

Private Equity and Industry Competition

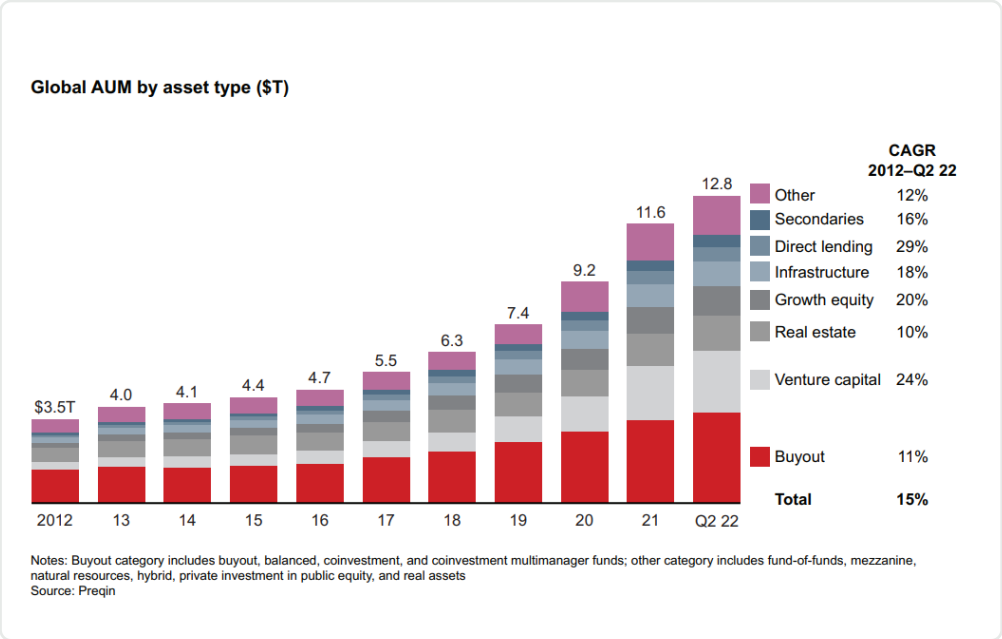


Dyaran Bansraj and Per Strömberg

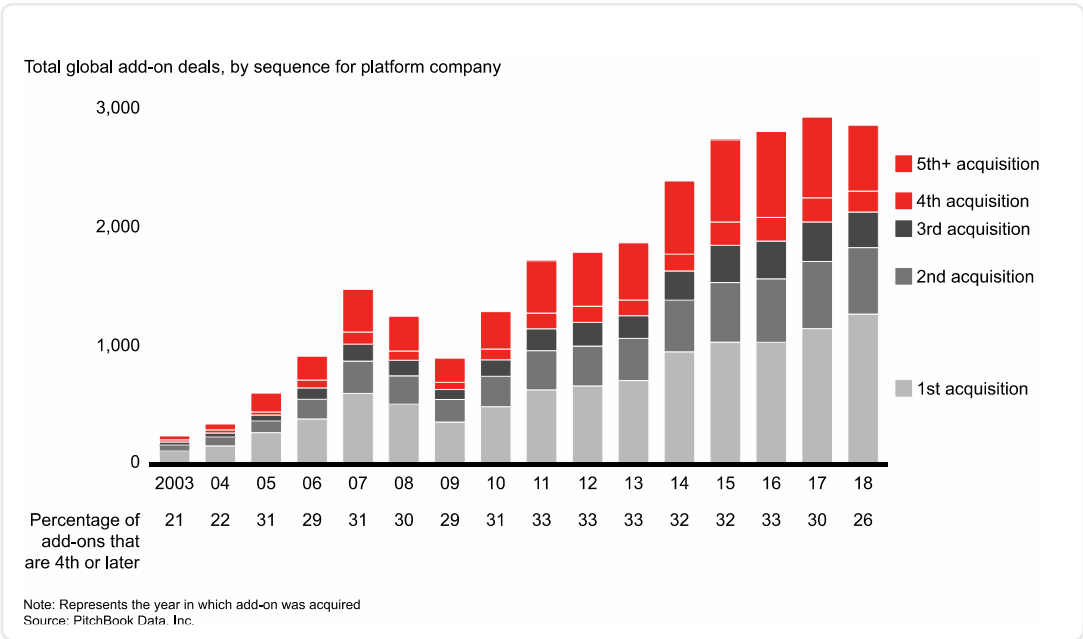
Motivation: Two trends

Motivation

1. Growth of PE-backed buy-and-build / industry consolidation strategies



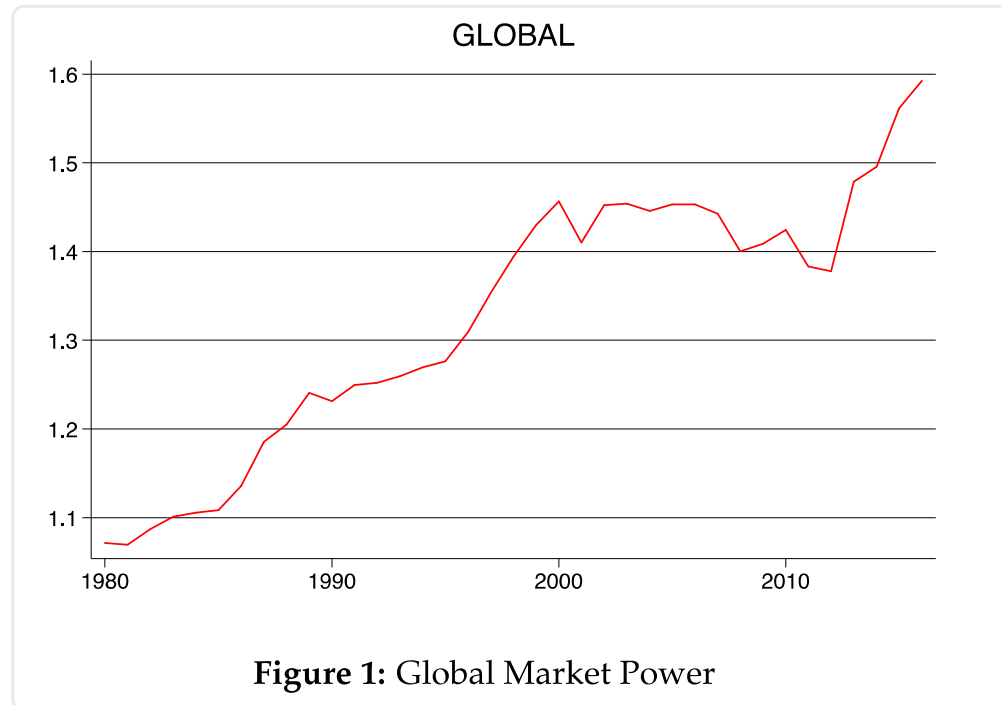
Private equity has grown as an asset class



Buy-and-build activity has risen

From: Bain & Co Global Private Equity Report, 2019 and 2023

2. Increase in market power



Global mark-ups from DeLoecker & Eeckhout (2018)

Global evidence

- US: Grullon et al (2019), De Loecker et al (2020)
- Globally: De Loecker & Eeckhout (2018),
- UK: Aquilante et al (2019), CMA (2020)

M&A contributed to increase in market power

- Gaynor (2011), Grullon et al (2019), Stiebale & Szücs (2019)
- Anti-trust regulation has a problem catching “stealth consolidation” involving small targets
 - Wollmann (2019; 2021), Kepler et al (2023)

Motivation: Relevance

Motivation

Public concern about private equity roll-ups

Opinion **Mergers & Acquisitions**

Lina Khan: It's time to halt roll-up schemes that violate antitrust laws

Popular with private equity firms, they can have serious consequences for consumers, workers and businesses

Competition & Markets Authority + Add to myFT

The cost of owning a pet: why UK regulators are taking aim at pricey vets

market that is consolidating fast

FTC lawsuit targets serial acquisitions by private equity

Complaint alleges New York-based firm consolidated market to become 'dominant player' for anaesthesia services in Texas

Care homes market study

The CMA has carried out a market study into care homes for the elderly, to review how well the market works and if people are treated fairly.

‘As a result of the acquisition spree, the FTC alleged in Thursday’s complaint that anesthesia services **“cost Texans tens of millions of dollars more each year than they did before USAP was created”**.’

‘In response to one acquisition, a USAP executive said **“Cha-ching!”**, according to the filing.’

(Financial Times, 2023)

Does consolidation by private equity affect industry competitiveness?

Set-up of the paper

1 Decompose the Herfindahl

- **Sources:** Ownership changes, growth, net entry
- **Ownership types:** Private equity, listed, non-listed non-PE

2 Relate HHI decomposition to outcomes

Does consolidation by private equity affect industry competitiveness?

