

Anti-Competitive Effects of Common Ownership

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- **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

Apple	%
BlackRock	5.58
Vanguard	4.95
State Street gA	4.59
Fidelity	3.28
Northern Trust Corp.	1.53

Microsoft	%
BlackRock	5.33
Capital Group	4.78
Bill Gates	4.52
Vanguard	4.49
State Street gA	4.39
Fidelity	3.08

Pharmacies

CVS	%
BlackRock	5.9
Fidelity	5.1
Vanguard	4.78
State Street gA	4.61
Wellington	4.21

Walgreens	%
Vanguard	5.26
State Street gA	4.49
BlackRock	4.44
Fidelity	3.07
Wellington	2.29

Banks

JPMorgan Chase	%
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BlackRock	6.7
Vanguard Group	4.78
State Street gA	4.56
Fidelity	3.16
Capital Group	2.7

Bank of America	%
------------------------	----------

BlackRock	5.38
Vanguard Group	4.51
State Street gA	4.45
Fidelity	2.56

Citigroup	%
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BlackRock	9.29
Capital Group	6.64
GIC Private Limited	5
State Street gA	4.4
Vanguard	4.4
Fidelity	3.83

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Verbatim quotes

- 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.

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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)

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 - ▶ 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

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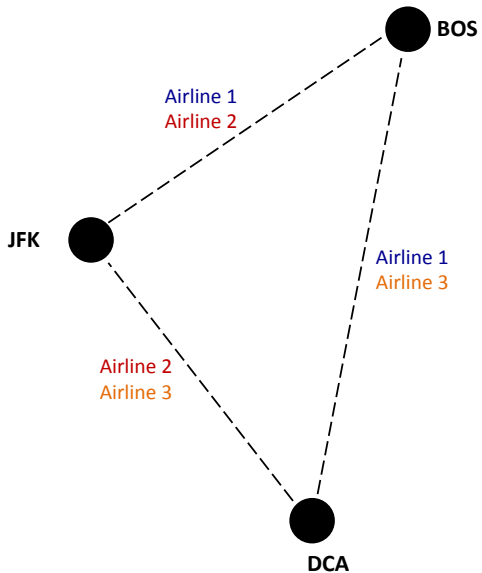
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- We therefore find it not entirely absurd to ask...

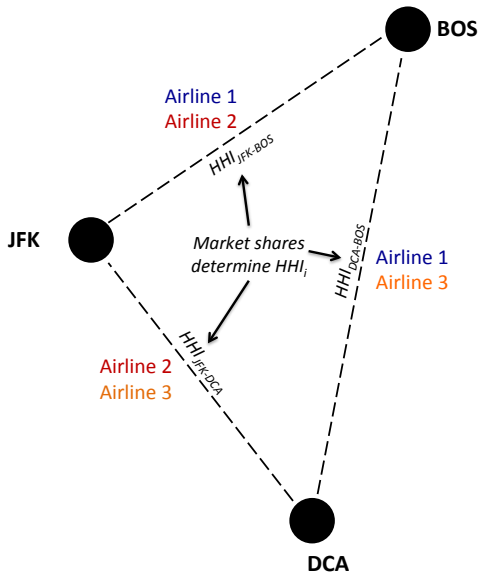
Questions

- 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

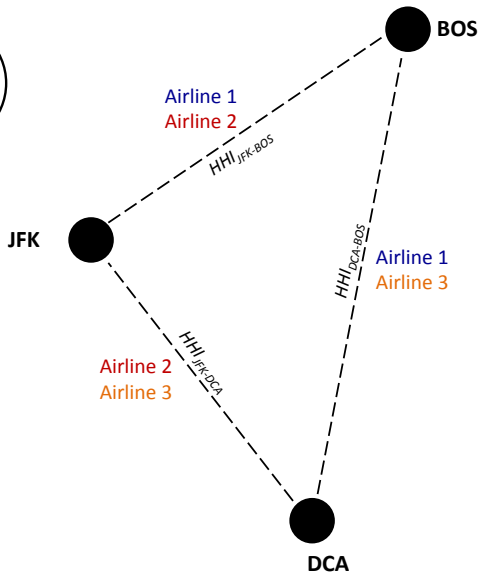
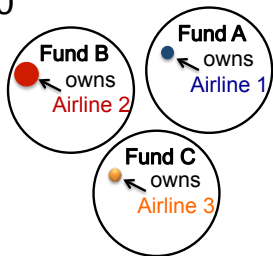


