>
<td>0.245*</td>
</tr>
<tr>
<td></td>
<td>(0.174)</td>
<td>(0.143)</td>
<td>(0.147)</td>
<td>(0.141)</td>
<td>(0.173)</td>
<td>(0.131)</td>
<td>(0.141)</td>
<td>(0.138)</td>
</tr>
</tbody>
</table>

### HHI

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHI</td>
<td>0.0632</td>
<td>0.296***</td>
<td>0.299***</td>
<td>0.226***</td>
<td>0.0118</td>
<td>0.260***</td>
<td>0.254***</td>
<td>0.206***</td>
</tr>
<tr>
<td></td>
<td>(0.0822)</td>
<td>(0.0672)</td>
<td>(0.0697)</td>
<td>(0.0605)</td>
<td>(0.0768)</td>
<td>(0.0573)</td>
<td>(0.0617)</td>
<td>(0.0553)</td>
</tr>
</tbody>
</table>

### Controls

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Year FE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Market-Carrier FE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### Observations

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
</tr>
</thead>
</table>

### R-squared

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-squared</td>
<td>0.375</td>
<td>0.432</td>
<td>0.414</td>
<td>0.321</td>
<td>0.351</td>
<td>0.411</td>
<td>0.395</td>
<td>0.305</td>
</tr>
</tbody>
</table>

### # of Market-Carrier Pairs

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Market-Carrier Pairs</td>
<td>7,414</td>
<td>7,414</td>
<td>7,414</td>
<td>7,414</td>
<td>11,667</td>
<td>11,667</td>
<td>11,667</td>
<td>11,667</td>
</tr>
</tbody>
</table>
## Panel-IV second stage: price effect

<table>
<thead>
<tr>
<th>Post-period:</th>
<th>Discrete Treatment</th>
<th>Continuous Treatment</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011Q1</td>
<td>2012Q1</td>
<td>2013Q1</td>
<td>2011-2013 Q1</td>
<td>2011Q1</td>
<td>2012Q1</td>
<td>2013Q1</td>
<td>2011-2013 Q1</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
</tr>
<tr>
<td><strong>MHHI delta</strong></td>
<td>-0.0150</td>
<td>0.519***</td>
<td>0.521***</td>
<td>0.299**</td>
<td>-0.149</td>
<td>0.483***</td>
<td>0.440***</td>
<td>0.245*</td>
</tr>
<tr>
<td></td>
<td>(0.174)</td>
<td>(0.143)</td>
<td>(0.147)</td>
<td>(0.141)</td>
<td>(0.173)</td>
<td>(0.131)</td>
<td>(0.141)</td>
<td>(0.138)</td>
</tr>
<tr>
<td><strong>HHI</strong></td>
<td>0.0632</td>
<td>0.296***</td>
<td>0.299***</td>
<td>0.226***</td>
<td>0.0118</td>
<td>0.260***</td>
<td>0.254***</td>
<td>0.206***</td>
</tr>
<tr>
<td></td>
<td>(0.0822)</td>
<td>(0.0672)</td>
<td>(0.0697)</td>
<td>(0.0605)</td>
<td>(0.0768)</td>
<td>(0.0573)</td>
<td>(0.0617)</td>
<td>(0.0553)</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Year FE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Market-Carrier FE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.375</td>
<td>0.432</td>
<td>0.414</td>
<td>0.321</td>
<td>0.351</td>
<td>0.411</td>
<td>0.395</td>
<td>0.305</td>
</tr>
<tr>
<td># of Market-Carrier Pairs</td>
<td>7,414</td>
<td>7,414</td>
<td>7,414</td>
<td>7,414</td>
<td>11,667</td>
<td>11,667</td>
<td>11,667</td>
<td>11,667</td>
</tr>
</tbody>
</table>
Summary and conclusions
Summary of results

1. Common ownership is ubiquitous
Summary of results

1. Common ownership is ubiquitous

2. Portfolio firms lack incentives to compete
   - More than 10 times larger than what DoJ/FTC horizontal merger guidelines presume “likely to enhance market power”
Summary of results