Set-up of the paper

1 Decompose the Herfindahl

2 Relate HHI decomposition to outcomes

- Market power: Mark-ups
- Productivity: TFP

Agenda

Structure

- 01 Motivation
- 02 Conceptual framework
- 03 Data and measurement
- 04 Main findings
- 05 Mechanisms and heterogeneity
- 06 What we learn

Agenda

Structure

01 Motivation

02 **Conceptual framework**

03 Data and measurement

04 Main findings

05 Mechanisms and heterogeneity

06 What we learn

Concentration has three drivers

Observed concentration change is the net outcome

$$HHI_t = \sum_{i=1}^N s_{i,t}^2$$

Ownership reallocation

Changes who controls continuing activity.

Example: a PE platform acquires and integrates a follow-on company.

Differential growth

Changes market shares among continuing ownership structures.

Example: smaller non-listed structures grow faster than larger incumbents.

Net entry

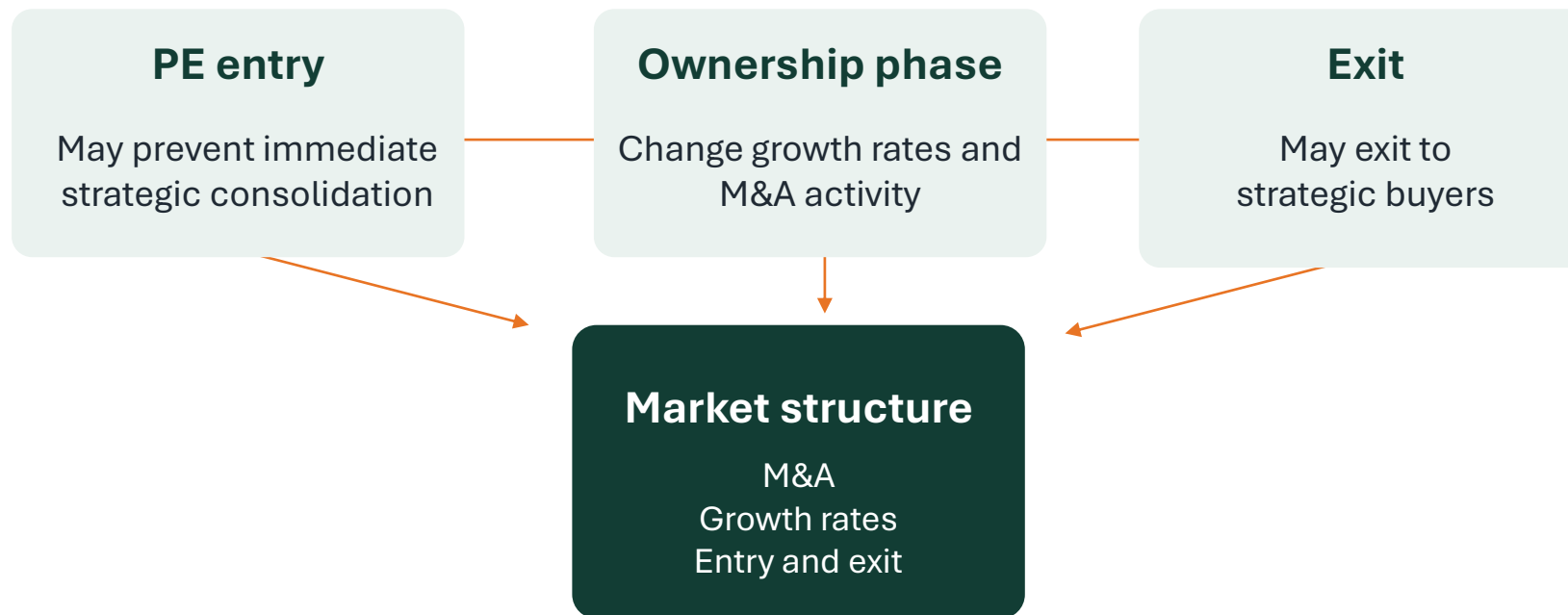
Changes which structures participate in the market.

Example: an entire structure enters or exits an industry.

Effects (and interactions) may differ by **ownership types**

Why PE effects are ambiguous and could be unique

Stages of PE ownership



Direct effects

Follow-on acquisitions and growth of portfolio companies change measured concentration.

Indirect effects

Competitors may react through entry, exit, growth, or their own consolidation

Selection

Effects depend on whether PE targets fragmented, small, or already concentrated markets.

Agenda

Structure

01 Motivation

02 Conceptual framework

03 **Data and measurement**

04 Main findings

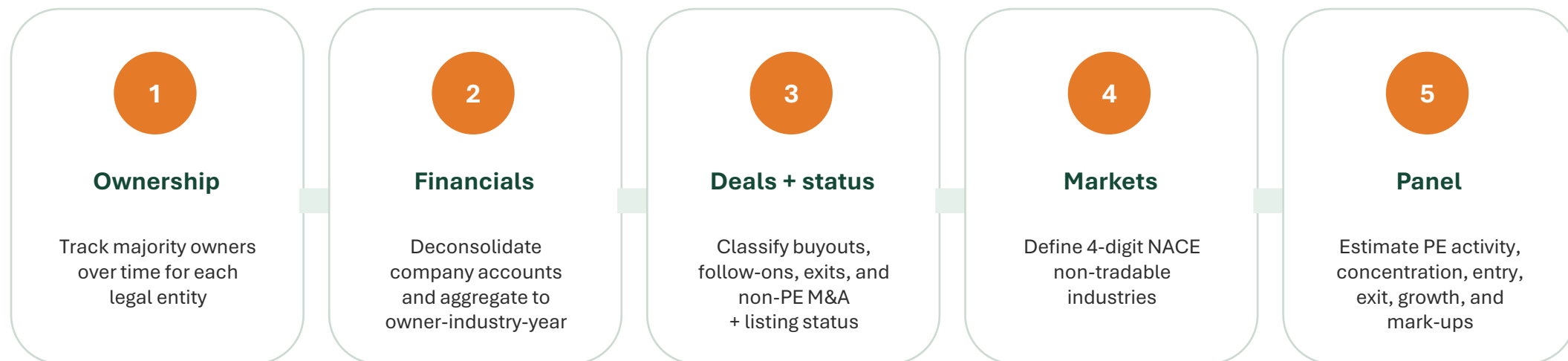
05 Mechanisms and heterogeneity

06 What we learn

Data: from legal entities to markets

Data

Country: United Kingdom | **Period:** 2002-2021 | **Sources:** Orbis ownership, financials, M&A



Coverage: 16.5m legal entities in ownership data | 1.2m with operating revenue

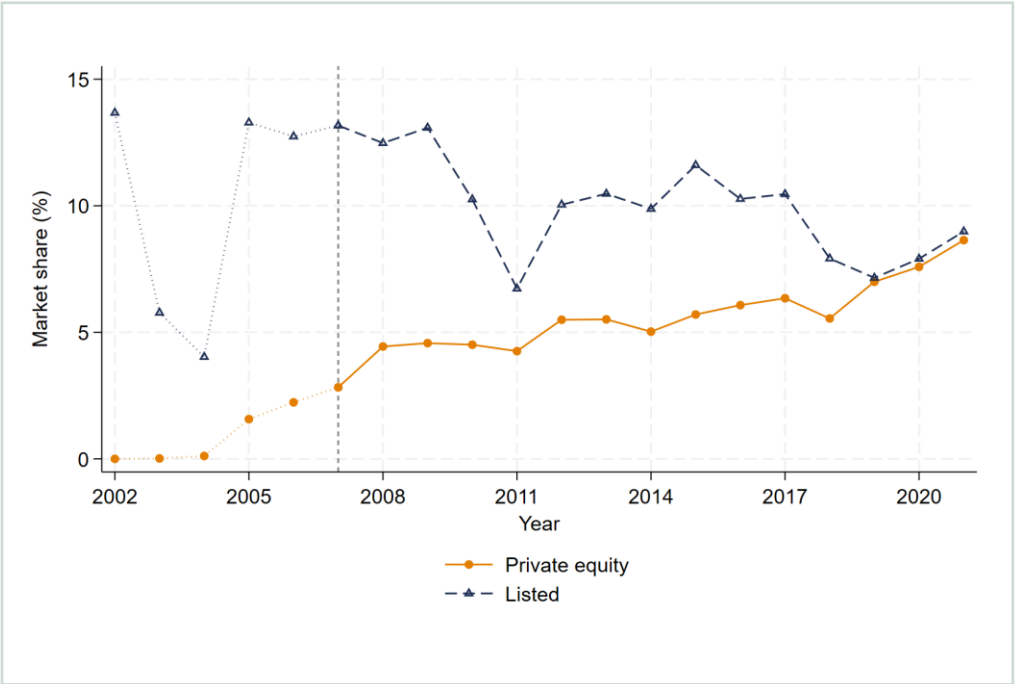
Sample: 4.2m ownership-industry-year observations | PE-owned, listed, non-listed non-PE