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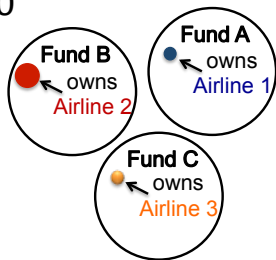
What we do

t=0

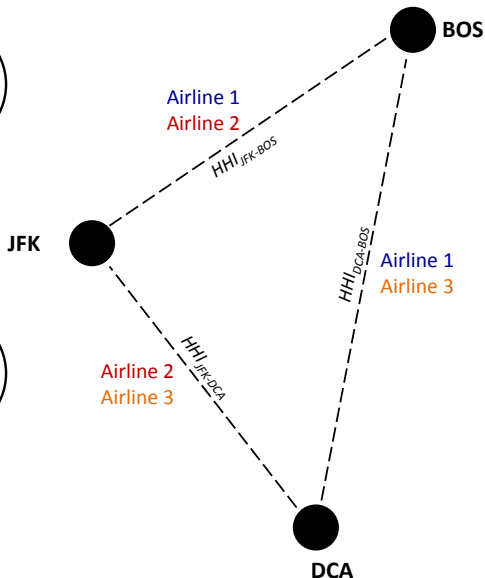
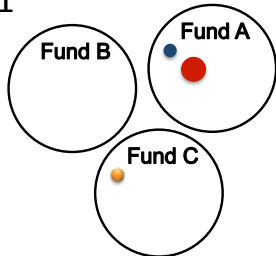


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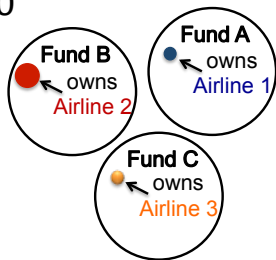


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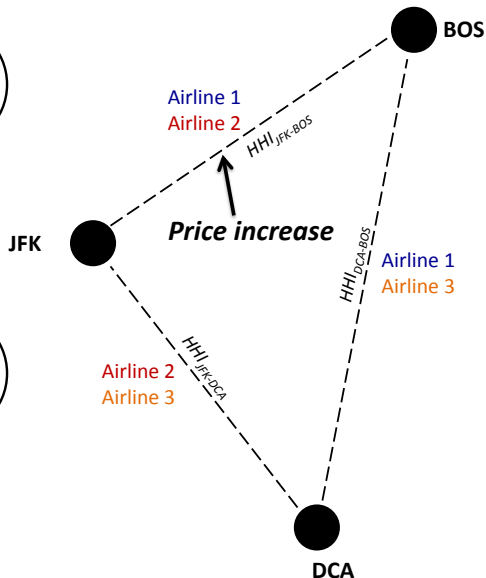
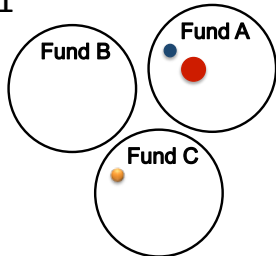


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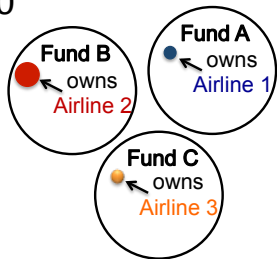


