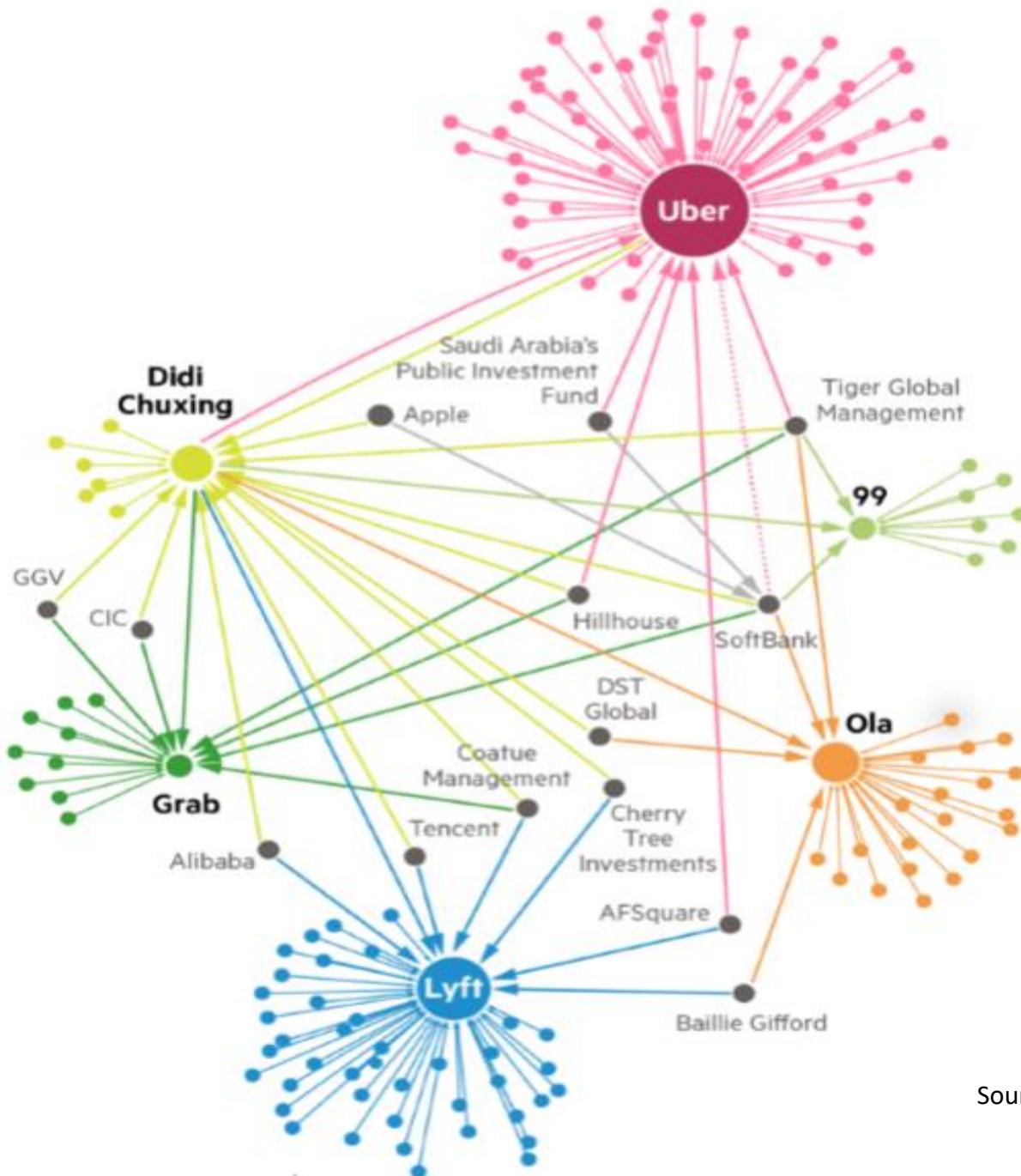


Common ownership: antitrust meets corporate governance

Xavier Vives

IESE Business School

ECGI, Berlin, May 3, 2018



Investors in car-booking companies:

- Cross-ownership:
 - Uber-Didi
 - Uber-Grab
- Common ownership:
 - SoftBank
 - Tiger Global
 - AFSquare
 - Fidelity

Sources: CrunchBase; FT research

Outline

- Oligopoly widespread and on the rise
- The increase and consolidation of institutional investment and common ownership (CO)
 - Change in ownership patterns of firms
- Corporate governance and overlapping ownership
- Market power or efficiency?
 - MHHI and unilateral effects
 - Evidence
 - Efficiency defense
 - Innovation and spillovers
 - General equilibrium effects (horizontal, vertical)
- Antitrust concerns

Oligopoly widespread and on the rise

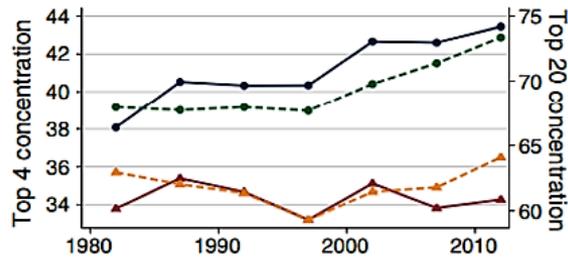
- Growing product market concentration and market power
- Increase in economic profits and markups
- Declining labor share
- Oligopsony in labor markets

General concerns

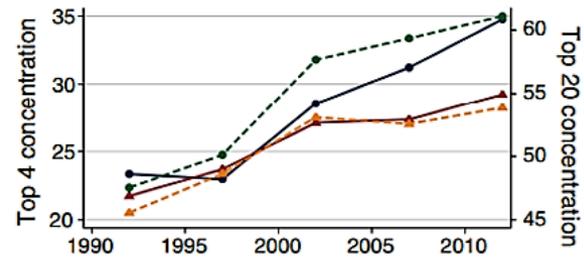
- Perception of a lack of dynamism in terms of entry and exit, investment, and innovation on both sides of the Atlantic (CEA 2016 reports).
- After the Great Recession post financial crisis and the weak recovery, the potential secular stagnation of advanced economies blamed on increased market power (Summers 2015, Stiglitz 2016).

Product market concentration

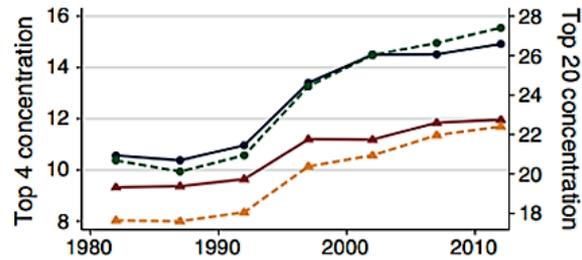
Panel A. Manufacturing



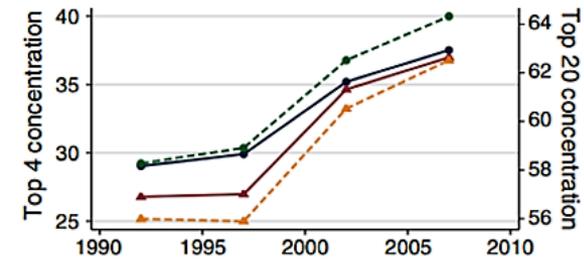
Panel B. Finance



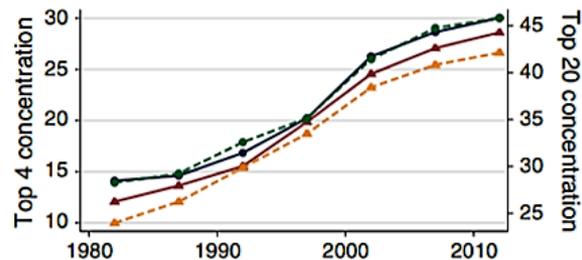
Panel C. Services



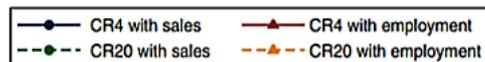
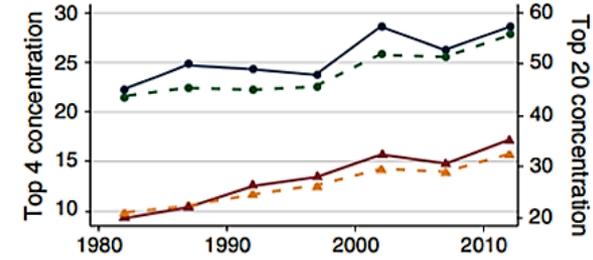
Panel D. Utilities and transportation