Panel: 2,970 industry-year observations | 198 industries | 2007-2021 | non-tradable 4-digit NACE

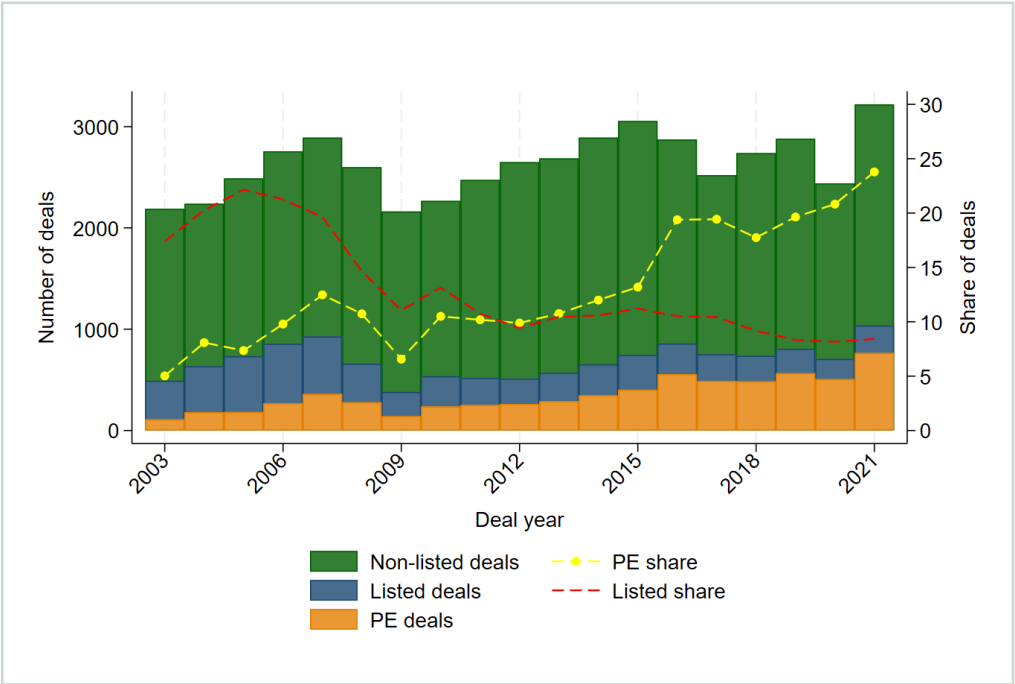
Market shares and deal activity

Data

Panel A: Market share of PE and listed firms

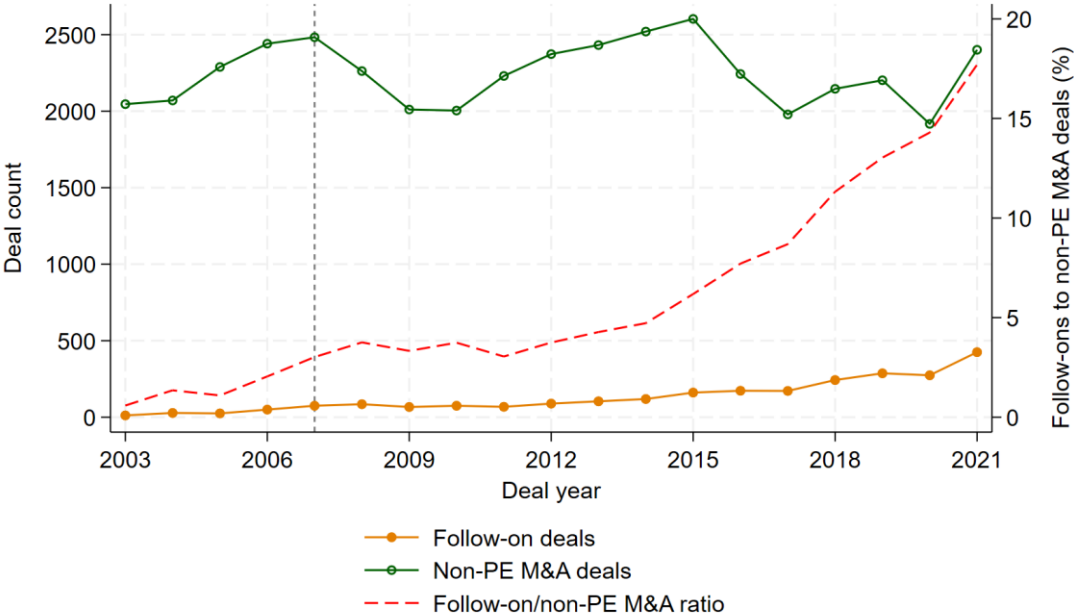


Panel B: Deal activity by PE and listed firms



Strong increase in follow-on activity by PE

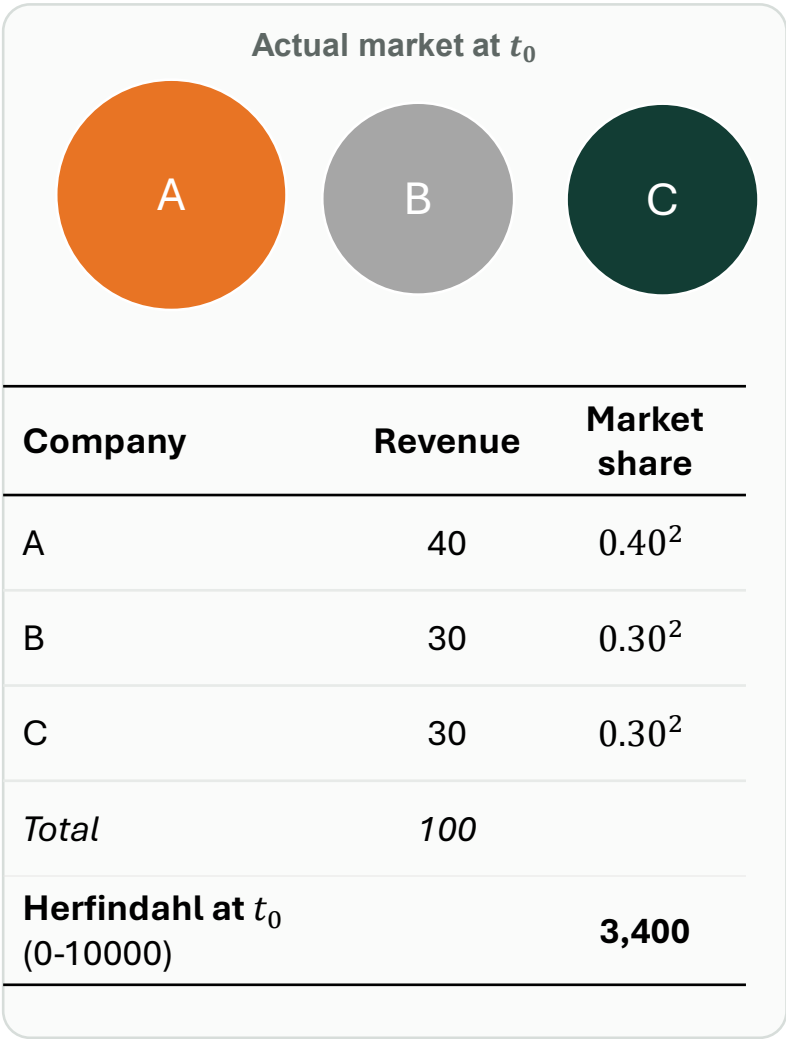
Data



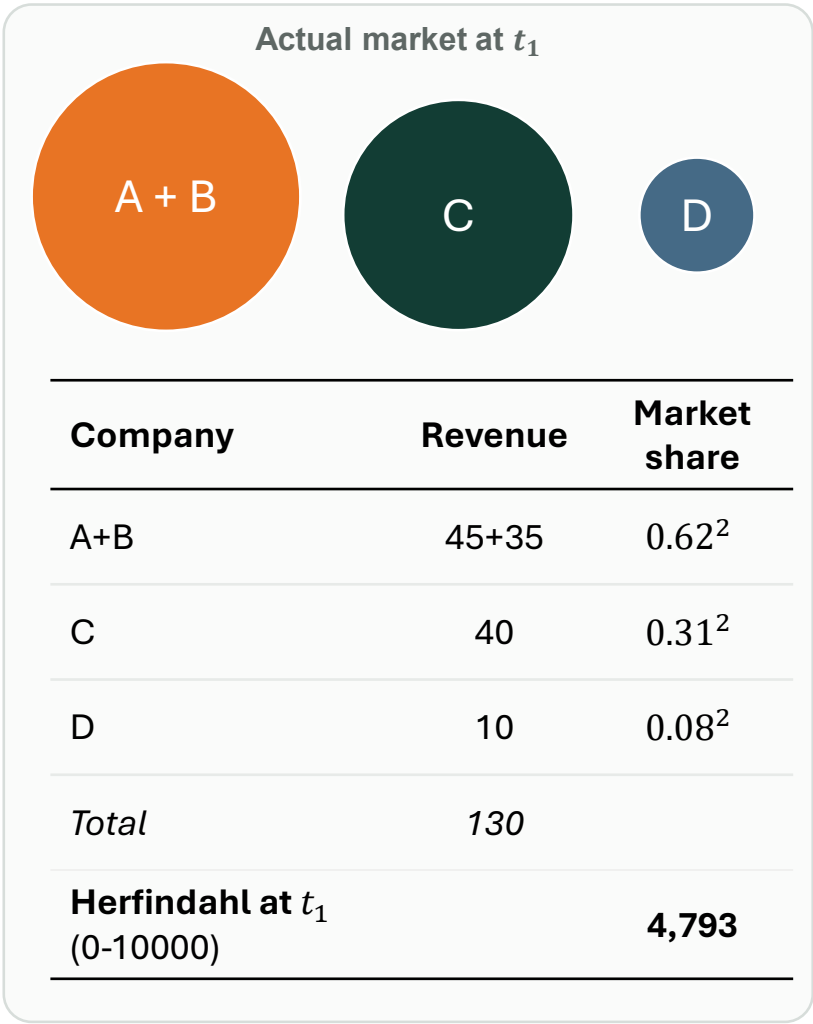
Observation

PE-backed follow-ons have risen sharply since 2014 compared to non-PE-backed deals

Measurement: Decomposition of Herfindahl



→
Observed change
+1,393



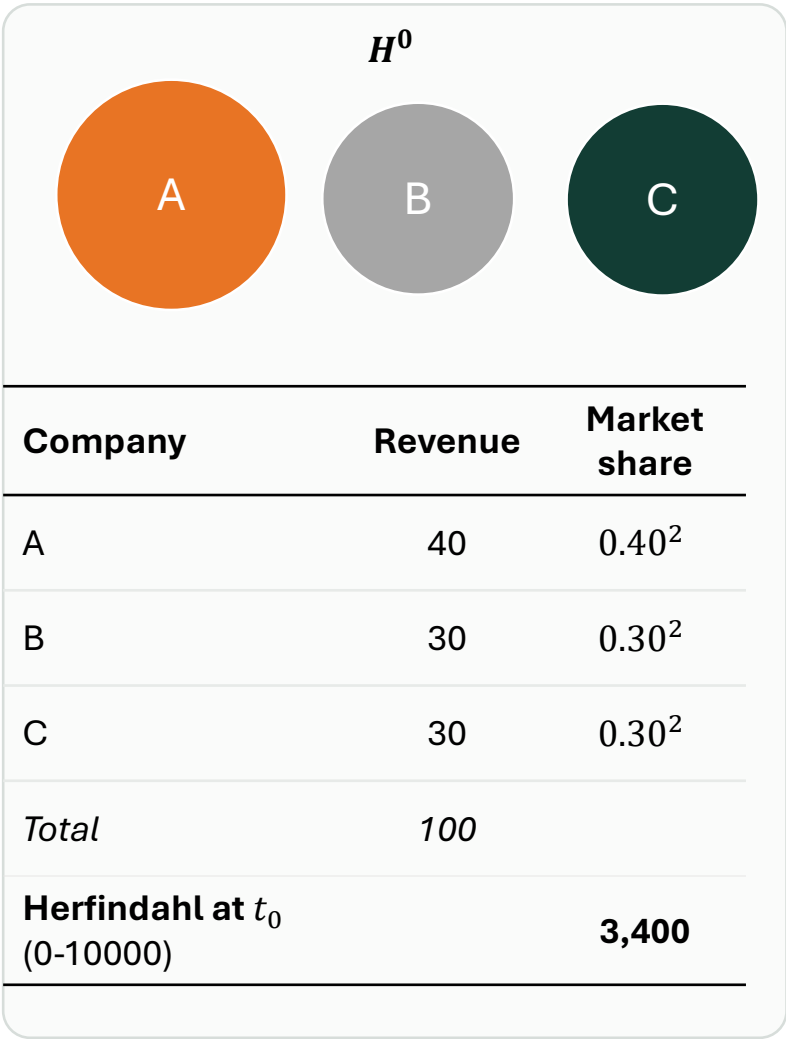
Measurement: Decomposition of Herfindahl



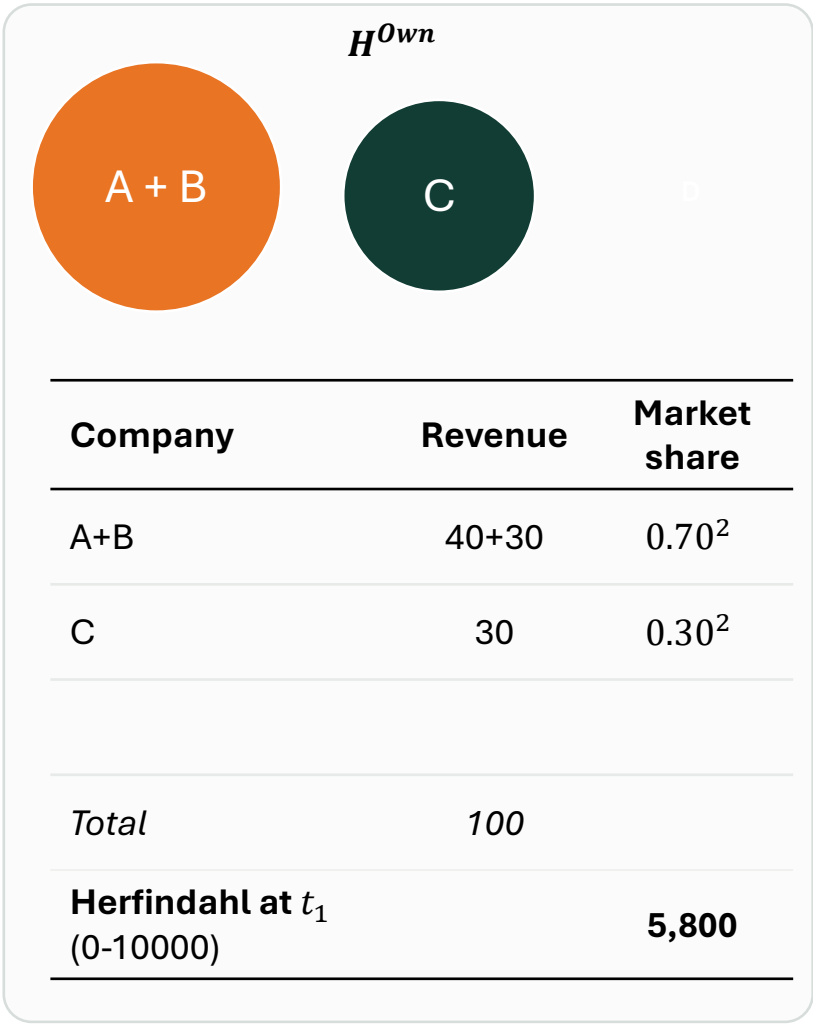
$$H^1 - H^0 = \underbrace{(H^{\text{Own}} - H^0)}_{\text{Ownership reallocation}} + \underbrace{(H^{\text{Own,Gr}} - H^{\text{Own}})}_{\text{Growth}} + \underbrace{(H^1 - H^{\text{Own,Gr}})}_{\text{Net entry}}$$

Instead of three components changing at the same time, we turn one on sequentially