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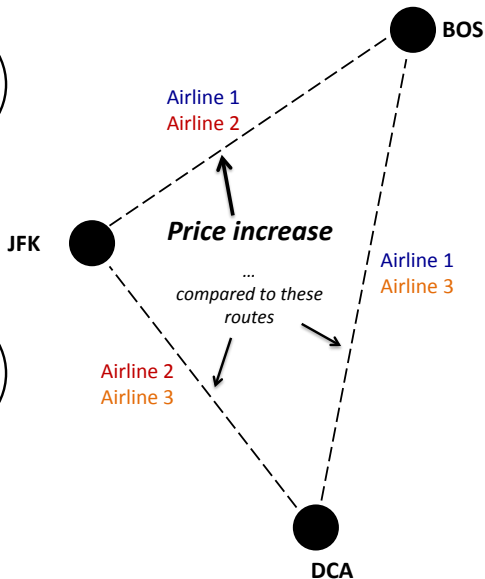
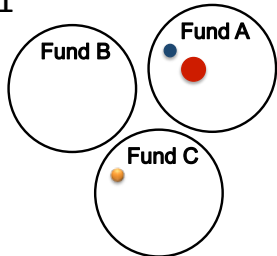


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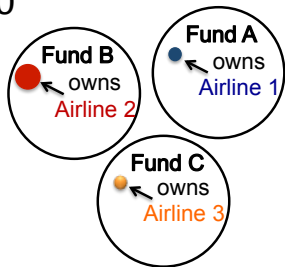


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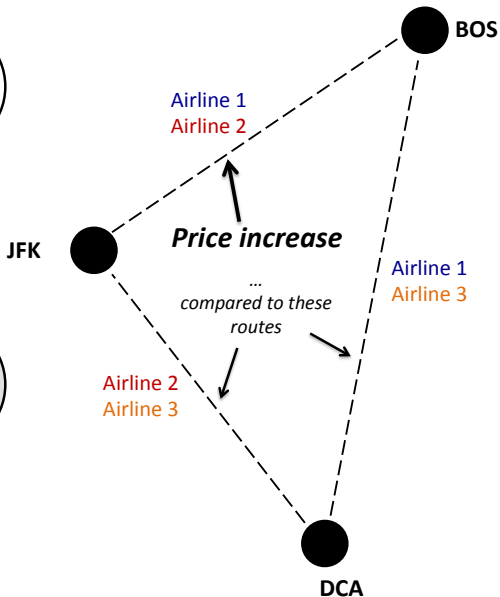
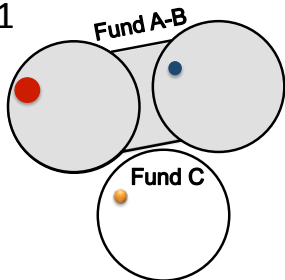


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What we find

- 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)

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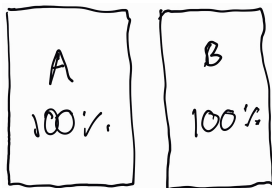
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- **Unilateral effects** \Rightarrow no coordination or communication

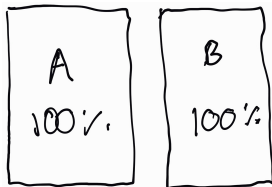
Symmetric example: 2 firms, 50/50 market share