1. Common ownership is ubiquitous

2. Portfolio firms lack incentives to compete
   - More than 10 times larger than what DoJ/FTC horizontal merger guidelines presume “likely to enhance market power”

3. When firms lack incentives to compete, they don’t
   - 3 - 11% higher prices, compared to separate ownership
   - Magnitudes & timing similar to unregulated mergers
Summary of results

1. Common ownership is ubiquitous

2. Portfolio firms lack incentives to compete
   - More than 10 times larger than what DoJ/FTC horizontal merger guidelines presume “likely to enhance market power”

3. When firms lack incentives to compete, they don’t
   - 3 - 11% higher prices, compared to separate ownership
   - Magnitudes & timing similar to unregulated mergers

4. Consolidation in the asset management industry affects portfolio firms’ product market competition
   - 0.6% on the average route, from one acquisition alone
Conclusion: a policy “trilemma”

- Neo-classical economics is internally inconsistent. It is impossible to design an economic system in which
  
  1. Shareholders are diversified (e.g., CAPM)
  2. Firms act in shareholders’ interest (good governance)
  3. Product market competition prevails (efficiency)

Quantitative questions:
- Can we improve welfare by reducing within-industry diversification (which potentially improves governance and competition, but is it feasible)?
- Or is there just enough competition with present-day ownership structures (but what about the future)?
- Reducing voting power of “passive” investors (or is separation of ownership and control a bigger concern)?
Conclusion: a policy “trilemma”

- Neo-classical economics is internally inconsistent. It is impossible to design an economic system in which

  1. Shareholders are diversified (e.g., CAPM)
  2. Firms act in shareholders’ interest (good governance)
  3. Product market competition prevails (efficiency)

- Quantitative question: can we improve welfare by
  - Reducing within-industry diversification (which potentially improves governance and competition, but is it feasible)?
Conclusion: a policy “trilemma”

- Neo-classical economics is internally inconsistent. It is impossible to design an economic system in which
  1. Shareholders are diversified (e.g., CAPM)
  2. Firms act in shareholders’ interest (good governance)
  3. Product market competition prevails (efficiency)

- Quantitative question: can we improve welfare by
  - Reducing within-industry diversification (which potentially improves governance and competition, but is it feasible)?
  - Reducing voting power of “passive” investors (or is separation of ownership and control a bigger concern)?
Conclusion: a policy “trilemma”

- Neo-classical economics is internally inconsistent. It is impossible to design an economic system in which
  1. Shareholders are diversified (e.g., CAPM)
  2. Firms act in shareholders’ interest (good governance)
  3. Product market competition prevails (efficiency)

- Quantitative question: can we improve welfare by
  - Reducing within-industry diversification (which potentially improves governance and competition, but is it feasible)?
  - Reducing voting power of “passive” investors (or is separation of ownership and control a bigger concern)?
  - Or is there just enough competition with present-day ownership structures (but what about the future)?
Potential mechanisms and legal implications
“What is the mechanism?”

- Showed incentives and outcomes, as typical in IO
“What is the mechanism?”

- Showed incentives and outcomes, as typical in IO
- Comforting to know plausible mechanisms exist
  1. Direct channel
  2. Indirect channel
“What is the mechanism?”

- Showed incentives and outcomes, as typical in IO

- Comforting to know plausible mechanisms exist
  1. Direct channel
  2. Indirect channel
1. Direct channel

How do institutional investors affect corporate policies?
1. Direct channel

How do institutional investors affect corporate policies?

- Just as we teach it
1. Direct channel

How do institutional investors affect corporate policies?

- Just as we teach it
  - They elect directors
1. Direct channel

How do institutional investors affect corporate policies?

- Just as we teach it
  - They elect directors (sometimes themselves)
1. Direct channel

How do institutional investors affect corporate policies?

- Just as we teach it
  - They elect directors (sometimes themselves)
  - Set pay/turnover: industry-sensitive (Bebchuk & Fried; Jenter & Kanaan)
1. Direct channel

How do institutional investors affect corporate policies?