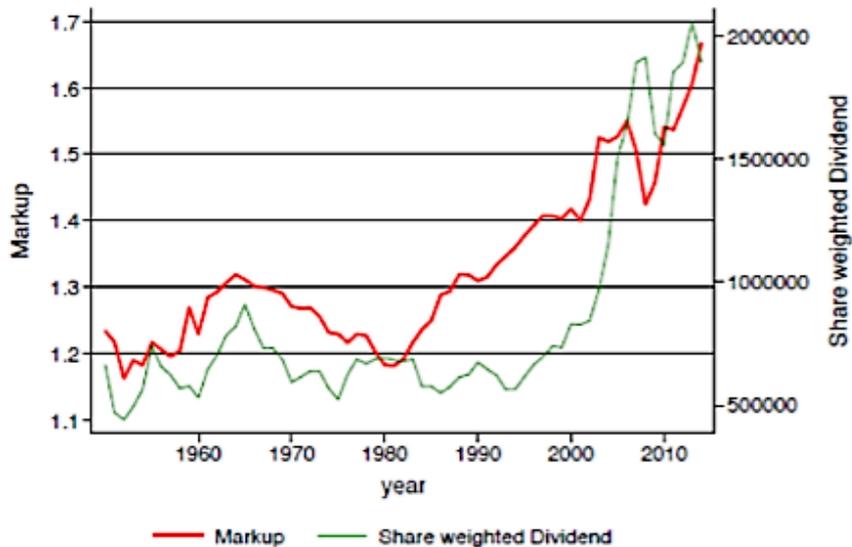
Panel E. Retail trade



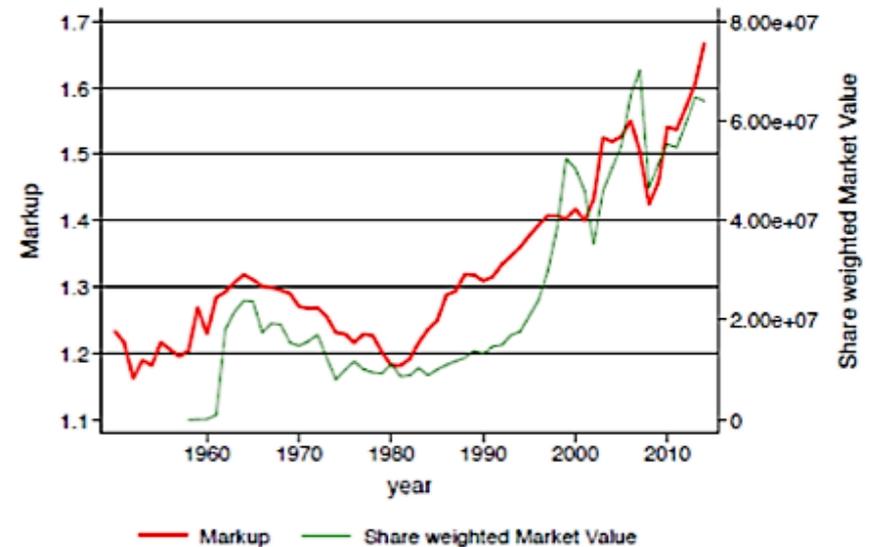
Panel F. Wholesale trade



Increasing markups, dividends and market value



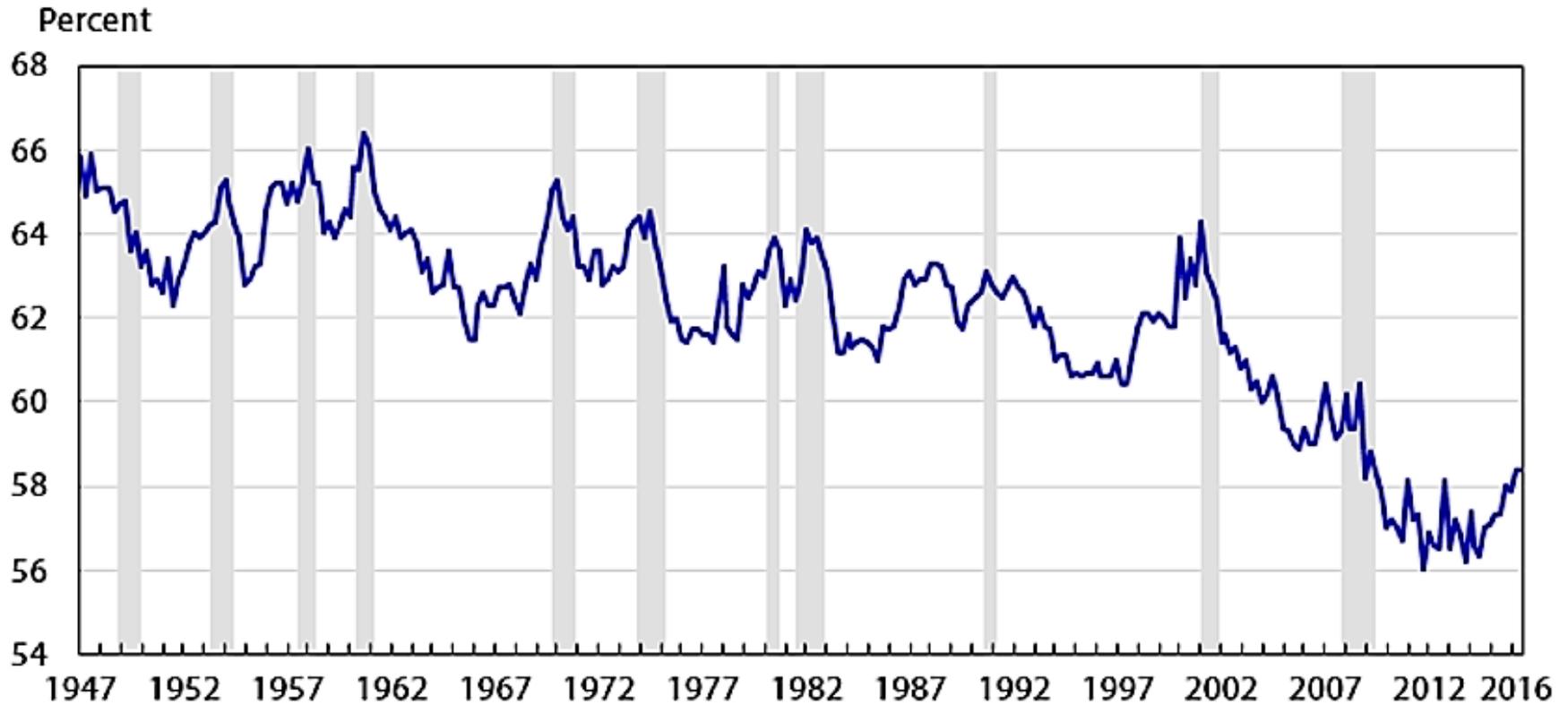
(a) Average Dividends (weighted)



(b) Average Market Value (weighted)

Source: De Loecker and Eeckhout, 2017

Declining labor share

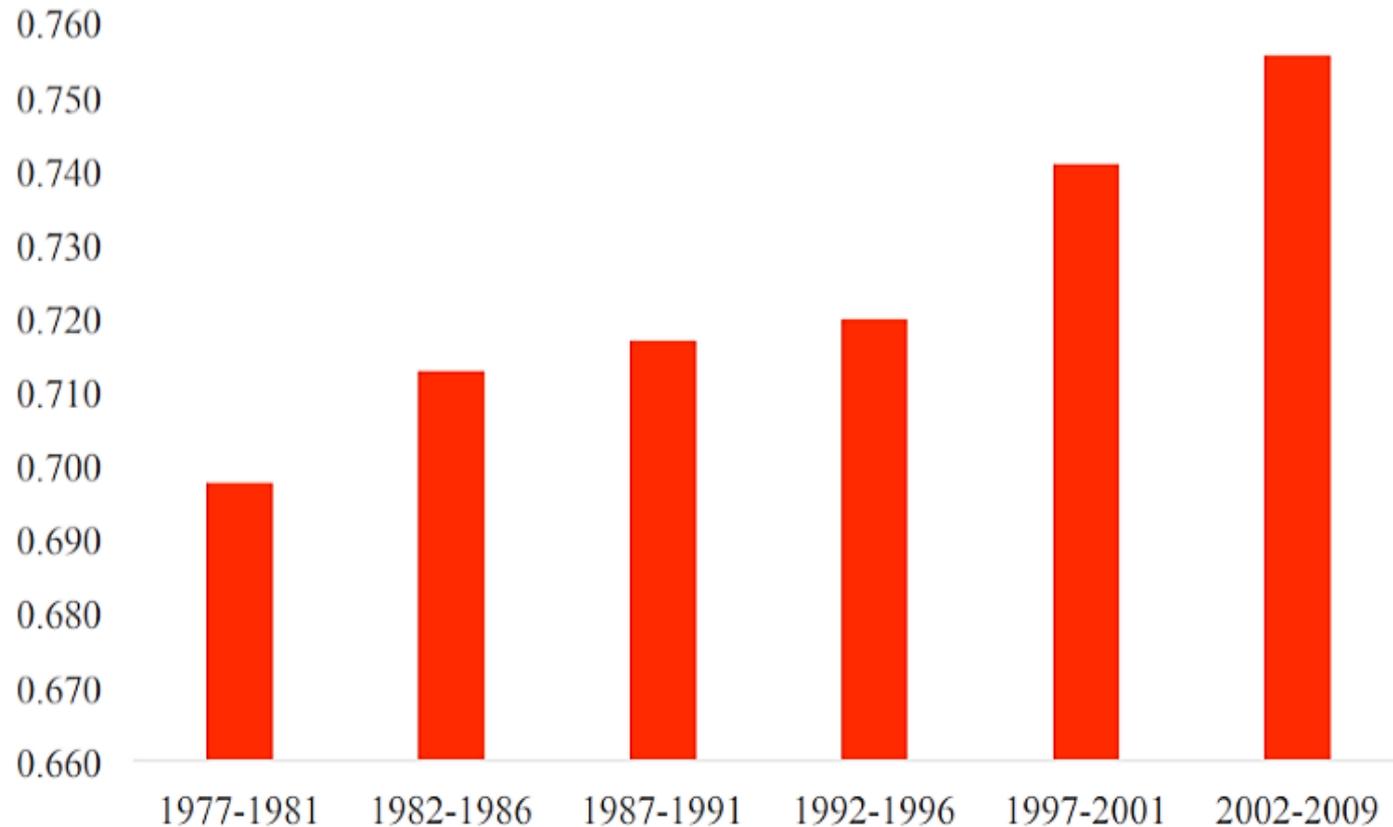


Note: Shaded areas indicate recessions, as determined by the National Bureau of Economic Research.