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

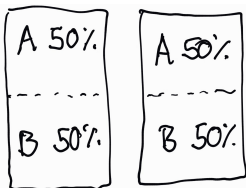


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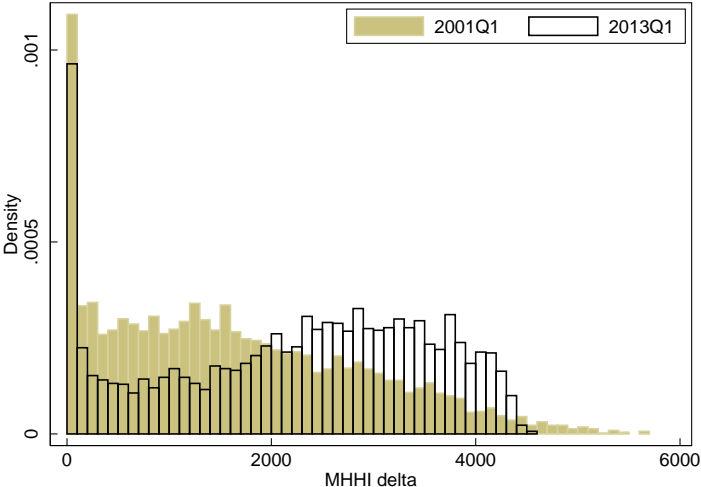
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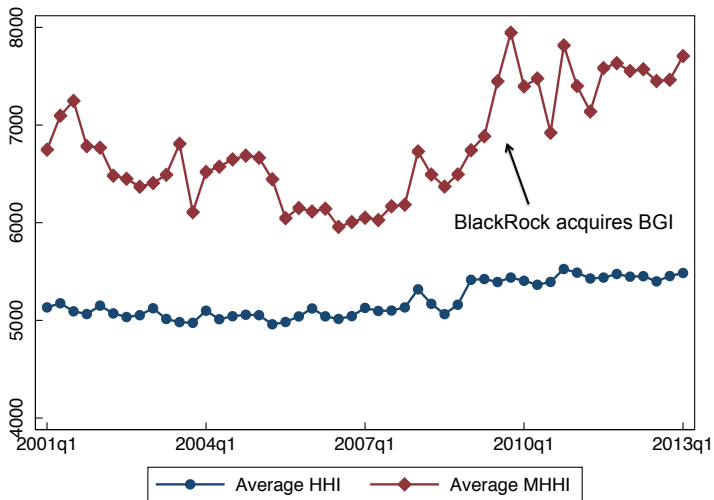
- Funds diversify (or **A** buys **B**)
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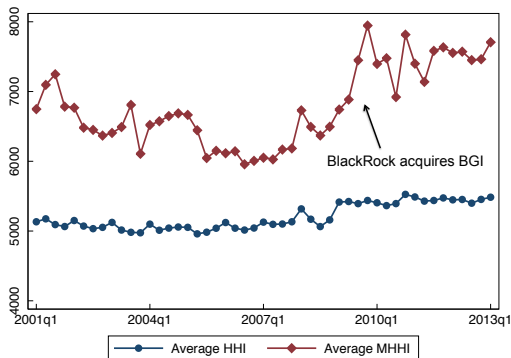
Distribution of MHHI delta across routes



Average MHHI and HHI over time

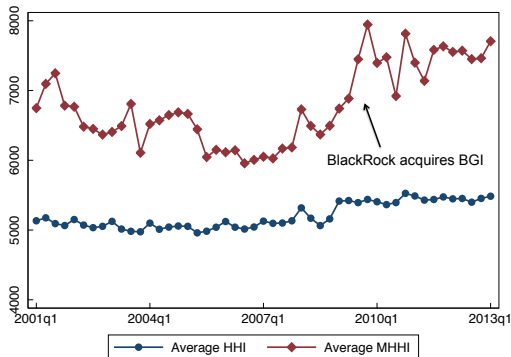


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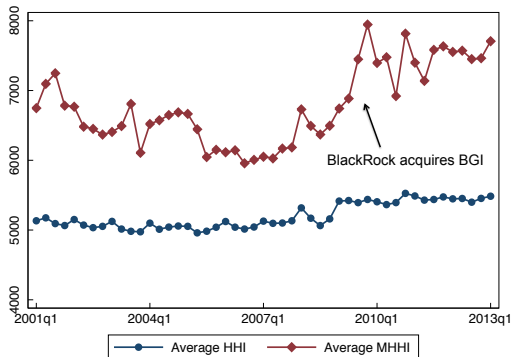
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Average MHHI and HHI over time



- 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, w/o DoJ/FTC involvement

Price effect of common ownership

Empirical hypotheses

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

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

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- ▶ $\beta \approx \gamma$
 - ★ Magnitude driven by large MHHI delta, not by a high β
- ▶ Quantity (# passengers) is lower ($\beta < 0$)

Empirical strategy: fixed-effects panel

- Route i , carrier j , quarter t

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

- Results

- ▶ $\beta > 0$: 5% higher prices compared to $MHHI\ delta = 0$
- ▶ $\beta \approx \gamma$
 - ★ Magnitude driven by large MHHI delta, not by a high β
- ▶ Quantity (# passengers) is lower ($\beta < 0$)
- ▶ Implied $\eta = -1.3$ (IATA: -1.4)