- Just as we teach it
  - They elect directors (sometimes themselves)
  - Set pay/turnover: industry-sensitive (Bebchuk & Fried; Jenter & Kanaan)
  - “Engagement is the carrot, voting is the stick.”
1. Direct channel

How do institutional investors affect corporate policies?

- Just as we teach it
  - They elect directors (sometimes themselves)
  - Set pay/turnover: industry-sensitive (Bebchuk & Fried; Jenter & Kanaan)
  - “Engagement is the carrot, voting is the stick.”

- What is discussed in engagement meetings? We don’t know.
- But even in earnings calls, investors openly discuss capacity decisions with airlines
1. Direct channel: discussion of capacity

- Direct discussion of capacity
  - “Southwest dials back on growth to appease investors” (Bloomberg)
1. Direct channel: discussion of capacity

- Direct discussion of capacity
  - “Southwest dials back on growth to appease investors” (Bloomberg)
    SWA jumps 2.2%, airline index jumps 3.2%
1. Direct channel: discussion of capacity

Direct discussion of capacity

▶ “Southwest dials back on growth to appease investors” (Bloomberg)
SWA jumps 2.2%, airline index jumps 3.2%

▶ At the 2014Q3 earnings call of Delta Air Lines, JP Morgan representative (#2 shareholder) “asks”:
  ★ “When you add capacity, particularly into other airlines’ hubs, it diminishes shareholder confidence; jeopardizes the likelihood of earning a multiple closer to that of high-quality industrial transport. [...] in fairness, I’m going to ask others this season. So this is not uniquely directed.”
1. Direct channel: discussion of capacity

- Direct discussion of capacity
  - “Southwest dials back on growth to appease investors” (Bloomberg)
    SWA jumps 2.2%, airline index jumps 3.2%
  - At the 2014Q3 earnings call of Delta Air Lines, JP Morgan representative (#2 shareholder) “asks”:
    - “When you add capacity, particularly into other airlines’ hubs, it diminishes shareholder confidence; jeopardizes the likelihood of earning a multiple closer to that of high-quality industrial transport. [...] in fairness, I’m going to ask others this season. So this is not uniquely directed.”
  - Route-specific comments
    - “What is funding growth initiatives in certain regions, like the trans-Atlantic, like in Seattle, and perhaps like in LA?”
1. Direct channel: discussion of capacity

- Direct discussion of capacity
  - “Southwest dials back on growth to appease investors” (Bloomberg)
    SWA jumps 2.2%, airline index jumps 3.2%
  - At the 2014Q3 earnings call of Delta Air Lines, JP Morgan representative (#2 shareholder) “asks”:
    ★ “When you add capacity, particularly into other airlines’ hubs, it diminishes shareholder confidence; jeopardizes the likelihood of earning a multiple closer to that of high-quality industrial transport. [...] in fairness, I’m going to ask others this season. So this is not uniquely directed.”

- Route-specific comments
  ★ “What is funding growth initiatives in certain regions, like the trans-Atlantic, like in Seattle, and perhaps like in LA?”
  ★ “... Will you cut some of those new routes? Or will allocating more capacity to places like Miami - Frankfurt have the effect of reducing service here?” (American)
1. Direct channel: discussion of capacity

- Direct discussion of capacity
  - “Southwest dials back on growth to appease investors” (Bloomberg)
    SWA jumps 2.2%, airline index jumps 3.2%
  - At the 2014Q3 earnings call of Delta Air Lines, JP Morgan representative (#2 shareholder) “asks”:
    - “When you add capacity, particularly into other airlines’ hubs, it diminishes shareholder confidence; jeopardizes the likelihood of earning a multiple closer to that of high-quality industrial transport. [...] in fairness, I’m going to ask others this season. So this is not uniquely directed.”
  - Route-specific comments
    - “What is funding growth initiatives in certain regions, like the trans-Atlantic, like in Seattle, and perhaps like in LA?”
    - “... Will you cut some of those new routes? Or will allocating more capacity to places like Miami - Frankfurt have the effect of reducing service here?” (American)
2. Indirect channel