Source: U.S. Bureau of Labor Statistics.

Source: Gutierrez and Philippon, 2016

Local labor market concentration



HHI averaged across county-three-digit industry-year cells within each of the five-year periods

Source: Benmelech et al., 2017

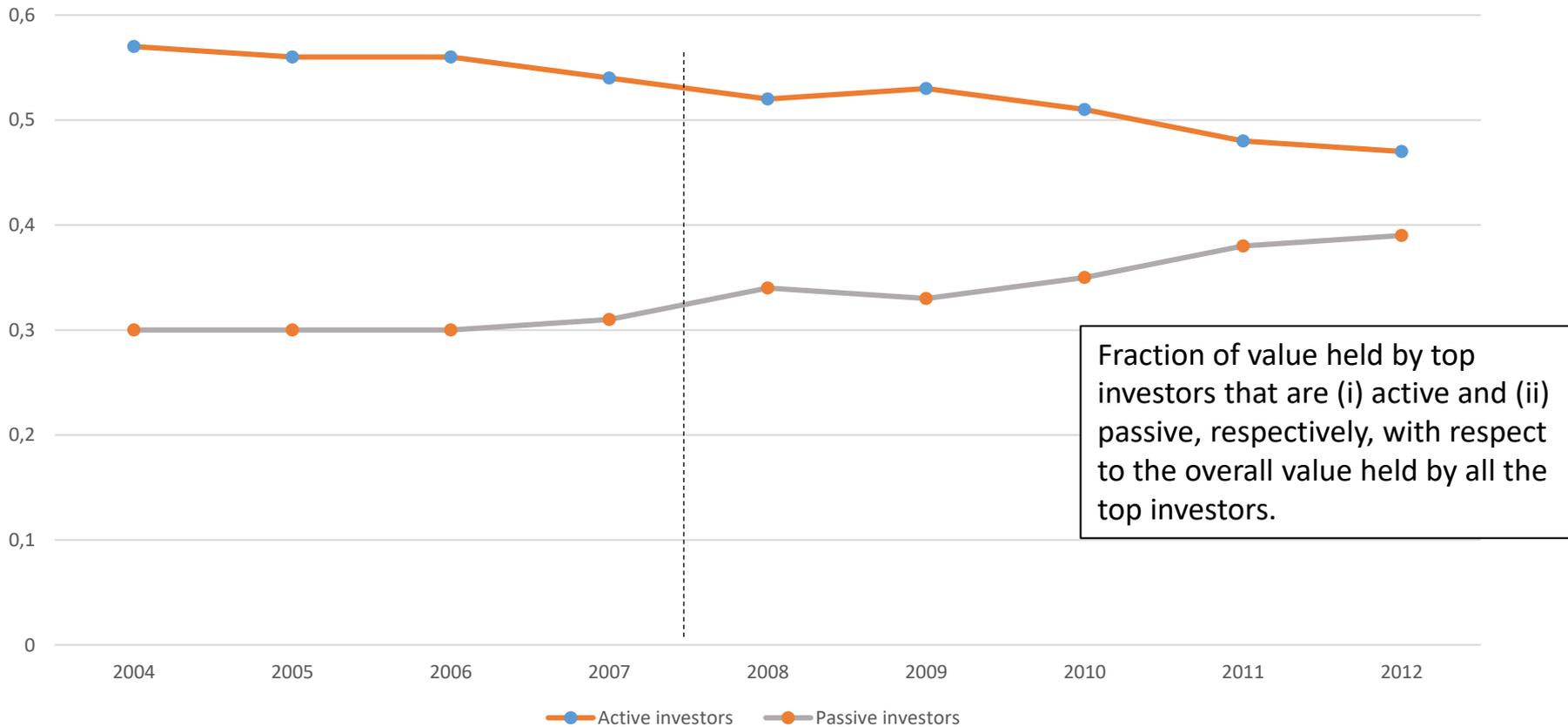
The rise of overlapping ownership

- World of dispersed ownership in US of Berle and Means (1932) no longer applies.
- Rise of institutional investment, with diversified passive funds playing an increasingly important role.
- Increase in concentration in the mutual fund/asset management industry.
- Increase in common ownership patterns in the same industry.
- Minority cross-ownership shareholdings are widespread in many industries.

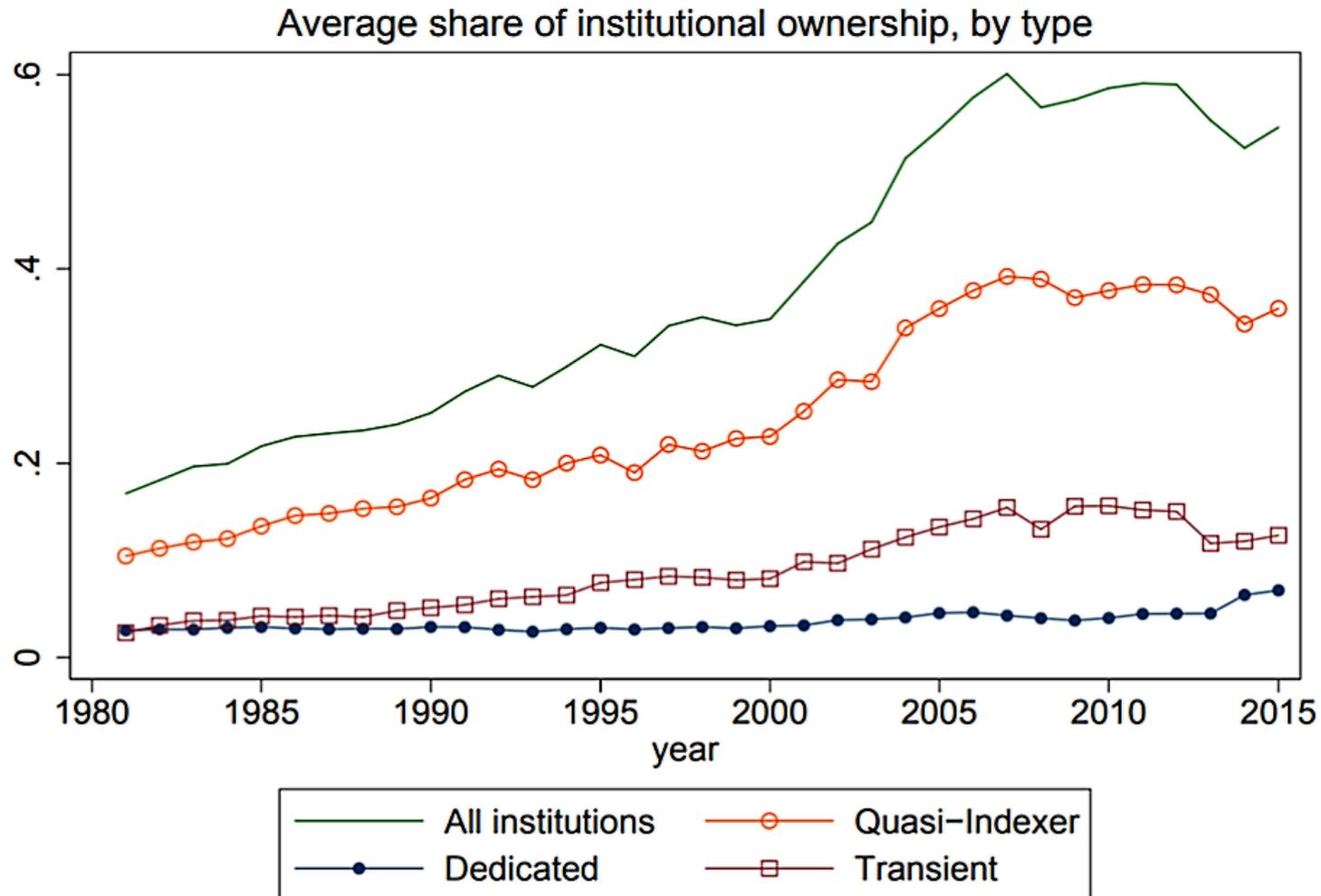
Continuous shift from active to passive investment

(and top 3 passive investors' rank creeps up)

Fraction of top investor value



Increasing indexation and common ownership



Top 5 owners of the largest US banks (2Q 2017)

<i>JP Morgan Chase</i>	[%]	<i>Bank of America</i>	[%]	<i>Citigroup</i>	[%]
Vanguard	7.03	Berkshire Hathaway	7.03	BlackRock	6.97
BlackRock	6.40	BlackRock	6.71	Vanguard	6.66
State Street Global Advisers	4.69	Vanguard	6.65	State Street Global Advisers	4.50
Capital Research	3.78	State Street Global Advisers	4.45	Fidelity	4.42
Fidelity	2.68	Fidelity	3.27	Wellington	1.77
<i>Wells Fargo</i>	[%]	<i>PNC Financial</i>	[%]	<i>U.S. Bancorp</i>	[%]
Berkshire Hathaway	9.85	Wellington	7.59	BlackRock	6.41
Vanguard	6.30	Vanguard	6.73	Vanguard	6.26
BlackRock	5.43	BlackRock	5.68	Berkshire Hathaway	6.08
State Street Global Advisers	4.01	State Street Global Advisers	4.80	State Street Global Advisers	4.38
Capital Research	3.55	Capital Research	4.37	Fidelity	3.84

Data from Thomson institutional ownership data and proxy statements in the second quarter of 2017.