Price effect of MHHI delta

	Dependent Variable: Log(Average Fare)					
	Market-carrier level			Market-level		
	(1)	(2)	(3)	(4)	(5)	(6)
<u>MHHI delta</u>	0.201*** (0.0251)	0.128*** (0.0232)	0.129*** (0.0232)	0.299*** (0.0283)	0.165*** (0.0249)	0.212*** (0.0246)
HHI	0.208*** (0.0209)	0.150*** (0.0182)	0.152*** (0.0182)	0.342*** (0.0262)	0.260*** (0.0206)	0.279*** (0.0216)
Controls		(✓)	✓		(✓)	✓
Year-Quarter FE	✓	✓	✓	✓	✓	✓
Market-Carrier FE	✓	✓	✓			
Market FE				✓	✓	✓
Observations	1,115,482	1,089,818	1,089,818	228,890	222,347	222,347
R-squared	0.095	0.144	0.146	0.160	0.263	0.279
Number of Market-Carrier Pairs	50,659	49,057	49,057			
Number of Markets				7,391	7,081	7,081

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Panel-IV: BlackRock buys BGI

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

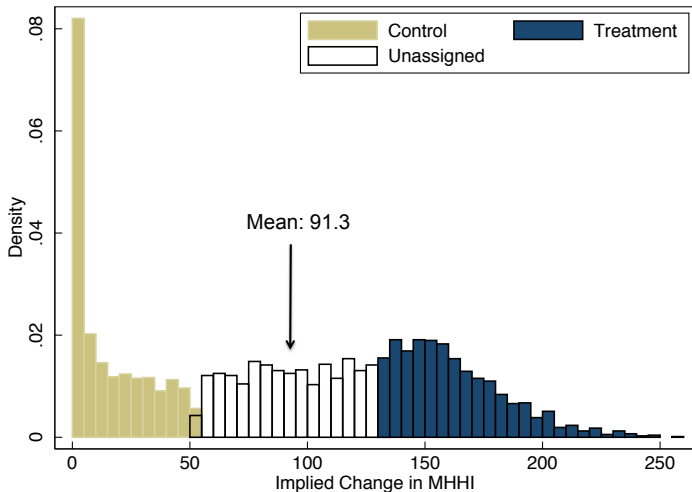
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- Route-level treatment variable:

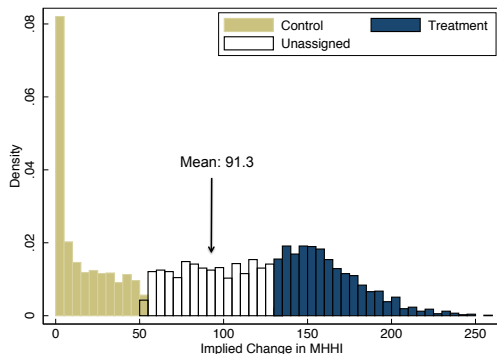
2009:Q1-Implied change in MHHI δ_i

= Hypothetically-combined $MHHI_{2009:Q1,i}$ - Separate $MHHI_{2009:Q1,i}$

Treatment: Implied **change** in MHHI delta

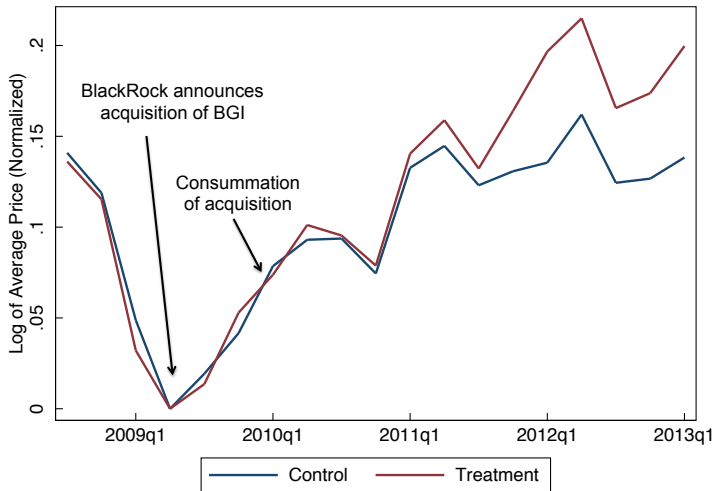


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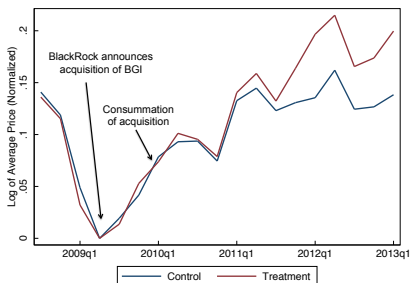


- H0: constant relative price across treated & control routes

Treatment vs. control prices



Treatment vs. control prices



- β^{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

Post-period:	Dependent Variable: MHHI delta							
	Discrete Treatment				Continuous Treatment			
	2011Q1 (1)	2012Q1 (2)	2013Q1 (3)	2011-2013 Q1 (4)	2011Q1 (5)	2012Q1 (6)	2013Q1 (7)	2011-2013 Q1 (8)
Treat × Post	0.0651*** (0.00504)	0.0885*** (0.00508)	0.0879*** (0.00519)	0.0749*** (0.00447)				
Impl Chg (MHHI delta) × Post					4.050*** (0.291)	5.756*** (0.295)	5.740*** (0.313)	4.742*** (0.273)
HHI	-0.365*** (0.0273)	-0.377*** (0.0213)	-0.376*** (0.0225)	-0.354*** (0.0162)	-0.365*** (0.0214)	-0.372*** (0.0156)	-0.372*** (0.0159)	-0.354*** (0.0113)
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Market-Carrier FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	14,828	14,828	14,828	29,656	23,334	23,334	23,334	46,668
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

Post-period:	Dependent Variable: Log(Average Fare)							
	Discrete Treatment				Continuous Treatment			
	2011Q1 (1)	2012Q1 (2)	2013Q1 (3)	2011-2013 Q1 (4)	2011Q1 (5)	2012Q1 (6)	2013Q1 (7)	2011-2013 Q1 (8)
MHHI delta	-0.0150 (0.174)	0.519*** (0.143)	0.521*** (0.147)	0.299** (0.141)	-0.149 (0.173)	0.483*** (0.131)	0.440*** (0.141)	0.245* (0.138)
HHI	0.0632 (0.0822)	0.296*** (0.0672)	0.299*** (0.0697)	0.226*** (0.0605)	0.0118 (0.0768)	0.260*** (0.0573)	0.254*** (0.0617)	0.206*** (0.0553)
Controls	✓	✓	✓	✓	✓	✓	✓	✓
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Market-Carrier FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	14,828	14,828	14,828	29,656	23,334	23,334	23,334	46,668
R-squared	0.375	0.432	0.414	0.321	0.351	0.411	0.395	0.305
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Summary and conclusions

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 - ▶ 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)
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 - ▶ **Or is there just enough competition with present-day ownership structures** (but what about the future)?

Potential mechanisms and legal implications

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 - ▶ *“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

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

Legal implications

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- Clayton Act Sec 7 doesn't require communication/mechanism
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- Elhauge (HLR 2016)

Appendix

Robustness checks

- Quantity as dependent variable
 - ▶ - 6%*** given current level of MHHI delta
- Include carrier-year fixed effects ν_{jt}
 - ▶ Effect remains highly significant
- Instrument market shares with lagged s_i
 - ▶ Coefficients double