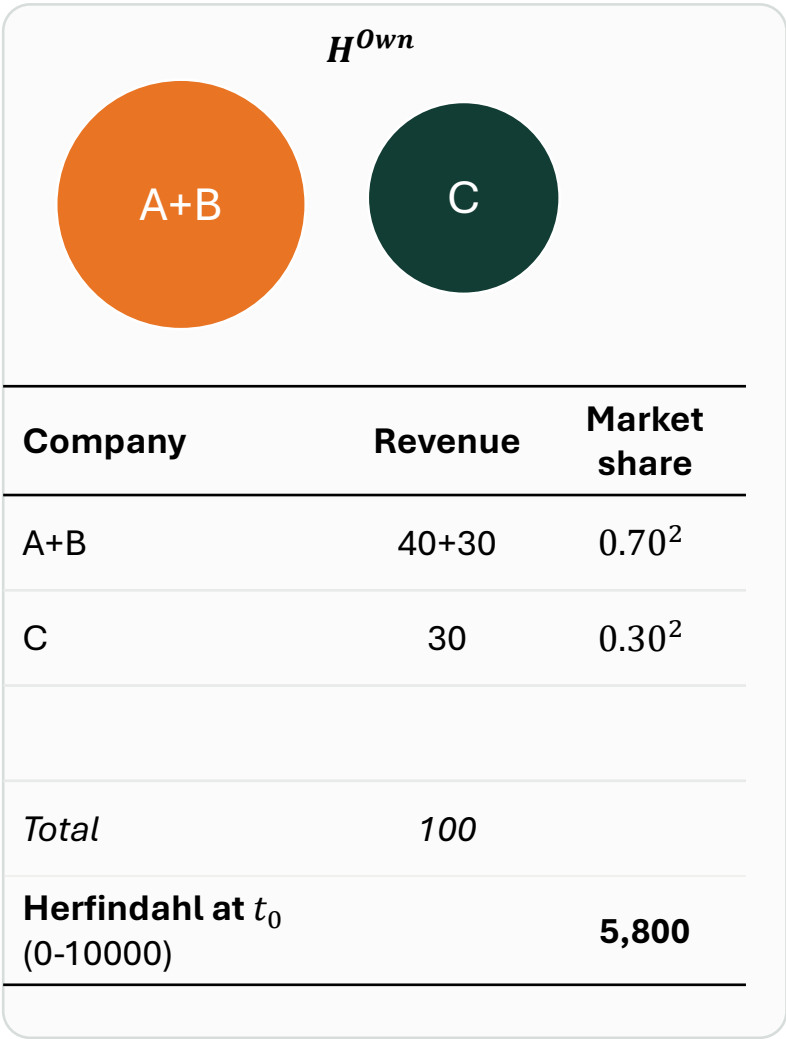
Measurement: Decomposition of Herfindahl