Source: Schmalz, 2018

Top owners of US airlines (2Q 2017)

<i>Delta Air Lines</i>	<i>[%]</i>	<i>Southwest Airlines Co.</i>	<i>[%]</i>	<i>American Airlines</i>	<i>[%]</i>
Berkshire Hathaway	8.25	PRIMECAP	11.78	T. Rowe Price	13.99
BlackRock	6.84	Berkshire Hathaway	7.02	PRIMECAP	8.97
Vanguard	6.31	Vanguard	6.21	Berkshire Hathaway	7.75
State Street Global Advisors	4.28	BlackRock	5.96	Vanguard	6.02
J.P. Morgan Asset Mgt.	3.79	Fidelity	5.53	BlackRock	5.82
Lansdowne Partners Limited	3.60	State Street Global Advisors	3.76	State Street Global Advisors	3.71
PRIMECAP	2.85	J.P. Morgan Asset Mgt.	1.31	Fidelity	3.30
AllianceBernstein L.P.	1.67	T. Rowe Price	1.26	Putnam	1.18
Fidelity	1.54	BNY Mellon Asset Mgt.	1.22	Morgan Stanley	1.17
PAR Capital Mgt.	1.52	Egerton Capital (UK) LLP	1.10	Northern Trust Global Inv	1.02
<i>United Continental Holdings</i>	<i>[%]</i>	<i>Alaska Air</i>	<i>[%]</i>	<i>JetBlue Airways</i>	<i>[%]</i>
Berkshire Hathaway	9.20	T. Rowe Price	10.14	Vanguard	7.96
BlackRock	7.11	Vanguard	9.73	Fidelity	7.58
Vanguard	6.88	BlackRock	5.60	BlackRock	7.33
PRIMECAP	6.27	PRIMECAP	4.95	PRIMECAP	5.91
PAR Capital Mgt.	5.18	PAR Capital Mgt.	3.65	Goldman Sachs Asset Mgt.	2.94
State Street Global Advisors	3.45	State Street Global Advisors	3.52	Dimensional Fund Advisors	2.42
J.P. Morgan Asset Mgt.	3.35	Franklin Resources	2.59	State Street Global Advisors	2.40
Altimeter Capital Mgt.	3.26	BNY Mellon Asset Mgt.	2.34	Wellington	2.07
T. Rowe Price	2.25	Citadel	1.98	Donald Smith Co.	1.80
AQR Capital Management	2.15	Renaissance Techn.	1.93	BarrowHanley	1.52
<i>Spirit Airlines</i>	<i>[%]</i>	<i>Allegiant Travel Company</i>	<i>[%]</i>	<i>Hawaiian</i>	<i>[%]</i>
Fidelity	10.70	Gallagher Jr., M. J. (Chairman, CEO)	20.30	BlackRock	11.20
Vanguard	7.41	BlackRock	8.61	Vanguard	10.97
Wellington	5.44	Renaissance Techn.	7.28	Aronson, Johnson, Ortiz, LP	5.99
Wasatch Advisors Inc.	4.33	Vanguard	6.65	Renaissance Techn.	4.67
BlackRock	3.77	Fidelity	5.25	Dimensional Fund Advisors	3.17
Jennison Associates	3.49	Franklin Resources	4.52	State Street Global Advisors	2.43
Wells Capital Mgt.	3.33	Wasatch Advisors Inc.	4.39	PanAgora Asset Mgt.	2.22
Franklin Resources	2.79	T. Rowe Price	4.23	LSV Asset Management	2.22
OppenheimerFunds.	2.67	TimesSquare Capital Mgt.	3.91	BNY Mellon Asset Mgt.	1.84
Capital Research and Mgt.	2.64	Neuberger Berman	3.07	Numeric Investors	1.79

Data from Thomson institutional ownership data and proxy statements in the second quarter of 2017.

Source: Azar, Schmalz and Tecu, 2018

Corporate governance

- What is the objective of the firm?
 - Competitive firms (in product and factor markets) maximize profits/own value, independent of shareholder preferences (Fisher Separation Theorem, Fisher 1930).
 - Strategic firms: Arrow (1951)'s impossibility theorem.
- Manager of a firm maximizes weighted average of shareholders' utilities (Rotemberg 1984, Salop and O'Brien 2000)
 - Rationalized by voting on management strategies/power indexes of shareholders (Azar 2017 and Brito et al. 2017)
 - Managers maximize support from shareholders (analogy to Pelzman (1976)).

Overlapping ownership

(López and Vives 2018; Banal et. 2018)

Allowing for common and cross ownership with symmetric stakes.

- Manager of firm i maximizes

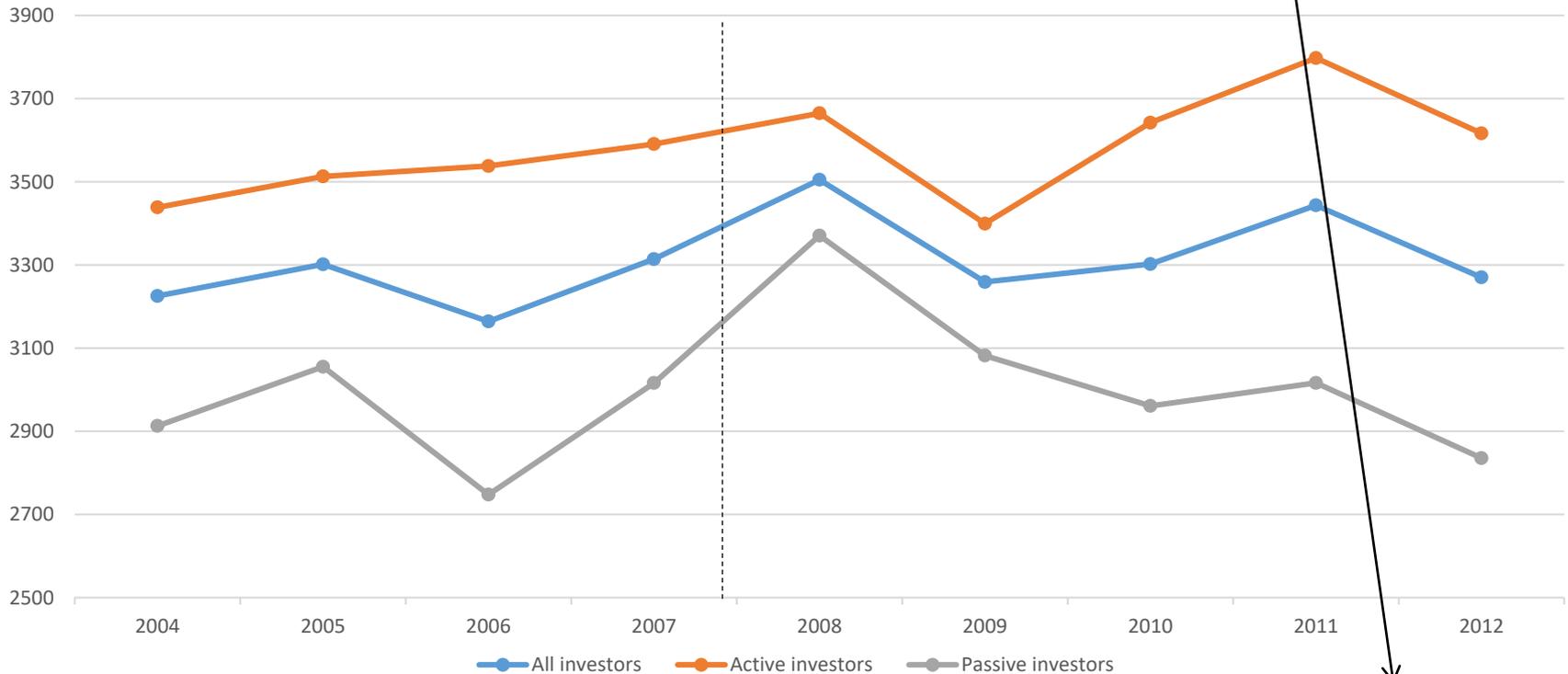
$$\varphi_i = \pi_i + \lambda \sum_{j \neq i} \pi_j$$

where the value of λ depends on the type of common/cross-ownership:

- Silent financial interest, proportional control, ...
- The same stake generates a higher lambda with more control.
- λ is increasing in share of passive investors (assumed more diversified); their degree of control; their degree of concentration; and in active investors' holdings in other firms.

Passive investors' holdings are more spread than active investors' holdings

Concentration of holdings in each industry of top investors
(median HHI, across investors and industries)



Difference between Active and Passive investors is significant in each year with p-value < 0.01

	All investors	Active investors	Passive investors
Pre-crisis	3247.64	3522.76	2945
Post-crisis	3360.31	3630.23	3059.11
Difference	112.67	107.47	114.11
p-value	0	0.04	0.02