- Firms need to be pushed to compete hard, or they will enjoy a “quiet life” with high margins, profits (Bertrand & Mullainathan, 2003)
2. Indirect channel

- Firms need to be pushed to compete hard, or they will enjoy a “quiet life” with high margins, profits (Bertrand & Mullainathan, 2003)
  - Large diversified investors don’t have the incentives
2. Indirect channel

- Firms need to be pushed to compete hard, or they will enjoy a “quiet life” with high margins, profits (Bertrand & Mullainathan, 2003)
  - Large diversified investors don’t have the incentives
  - Small undiversified “activists” don’t have the power
2. Indirect channel

- Firms need to be pushed to compete hard, or they will enjoy a “quiet life” with high margins, profits (Bertrand & Mullainathan, 2003)
  - Large diversified investors don’t have the incentives
  - Small undiversified “activists” don’t have the power

- The Trian / Dupont Case ▶ Details
2. Indirect channel

- Firms need to be pushed to compete hard, or they will enjoy a “quiet life” with high margins, profits (Bertrand & Mullainathan, 2003)
  - Large diversified investors don’t have the incentives
  - Small undiversified “activists” don’t have the power

- The Trian / Dupont Case

- Same conclusion
  - Institutional investors actively influence product pricing
  - Common ownership causes higher product prices
Legal implications

- Collusion case (Sherman Act Sec 1) requires communication
- Clayton Act Sec 7 *doesn’t* require communication/mechanism
  - Prohibits stock acquisitions that lessen competition.
Legal implications

- Collusion case (Sherman Act Sec 1) requires communication
- Clayton Act Sec 7 doesn’t require communication/mechanism
  - Prohibits stock acquisitions that lessen competition.
- Elhauge (HLR 2016)
Appendix
Robustness checks

- Quantity as dependent variable
  - $-6\%^{***}$ given current level of MHHI delta

- Include carrier-year fixed effects $\nu_{jt}$
  - Effect remains highly significant

- Instrument market shares with lagged $s_i$
  - Coefficients double
More robustness checks

- Consider only top 10/5/3/1 owners for control
  - ***, progressively smaller point estimate

- Consider only $< 0.5\%$ for control (Placebo)
  - Effect of MHHI delta disappears

- Add $f^2(HHI)$, $f^5(HHI)$ as controls
  - Similar coefficient on MHHI delta
Open Questions

- Other industries (horizontal)
- Vertical common ownership
- Efficiency stories in vertical or horizontal common ownership
- Mechanism, incl. pay structures, turnover
- Endogeneity of ownership
- Relationship to mergers
- Monopsony power
- Inequality
- ...

Driven by more concentrated markets

![Graph showing the relationship between HHI and average marginal effects with 95% CIs.](image-url)
938/3206 counties have MHHI delta > 200 (raw)
76% of deposits face MHHI delta > 200 (weigh.)
Average deposit-weighted MHHI delta = 1232
Bankruptcies mitigate the effect
Responses to FAQ

Isn’t that implausibly complicated?

▶ No more complex than known from IO literature

Example
Responses to FAQ

Isn’t that implausibly complicated?
  ▶ No more complex than known from IO literature ▶ Example
  ▶ No more than in history
Responses to FAQ

- Isn’t that implausibly complicated?
  - No more complex than known from IO literature
  - No more than in history

- Aren’t the ownership stakes too small to matter?
  - United Airlines: top 5 = 49.5%
Responses to FAQ

- Isn’t that implausibly complicated?
  - No more complex than known from IO literature
  - No more than in history

- Aren’t the ownership stakes too small to matter?
  - United Airlines: top 5 = 49.5%
  - An activist hedge fund needs 2% to matter
 Responses to FAQ

- Isn’t that implausibly complicated?
  - No more complex than known from IO literature
  - No more than in history