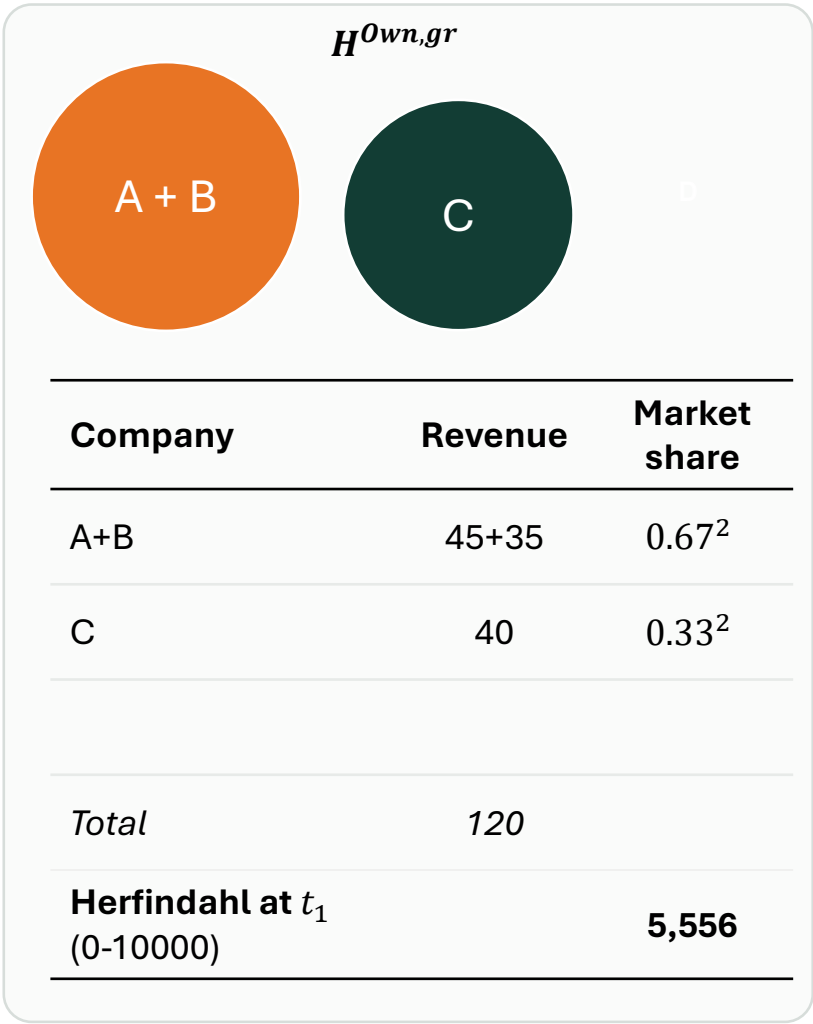
→
Ownership
+2,400



Measurement: Decomposition of Herfindahl

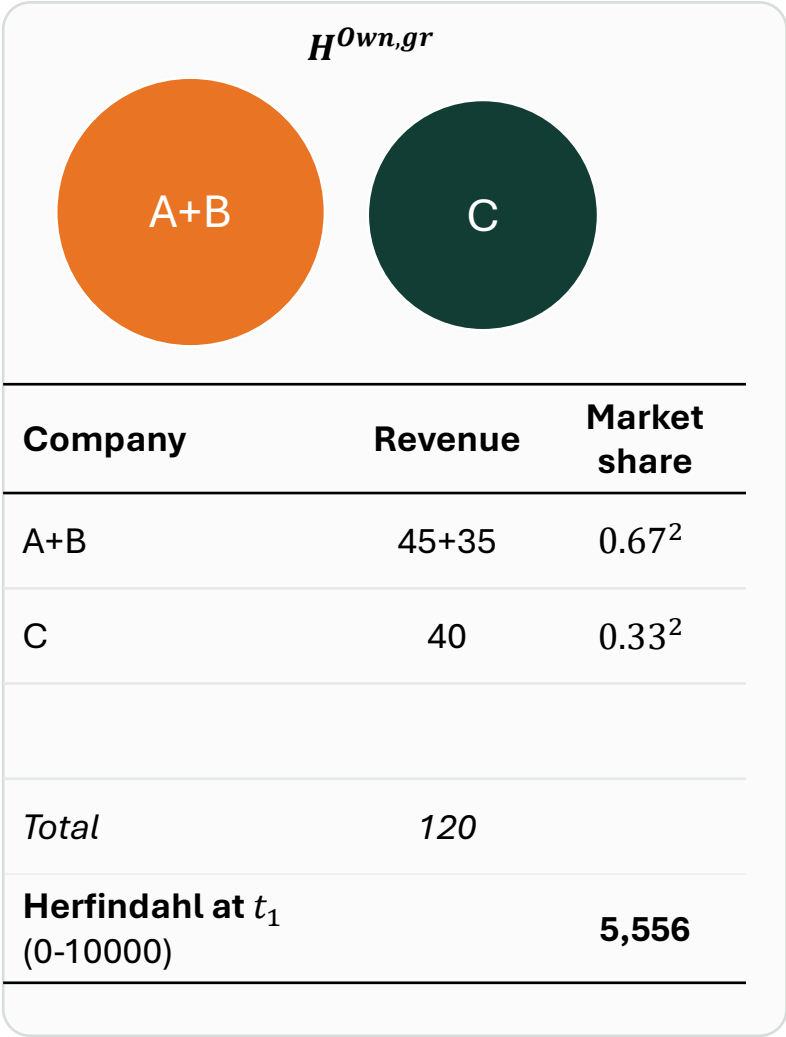


→
Growth
-244

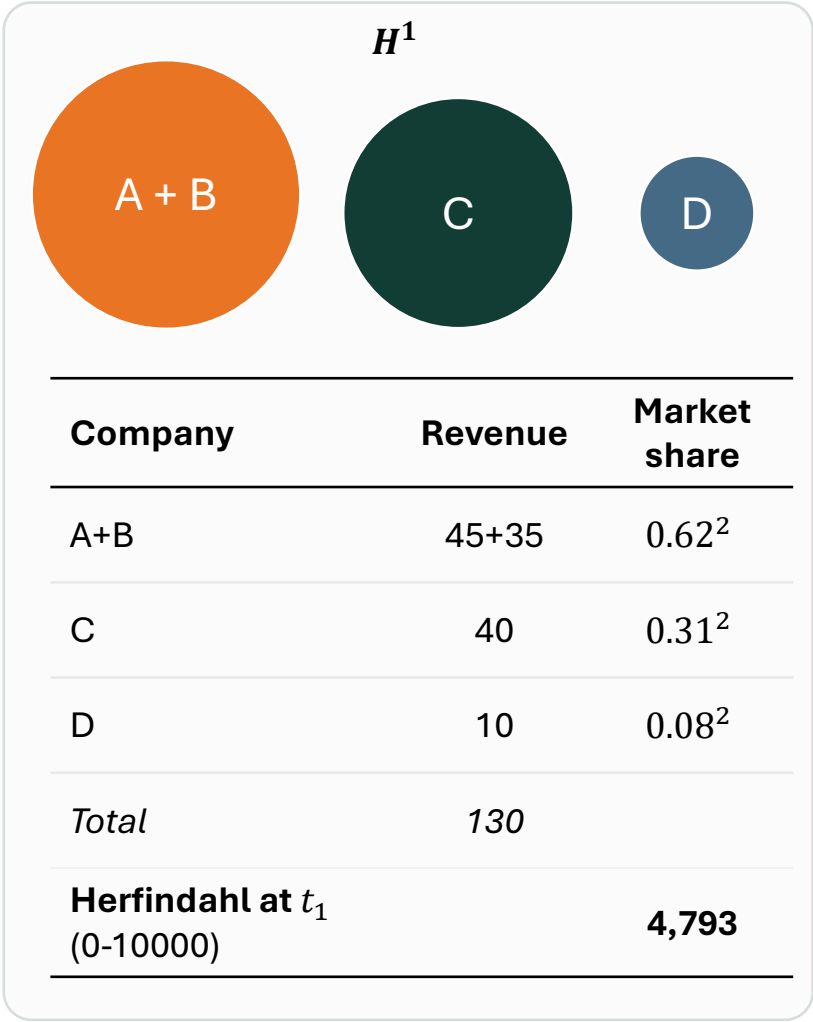


Measurement: Decomposition of Herfindahl

Measurement



→
Net entry
-763



Measurement: Decomposition of Herfindahl



$$H^1 - H^0 = \underbrace{(H^{\text{Own}} - H^0)}_{\text{Ownership reallocation}} + \underbrace{(H^{\text{Own,Gr}} - H^{\text{Own}})}_{\text{Growth}} + \underbrace{(H^1 - H^{\text{Own,Gr}})}_{\text{Net entry}}$$