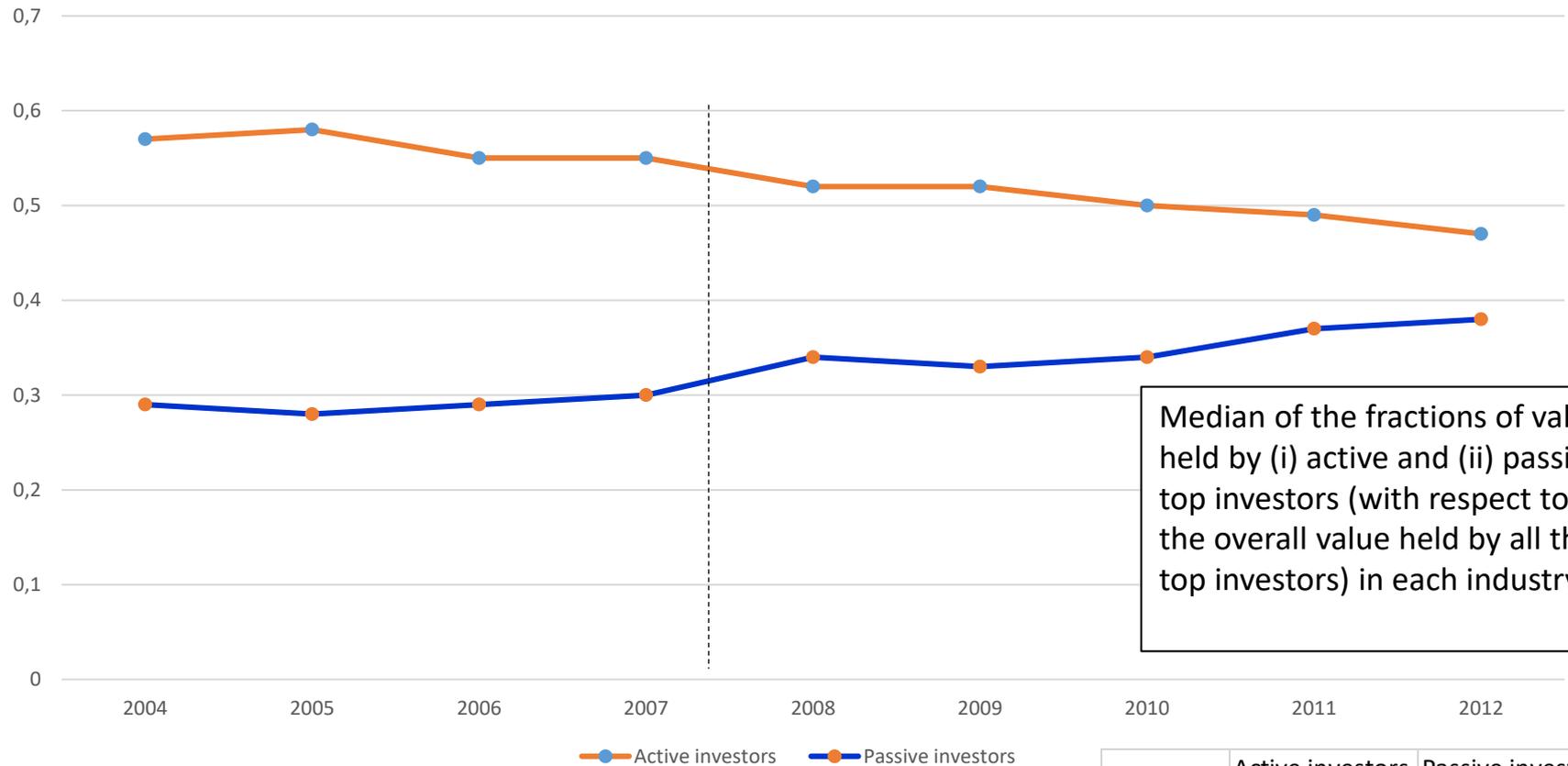
The financial crisis' impact on common ownership and competition

HHI of each top investor in each industry is calculated on the basis of the fraction of its holdings in each firm relative to all its holdings in that industry.

Banal-Estanol, Seldeslachts and Vives

Investors in product markets - Continuous shift from active to passive at the industry level

Fraction of top investor value held (median, across industries)

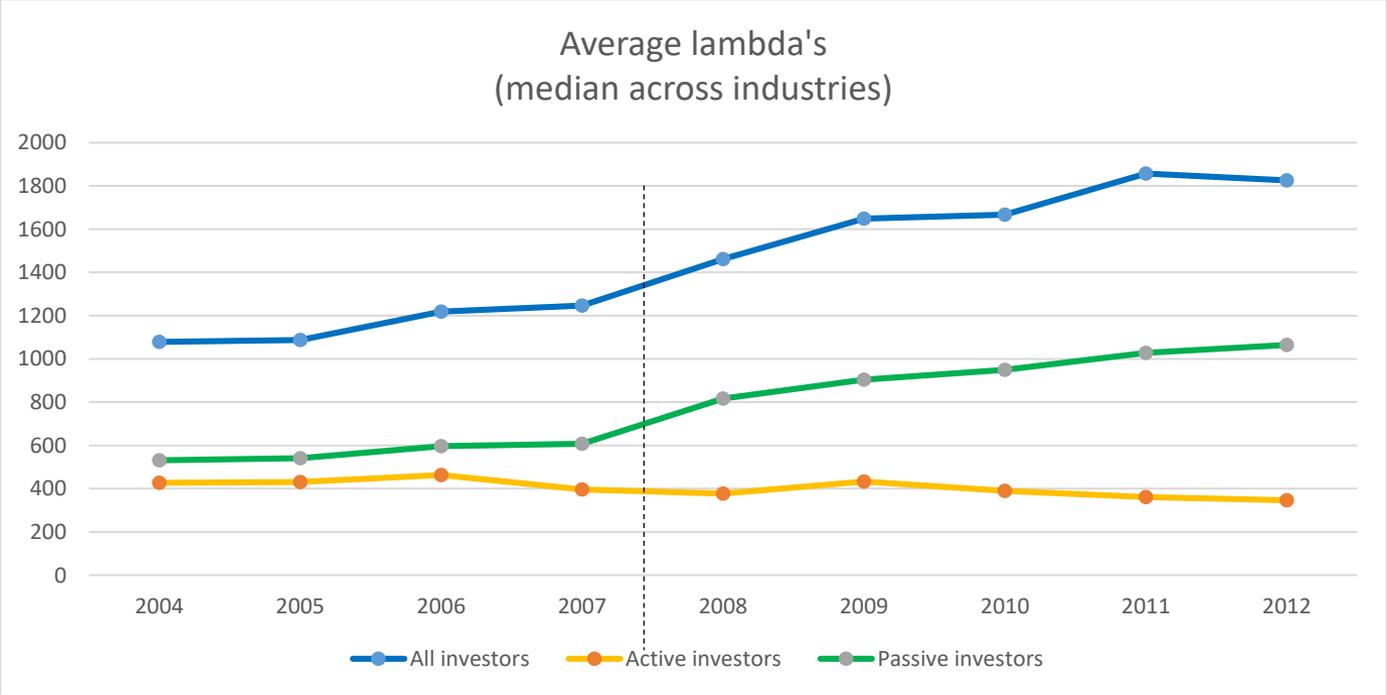


Median of the fractions of value held by (i) active and (ii) passive top investors (with respect to the overall value held by all the top investors) in each industry.

Graph includes median of all industries in a given year. Test includes median of all industries in all the pre- and post-crisis years.

	Active investors	Passive investors
Pre-crisis	0.55	0.29
Post-crisis	0.5	0.35
Difference	-0.05	0.06
p-value	0	0

Lambda, lambda active and lambda passive



Graph includes median of all industries in a given year.
Test includes median of all industries in all the pre- and post-crisis years.

	Lambda	Lambda active	Lambda passive
Pre-crisis	1159.29	433.37	581.68
Post-crisis	1653.53	380.89	959.34
Difference	494.24	-52.48	377.66
p-value	0	0.01	0

Governance (I)

- Common owners in an industry may have the ability and incentive to influence management (Azar et al. 2018, Schmalz 2017)
 - Diversified shareholders want a policy of portfolio value maximization and induce managers to internalize any externality on commonly owned firms (Hansen and Lott 1996, Gordon 2003).
 - Agency problem: By not pushing for aggressiveness with management contracts (“doing nothing“ is a mechanism by which common owners can induce anti-competitive outcomes).
 - Bebchuk et al. (2017): not obvious that index fund managers have incentives to max wealth of beneficial investors.
 - Hansen and Lott (1996): Larger agency costs associated with more managerial discretion when managers internalize externalities with portfolio value maximization.
 - Passive investment strategy does not mean passive owner: voice, incentives, voting.
 - Appel et al. (2016): passive investors are long term, have voice and improve ROA.

Governance (II)

- Incentives: Industries with more common ownership have less relative performance manager compensation (Gordon 2003, Anton et al. 2016, Liang 2016; Kwon (2016) challenges).
- Voting: shareholders vote for directors that identify with competitive strategies
 - Matvos and Ostrovsky (2008): shareholders take portfolio considerations into account in voting decisions (e.g. mergers)
 - Fos and Tsoutsoura (2014); Aggarwal et al. (2017): shareholder dissent hurts directors; director elections matter because of career concerns.

Market power or efficiency?

Questions:

1. Does increase in common ownership aggravates oligopoly/market power problem?
2. If so, is there an efficiency defense?

Structure-Conduct-Performance (I)

- 1960s, Market power hypothesis (Bain):
 - Firms in concentrated markets protected by barriers to entry earn high price/cost margins and profits.
- Cross section studies of industries:
 - Relation between concentration (HHI) and profitability is statistically weak and estimated concentration effect usually small (Schmalensee)
- Conduct is not modeled.
- Efficiency hypothesis (Demsetz, Chicago):
 - Large firms are more efficient, command larger price/cost margins and earn higher profits (therefore concentration and industry profitability go together).