- Aren’t the ownership stakes too small to matter?
  - United Airlines: top 5 = 49.5%
  - An activist hedge fund needs 2% to matter
  - How much ownership do you think you need to matter, over and above being the largest shareholder?
Responses to FAQ

- Isn’t that implausibly complicated?
  - No more complex than known from IO literature
  - No more than in history

- Aren’t the ownership stakes too small to matter?
  - United Airlines: top 5 = 49.5%
  - An activist hedge fund needs 2% to matter
  - How much ownership do you think you need to matter, over and above being the largest shareholder?
  - How much common ownership are you comfortable with?
Responses to FAQ

- Isn’t that implausibly complicated?
  - No more complex than known from IO literature
  - No more than in history

- Aren’t the ownership stakes too small to matter?
  - United Airlines: top 5 = 49.5%
  - An activist hedge fund needs 2% to matter
  - How much ownership do you think you need to matter, over and above being the largest shareholder?
  - How much common ownership are you comfortable with?
  - Who matters for governance if not the largest shareholders? (“[BlackRock, the] 800-pound gorilla in the room”)

[back]
## Dupont and Monsanto

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>Seed Sales, 2011 US$ millions</th>
<th>% Market Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Monsanto</td>
<td>8,953</td>
<td>26</td>
</tr>
<tr>
<td>2</td>
<td>DuPont Pioneer (USA)</td>
<td>6,261</td>
<td>18.2</td>
</tr>
<tr>
<td>3</td>
<td>Syngenta (Switzerland)</td>
<td>3,185</td>
<td>9.2</td>
</tr>
<tr>
<td>4</td>
<td>Vilmorin (France) (Groupe Limagrain)</td>
<td>1,670</td>
<td>4.8</td>
</tr>
<tr>
<td>5</td>
<td>WinField (USA) (Land O Lakes)</td>
<td>1,346 (est.)</td>
<td>3.9</td>
</tr>
<tr>
<td>6</td>
<td>KWS (Germany)</td>
<td>1,226</td>
<td>3.6</td>
</tr>
</tbody>
</table>
## Dupont and Monsanto

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>Seed Sales, 2011 US$ millions</th>
<th>% Market Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Monsanto</td>
<td>8,953</td>
<td>26</td>
</tr>
<tr>
<td>2</td>
<td>DuPont Pioneer (USA)</td>
<td>6,261</td>
<td>18.2</td>
</tr>
<tr>
<td>3</td>
<td>Syngenta (Switzerland)</td>
<td>3,185</td>
<td>9.2</td>
</tr>
<tr>
<td>4</td>
<td>Vilmorin (France) (Groupe Limagrain)</td>
<td>1,670</td>
<td>4.8</td>
</tr>
<tr>
<td>5</td>
<td>WinField (USA) (Land O Lakes)</td>
<td>1,346 (est.)</td>
<td>3.9</td>
</tr>
<tr>
<td>6</td>
<td>KWS (Germany)</td>
<td>1,226</td>
<td>3.6</td>
</tr>
</tbody>
</table>

### Ownership Percentages

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dupont (DD)</td>
<td></td>
<td>Monsanto (MON)</td>
<td></td>
</tr>
<tr>
<td>Vanguard</td>
<td>5.5</td>
<td>Vanguard</td>
<td>6.4</td>
</tr>
<tr>
<td>BlackRock</td>
<td>5.0</td>
<td>BlackRock</td>
<td>5.5</td>
</tr>
<tr>
<td>State Street global Advisors</td>
<td>4.9</td>
<td>Fidelity</td>
<td>4.7</td>
</tr>
<tr>
<td>Capital Research &amp; Management Co.</td>
<td>4.0</td>
<td>State Street global Advisors</td>
<td>4.6</td>
</tr>
<tr>
<td>Trian Fund Management LP</td>
<td>2.7</td>
<td>Capital Research &amp; Management Co.</td>
<td>3.3</td>
</tr>
<tr>
<td>Fidelity</td>
<td>2.5</td>
<td>Sands Capital Management LLC</td>
<td>2.7</td>
</tr>
</tbody>
</table>