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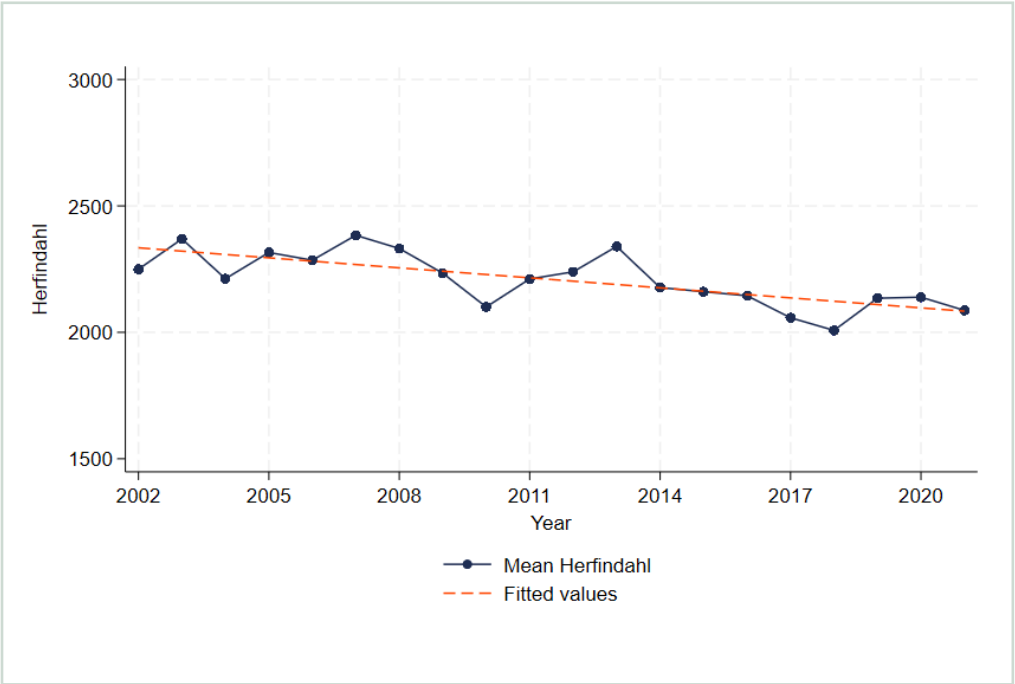
→
Growth
-244

→
Net entry
-763

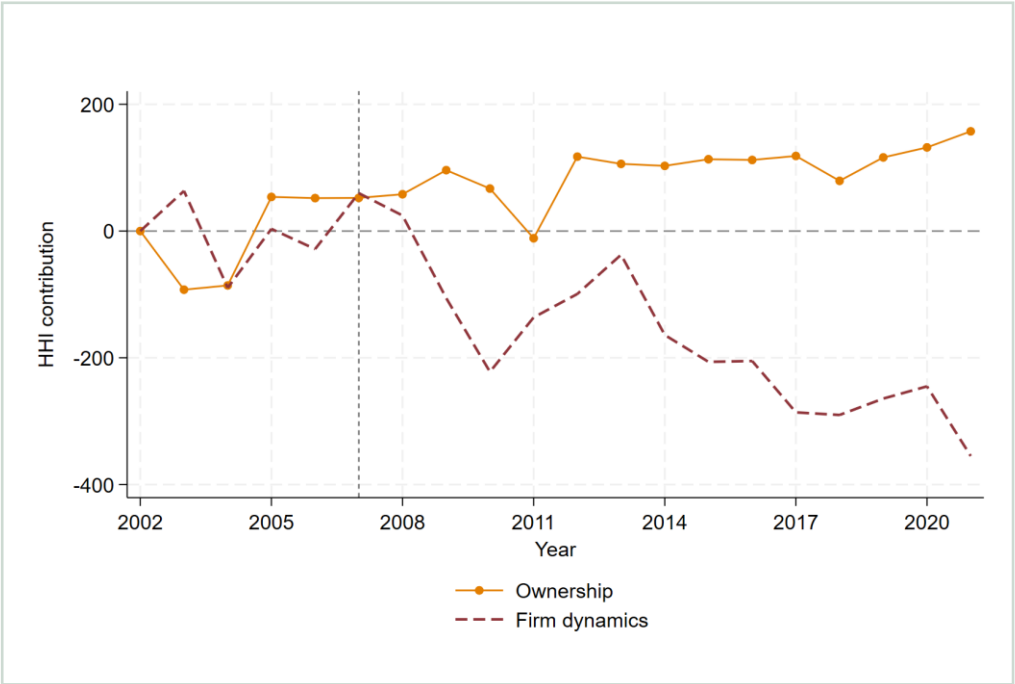
We take all orderings and separately calculate the effects for PE, listed, and non-listed firms

Concentration and source deconsolidation

Panel A: Concentration



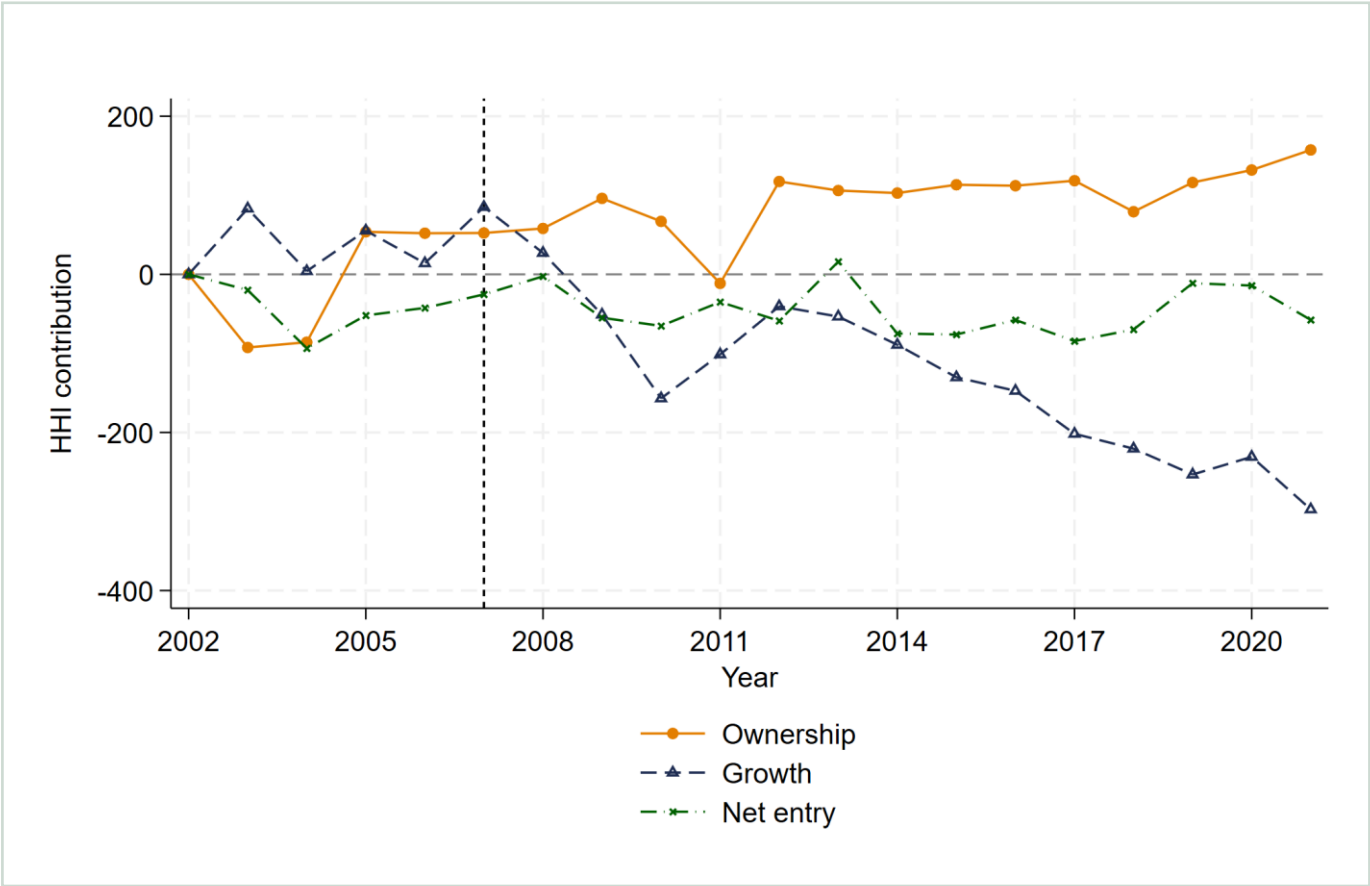
Panel B: Decomposition by ownership and firm dynamics