Cournot with common ownership

(Reynolds & Snapp (1986), Bresnahan & Salop (1986))

- In equilibrium, the market share-weighted Lerner index in the industry is

$$\sum_j s_j [p - C'_j(x_j)]/p = \frac{1}{\eta} [\sum_j \sum_k \lambda_{jk} s_j s_k] = \frac{1}{\eta} MHHI$$

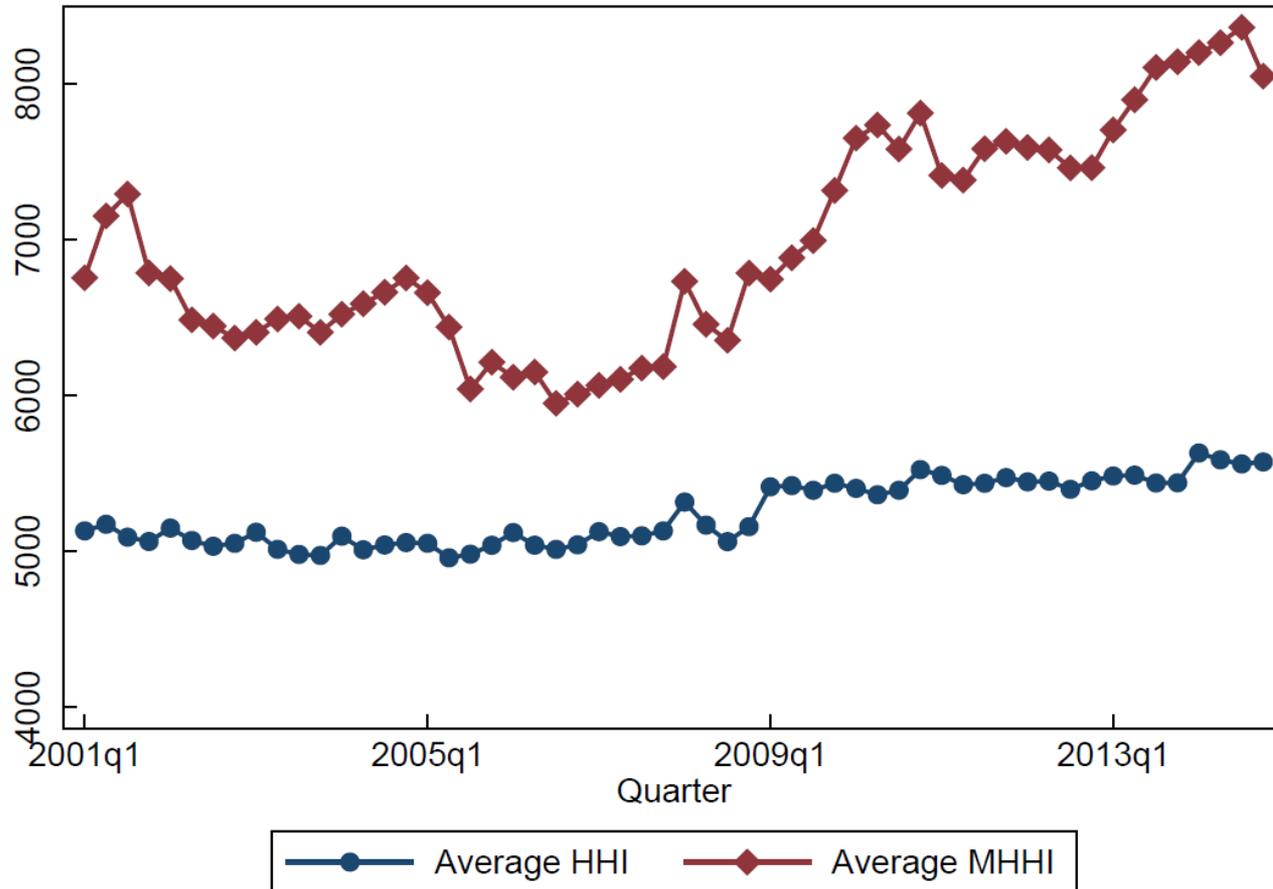
where η is the price elasticity of demand and s_j the market share of firm j ,

and

$$MHHI \equiv \sum_j \sum_k s_j s_k \lambda_{jk} = HHI + \sum_j \sum_{k \neq j} s_j s_k \lambda_{jk} = HHI + \Delta.$$

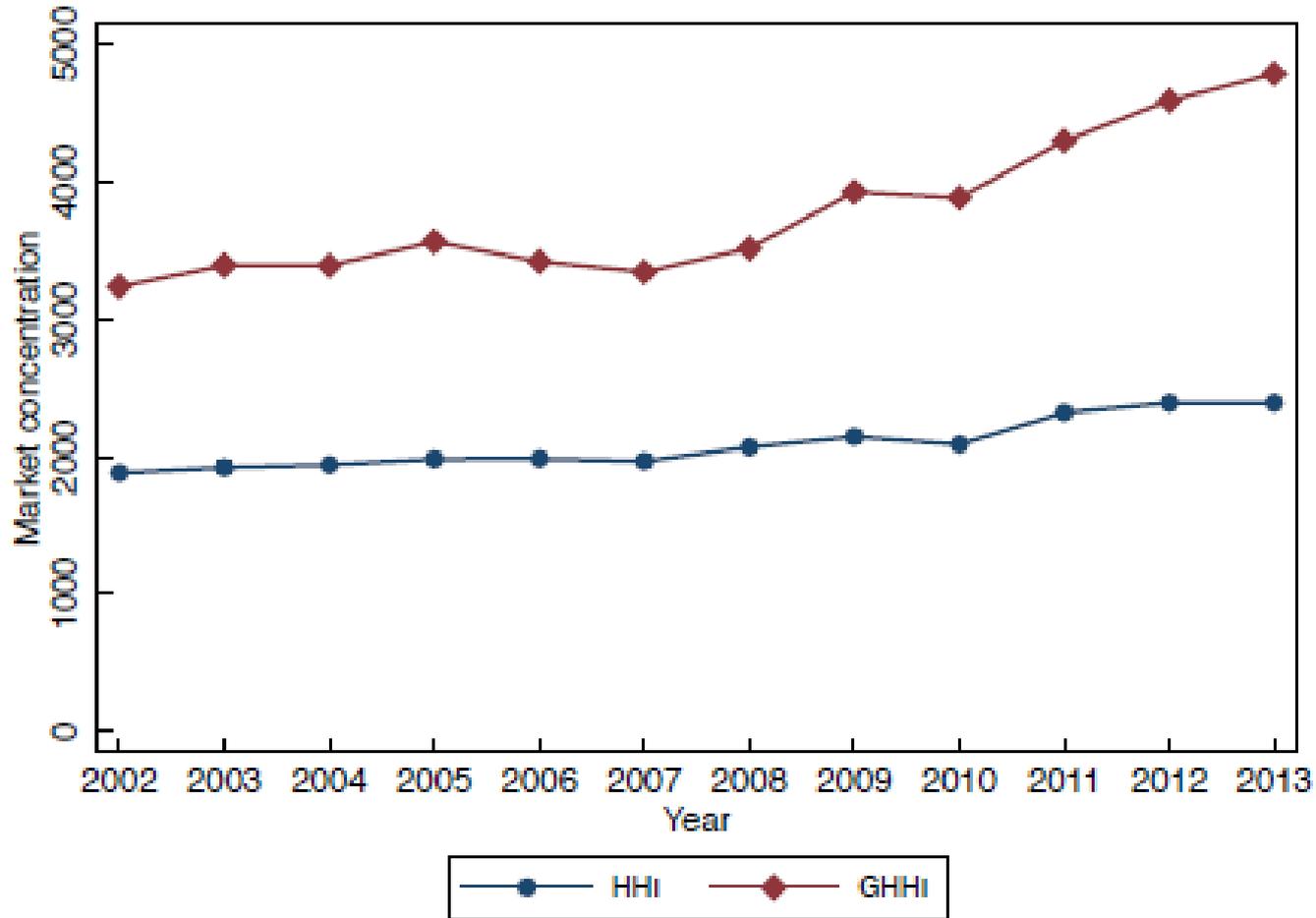
- Δ is a measure of the unilateral anti-competitive incentives due to common ownership.