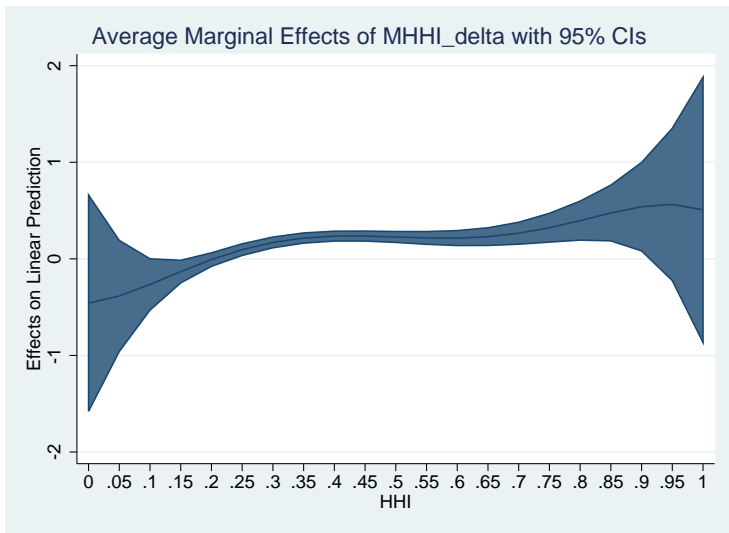
More robustness checks

- 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 $f^2(\text{HHI})$, $f^5(\text{HHI})$ as controls
 - ▶ Similar coefficient on MHHI delta

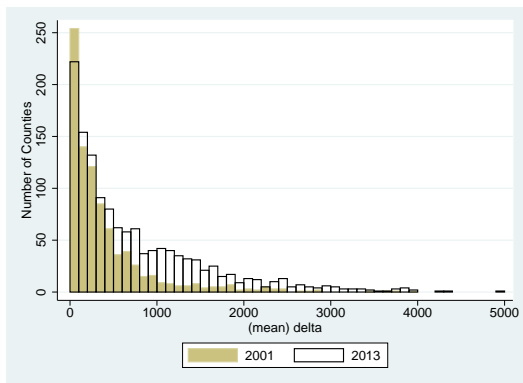
Open Questions

- 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

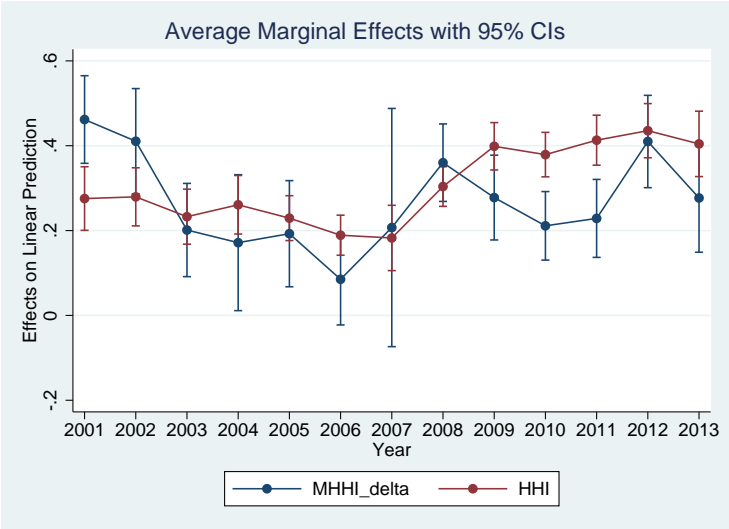


Common ownership of banks



- 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



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 - ▶ Who matters for governance if not the largest shareholders? (“[BlackRock, the] 800-pound gorilla in the room”)

Dupont and Monsanto

Rank	Company	Seed Sales, 2011 US\$ millions	% Market Share
1	Monsanto	8,953	26
2	DuPont Pioneer (USA)	6,261	18.2
3	Syngenta (Switzerland)	3,185	9.2
4	Vilmorin (France) (Groupe Limagrain)	1,670	4.8
5	WinField (USA) (Land O Lakes)	1,346 (est.)	3.9
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Dupont (DD)	%	Monsanto (MON)	%
Vanguard	5.5	Vanguard	6.4
BlackRock	5.0	BlackRock	5.5
State Street global Advisors	4.9	Fidelity	4.7
Capital Research & Management Co.	4.0	State Street global Advisors	4.6
Triam Fund Management LP	2.7	Capital Research & Management Co.	3.3
Fidelity	2.5	Sands Capital Management LLC	2.7