Ownership reallocation raises concentration, but firm dynamics more than offset it.

Concentration and source deconsolidation

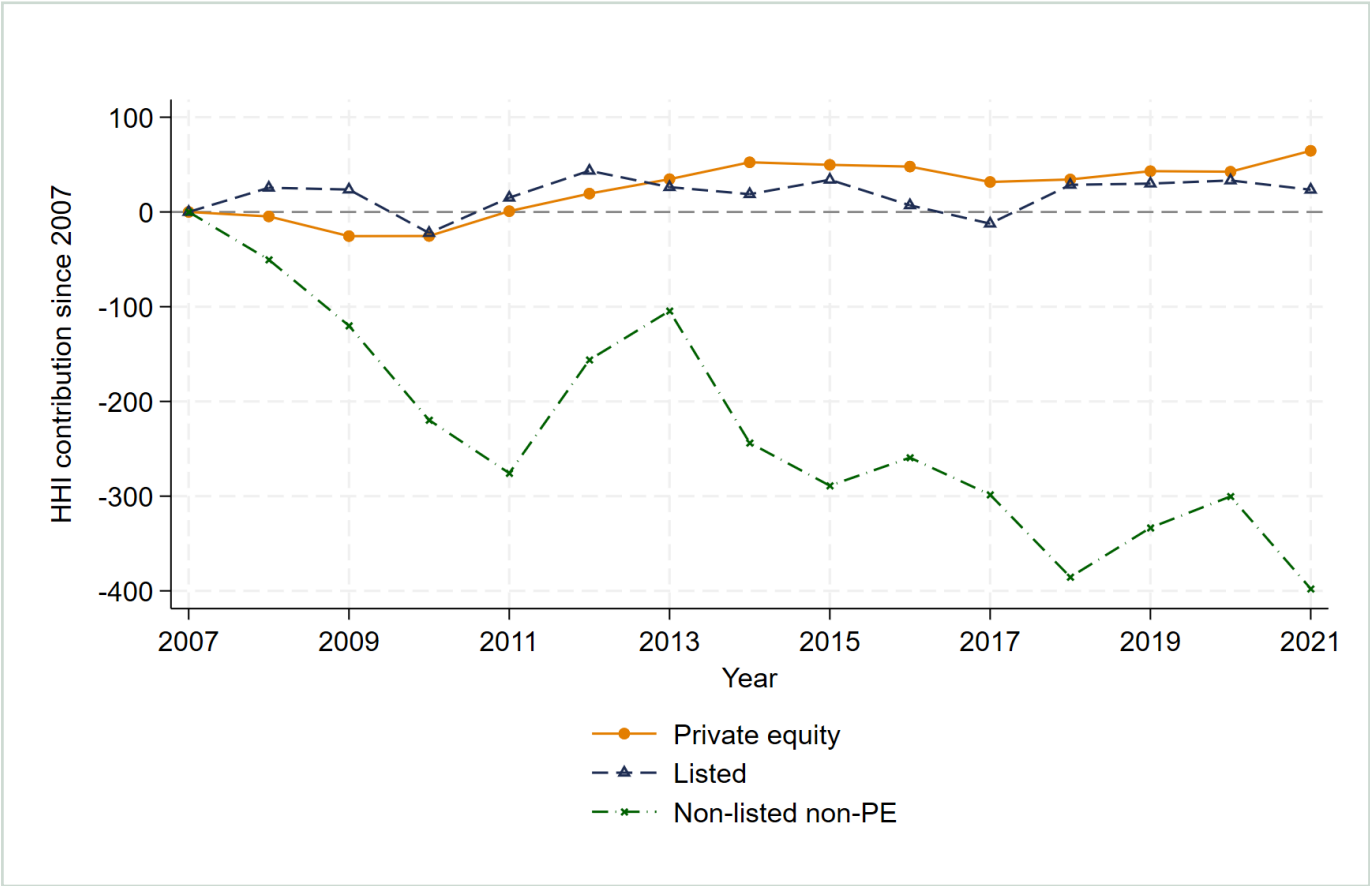
Decomposition by ownership, growth, net-entry



The offset mostly comes from the growth component

Concentration and ownership type deconsolidation

Decomposition by PE, listed, and non-listed



The offset mostly comes from the growth component

Deconsolidation by source and ownership type

Measurement

Channel / owner	PE	Listed	Non-listed	All owners
Ownership	+77	+70	-39	+109
Growth	+15	-124	-242	-350
Net entry	+9	+55	-64	-0.4
ΔHHI	+101	+2	-344	-241

Finding

PE consolidation is positively related to concentration, but the effect is partly offset by other market dynamics.

Deconsolidation by source and ownership type

Measurement

Channel / owner	PE	Listed	Non-listed	All owners
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PE consolidation is positively related to concentration, but the effect is partly offset by other market dynamics.

Finding 2

PE and listed show very similar ownership consolidation, but different growth consolidation.

Deconsolidation by source and ownership type

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Finding

PE consolidation is positively related to concentration, but the effect is partly offset by other market dynamics.

Finding 2

PE and listed show very similar ownership consolidation, but different growth consolidation.

Finding 3

Non-listed primarily deconsolidated

PE ownership consolidation is often offset within the same market

Measurement

Among industries with a positive cumulative PE ownership contribution, 2007–2021



Similar aggregate consolidation, but in different markets

Measurement

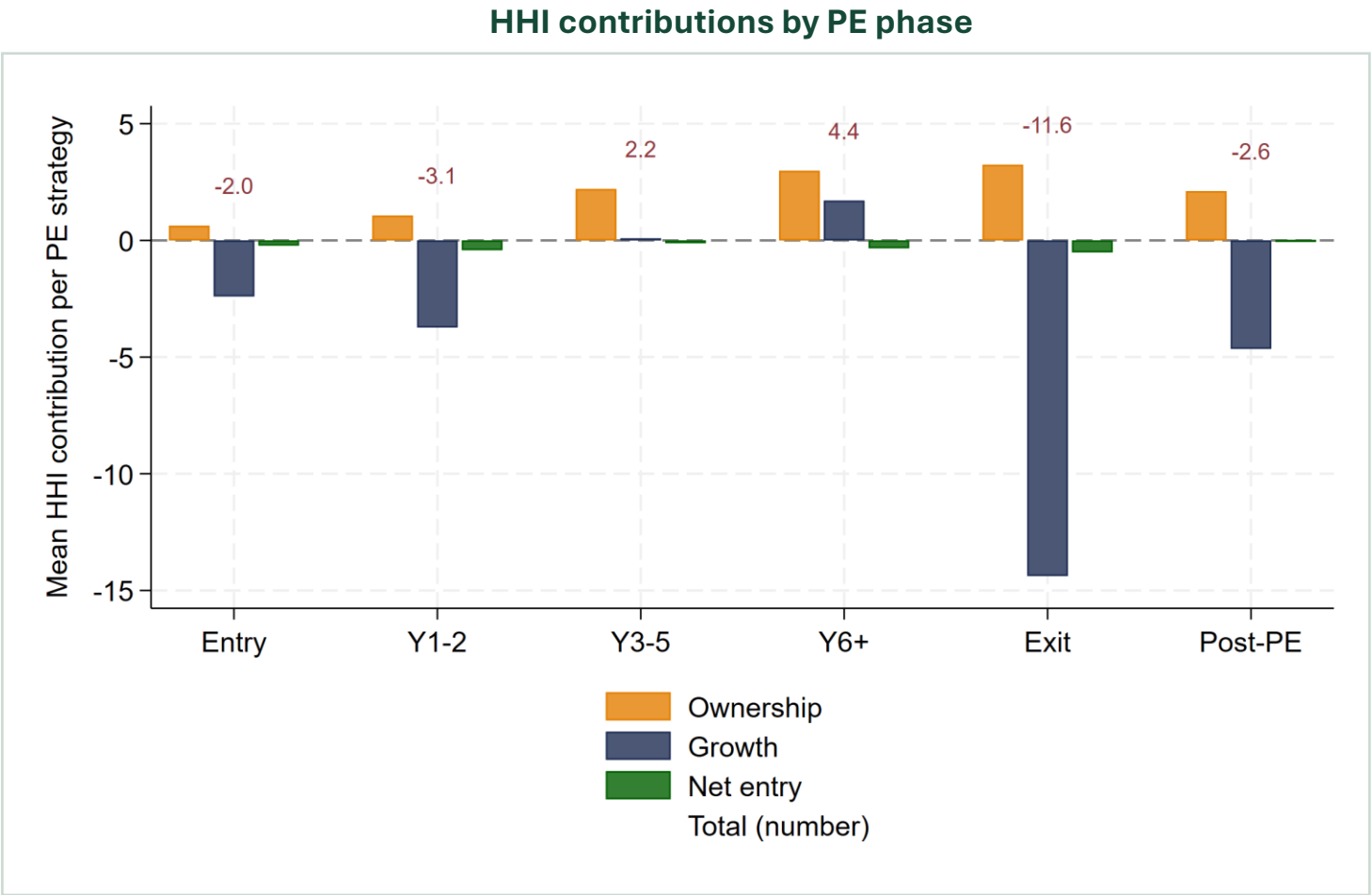
Owner type	Market size			Initial concentration			Financial constraints		
	Low	High	Difference	Low	High	Difference	Low	High	Difference
Private equity	135	19	-116*	13	141	128**	99	55	-44
Listed	20	121	101***	52	89	38	33	108	76**