US national-level airline company concentration, 2001-2014



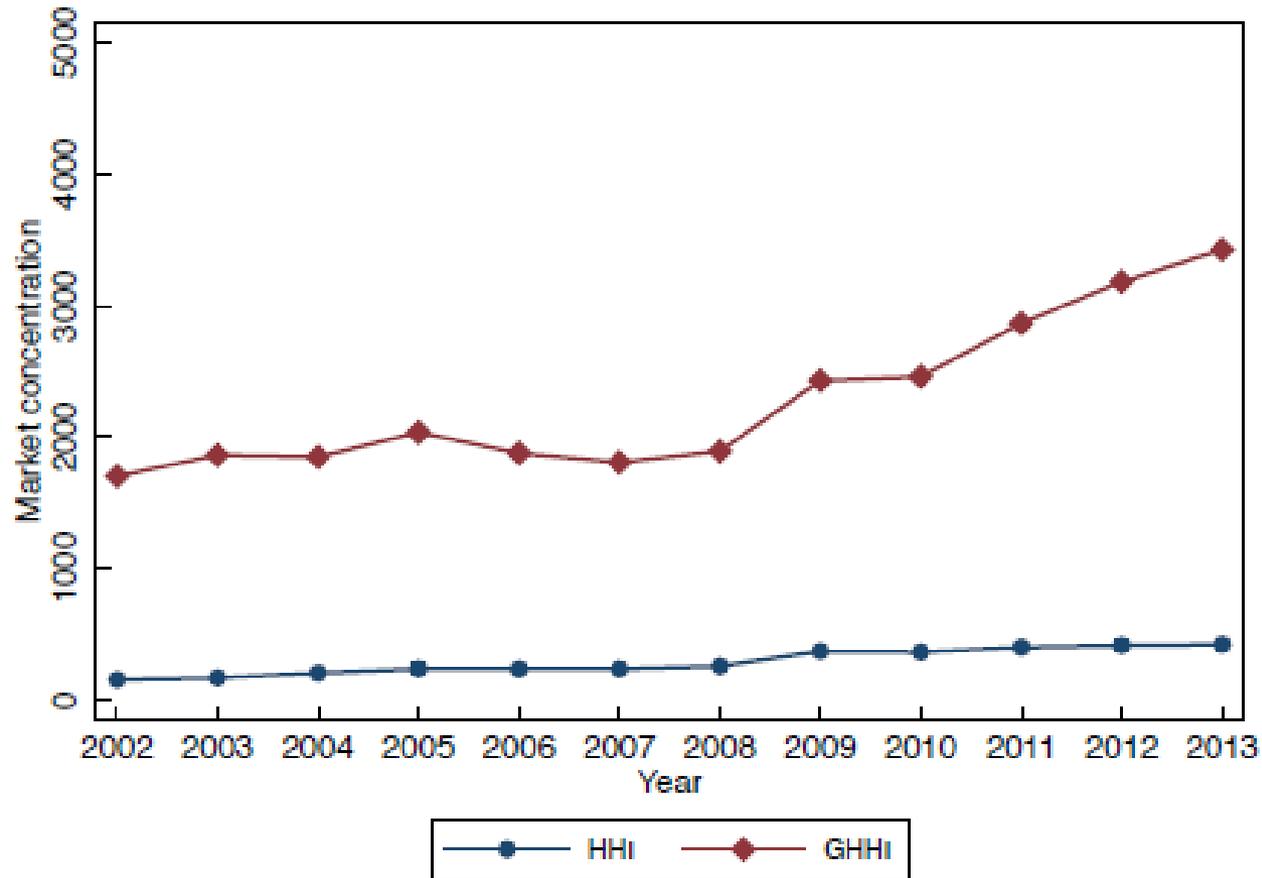
Source: Azar, Schmalz and Tecu, 2018

US county-level bank concentration, 2002-2013



Source: Azar, Raina & Schmalz, 2016.

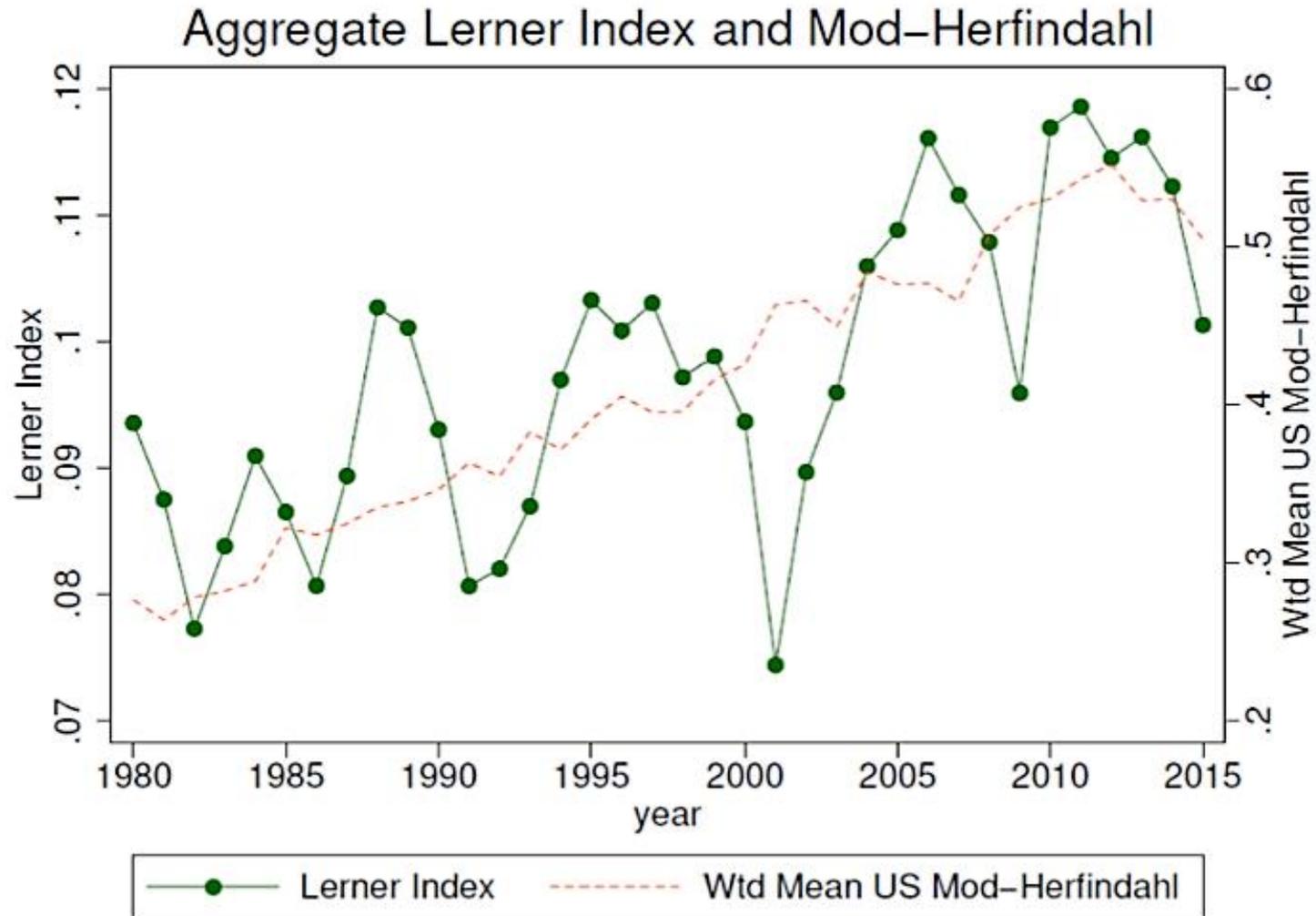
US national-level bank concentration, 2002-2013



Source: Azar, Raina & Schmalz, 2016.

Does overlapping ownership augment
the effect of relevant market
concentration on prices and fees for
customers?

Increasing indexation and common ownership

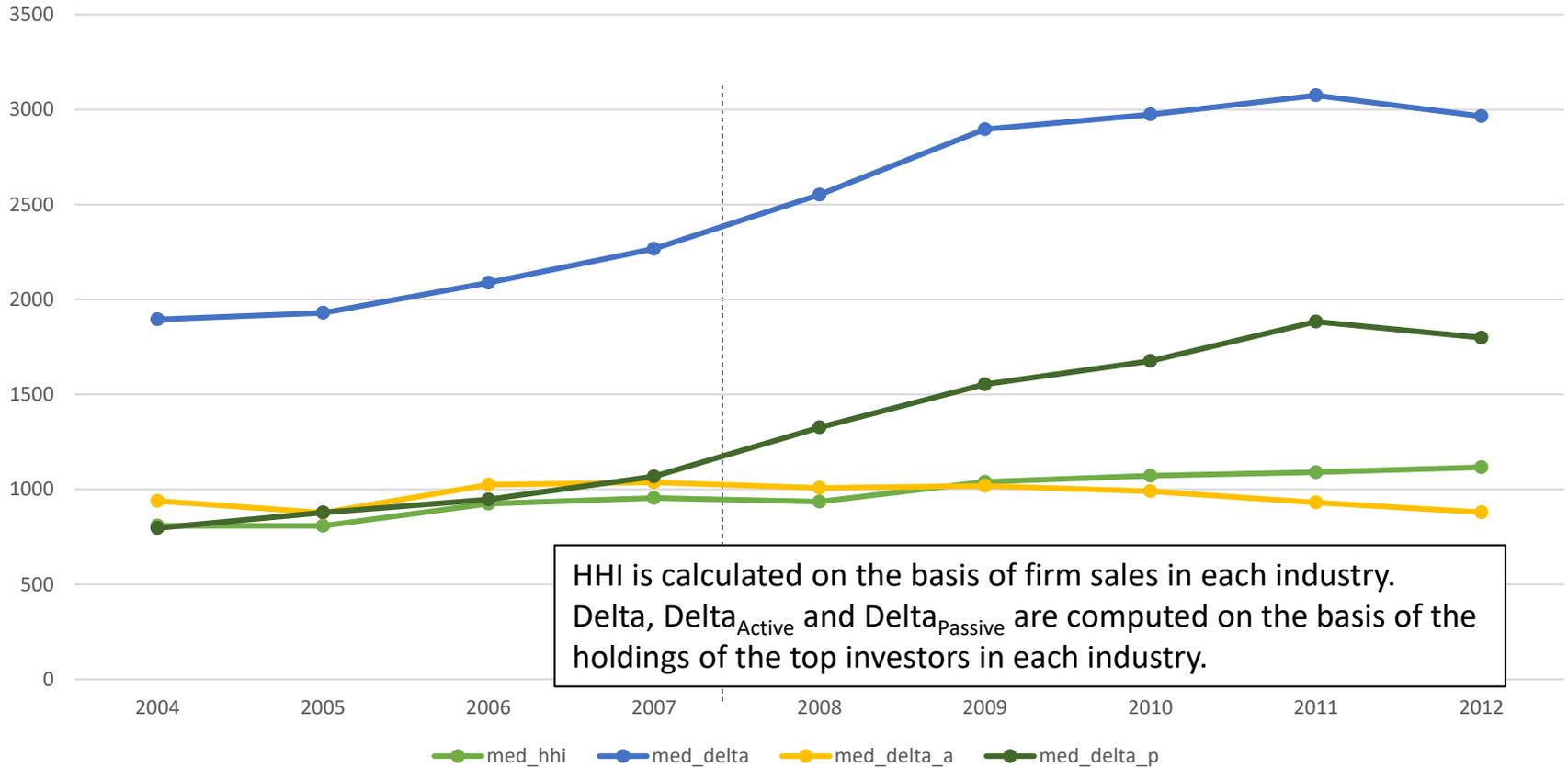


Structure-Conduct-Performance (II)

- Market power hypothesis (revised):
 - Firms in markets with high levels of common/overlapping ownership earn high price/cost margins and profits.
- Conduct is modeled
 - Oligopoly models and ownership structure (Reynolds & Snapp 1986, Bresnahan & Salop 1986, Salop and O'Brien 2000, López and Vives 2018).
- Evidence
 - US: Airlines (2001-14) and banking (2004-13) (using MHHI, Azar, Schmalz and co-authors)
 - Caveat: MHHI is endogenous. See O'Brien and Whaerer (2017), Dennis et al. (2018), Kennedy et al. (2017) and Gramlich and Grundl (2017) for criticisms
 - Cross section of industries: increases in intra-industry common-ownership density predict industry margins (Azar 2012); Banal et al. ongoing work.
 - Underinvestment (relative to standard valuation measures such as Tobin's Q) in the US since early 2000s (Gutiérrez and Philippon 2016):
 - Firms owned by quasi-indexers and belonging to industries that have high concentration and high common ownership drive the investment gap.

Product market concentration – Delta passive and Delta increase

Firm concentration and top common ownership (median, across industries)



HHI is calculated on the basis of firm sales in each industry. Delta, Delta_{Active} and Delta_{Passive} are computed on the basis of the holdings of the top investors in each industry.

Graph includes median of all industries in a given year. Test includes median of all industries in all the pre- and post-crisis years.

	HHI	Delta	Delta active	Delta passive
Pre-crisis	865.28	2064.65	974.64	922.92
Post-crisis	1039.36	2864.72	968.54	1613.48
Difference	174.07	822.07	-6.11	690.56
p-value	0.02	0	0.91	0

Explaining the data

- Δ and $\Delta_{Passive}$ may increase post-crisis because:
 1. Shift from active to passive investment and active investors less diversified than passive investors
 2. Passive become more concentrated
- Δ_{Active} may not increase post-crisis because diversification of active investors also decreases
- Note: Δ could also increase if firms with high λ s were to increase market shares

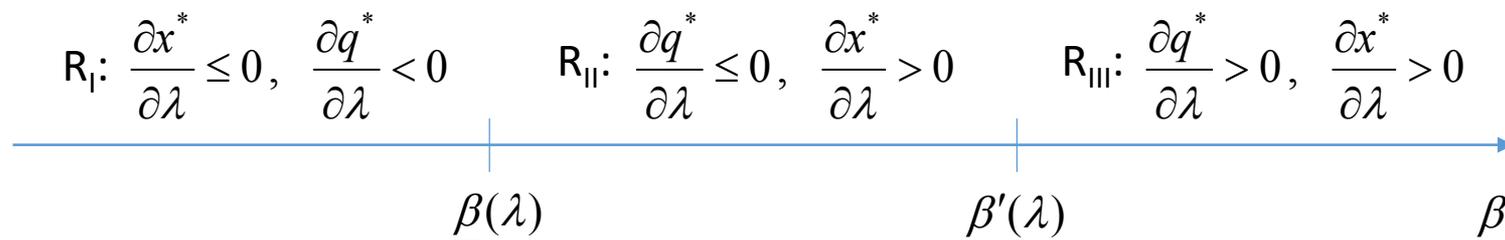
Structure-Conduct-Performance (II)

Efficiency hypothesis (revised):

- High levels of CO and efficiency are associated because CO improves information sharing, internalization of horizontal and vertical external effects, firm collaboration, corporate governance (economies of scale in information production and monitoring) and induces managers to reduce cost/improve performance.
- Large firms have more CO links, better corporate governance, are more efficient, and command larger price/cost margins/earn higher profits (therefore CO and high p/c margins and industry profits go together).
 - He and Huang (2017): US cross-held public firms 1980-2010), have higher market share growth and profitability due to efficiency gains and enhanced innovation productivity (patents per \$ spend in R&D) .
 - Geng et al. (2016): vertical CO links improve internalization of patent complementarities.

OOAs, spillovers, and innovation (López and Vives 2018)

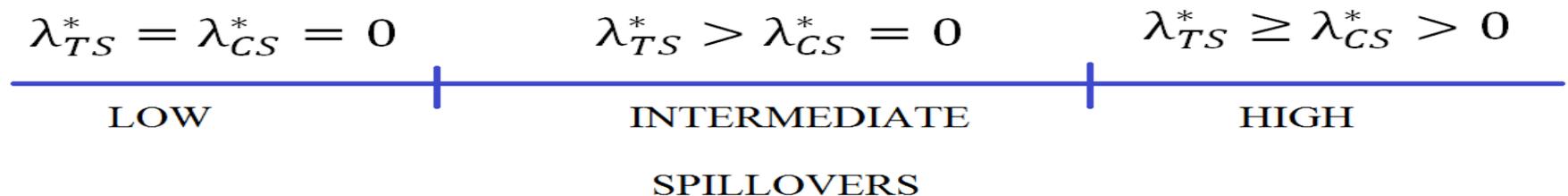
- Socially optimal level of R&D is between two and three times as high as the level of observed R&D because of non-internalized technological spillovers (Bloom et al. 2013)
- Simultaneous cost reduction/R&D (x) and output (q) decisions with spillovers (β).
 - Results robust in a two-stage competition model and to Bertrand competition with product differentiation.



- Thresholds are increasing in the level of market concentration.

OOAs, spillovers, and innovation (López and Vives 2018)

- Common/cross ownership may help internalize R&D spillovers across firms in high R&D intensive industries.
- Welfare-optimal degree of cross-ownership determined by the curvature of demand, the degree of market concentration, and the extent of spillovers:



- Two-stage: for high spillovers, optimal degree of OOAs tend to be larger than in the static model (underinvestment incentives), reinforced in Bertrand competition with product differentiation.

General equilibrium effects

(Azar and Vives 2018)

- Macroeconomic framework in which firms are large and have market power in both product and factor markets.
- Each firm maximizes a share-weighted average of shareholder utilities, which makes the equilibrium independent of price normalization.
- Owners and workers (both consumers):
 - Owners hold all the shares in the firms.
 - An owner holds shares in one firm and in one index fund representing the market portfolio.
- Results (one-sector economy; non-increasing returns):
 - An increase in effective market concentration (accounting for overlapping ownership) leads to depressed employment, real wages, and labor share.
 - Controlling common ownership and reducing concentration are complements in fostering employment while government jobs are a substitute to those policies.

General equilibrium effects (Azar and Vives 2018)

- With multiple sectors more common ownership can be pro-competitive due to intersector (horizontal and vertical) pecuniary externalities.
- Two horizontal effects of common ownership:
 - Intra-industry: anti-competitive
 - Inter-industry: ambiguous.
 - Effect on labor market anti-competitive.
 - Effect on product markets pro-competitive
- When level of CO is uniform in the economy, overall effect is pro-competitive when market power in the labor market is low and market power in product markets high.
 - Then mark ups are decreasing in degree of portfolio diversification.
 - Result has to be qualified when the level of common ownership is stronger intra-industry than inter-industry.
- Inter-industry (vertical): mostly competitive
 - Attenuation of double marginalization.

Antitrust concerns on OOAs

- Growing interest in assessing competitive effects of OOAs:
 - Rapid growth of common ownership with stakes in competing firms.
 - Growth of private equity investment firms holding partial ownership interests in competing firms (Wilkinson and White 2007; Nörback et al. 2018).
 - Some notorious cross-ownership cases :
 - * Ryanair's acquisition of Aer Lingus's stock.
- US: OOAs examined under Clayton Act (S. 7) and Hart-Scott-Rodino Act:
 - Institutional investors can hold up to 15% without need to notify to the antitrust authority.
 - OOAs can be challenged if they substantially lessen competition.
- Proposals on how to deal with OOAs:
 - Elhauge (2016, 2017) proposes to use antitrust to control the effects of rising common ownership (Clayton Act (S. 7) and Sherman Act (S1)).
 - Posner et al. (2016) propose limits to ownership in oligopolistic industries for institutional investors if they want to benefit from a safe harbor from enforcement of the Clayton Act.
 - Rock and Rubinfeld (2017) provide a criticism of those views.

OOAs in the EU

- European Commission (EC) is not authorized to examine the acquisition of minority shareholdings, and it has proposed extending the scope of its merger regulations so that it can intervene in those cases.
 - The EC has proposed a targeted transparency system under which the EC and its member states must be notified of potentially harmful acquisitions (EC 2014).
- EU Merger Regulation is limited to acquisitions that confer control and therefore is narrower than Section 7 of the Clayton Act.
- Elhauge (2017) looks at avenues for antitrust enforcement based on the Articles 101 and 102 of the EU Treaty.
- EC (2017) Dow-Dupont merger decision states:

"the Commission is of the view that (i) a number of large agrochemical companies have a significant level of common shareholding, and that (ii) in the context of innovation competition, such findings provide indications that innovation competition in crop protection should be less intense as compared with an industry with no common shareholding".

Conclusion

- Both theory and preliminary evidence point at potential antitrust concerns with the increase in common/overlapping ownership.
- This calls for more antitrust scrutiny but it is still early to advance and implement major changes in regulation and antitrust enforcement.
 - We need to have a better understanding of the channels of transmission of ownership patterns into competitive outcomes, via corporate governance, and more empirical evidence of consumer harm and of the effects on innovation.
- Traditional competition policy (e.g., controlling market concentration) is still valid in a world of OOAs.
- Key elements to define policy towards OOAs:
 - Extent of intra-industry vs. inter-industry (horizontal and vertical) OOAs.
 - Type of OOAs: silent financial interest, degree of control in OOA, partial cross ownership.
 - Extent of externalities (e.g., technological spillovers).
 - Relative level of market power in product and labor markets.