PE ownership consolidation is strongest in small, concentrated markets

listed consolidation is strongest in large, financially constrained markets.

The PE lifecycle changes both the sign and source of concentration

Measurement

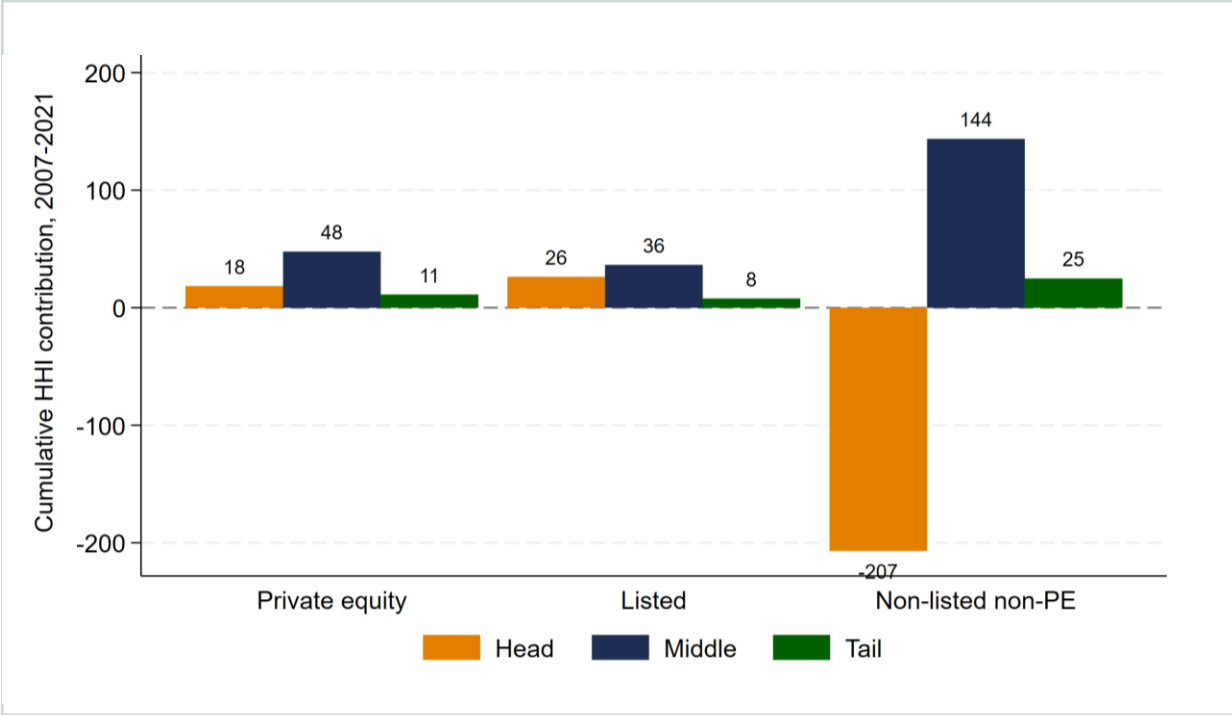


Consolidation strengthens from year 3

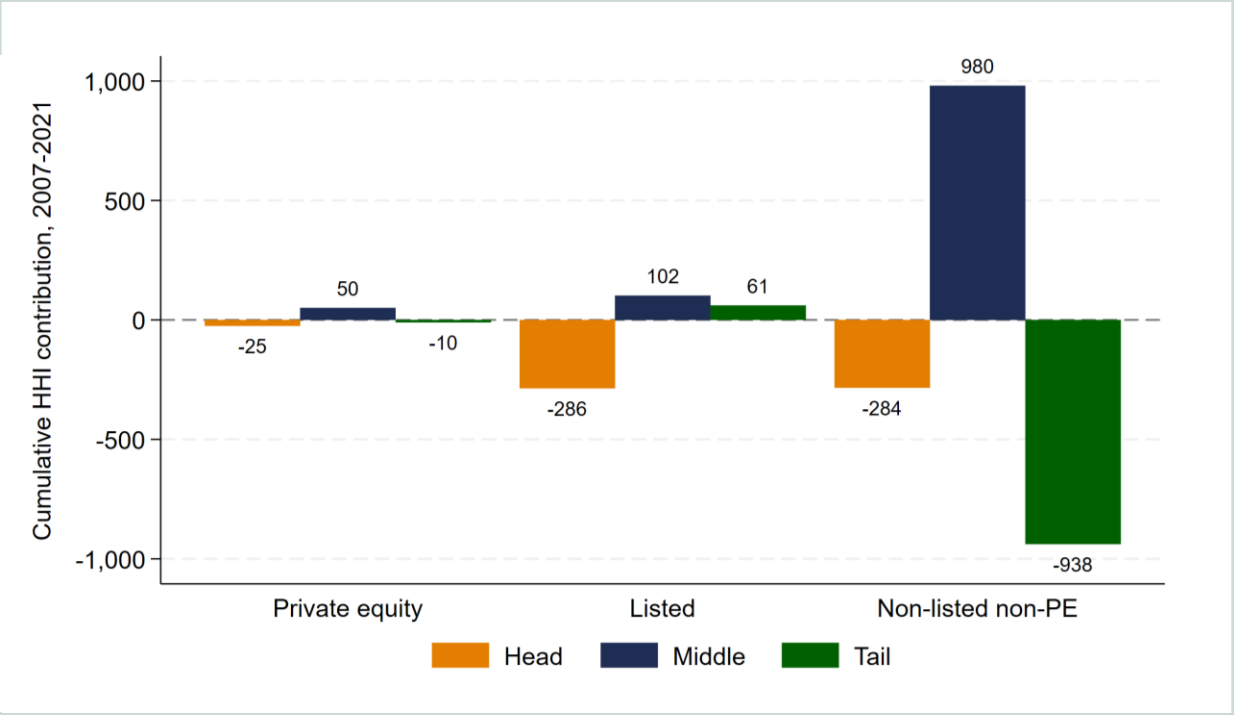
Net ownership and growth arise from different market positions

Measurement

Net ownership reallocation



Differential growth



Middle PE platforms make the largest net ownership contribution.

Most activity between Head and Middle

Mechanism

PE platform position	Head-attributed	Middle-attributed	Tail-attributed	Row total
Head	9.6	3.5	-0.1	12.9
Middle	6.4	8.5	1.3	16.2
Tail	2.8	0.6	0.4	3.9

Combinations between Head and Middle firms drive most of the PE ownership consolidation

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- 04 **Main findings**
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$$\Delta Y_i = \alpha + \sum_{k \in \mathcal{K}} (\beta_k^O O_{ik} + \beta_k^G G_{ik} + \beta_k^N N_{ik}) + \mathbf{X}_i' \theta + \varepsilon_i,$$

- ΔY_i : Change in industry outcome from 2007 to 2021
- O_{ik} : Ownership-reallocation contribution of owner type k
- G_{ik} : Growth contribution of owner type k
- N_{ik} : Net-entry contribution of owner type k
- $k \in \mathcal{K}$: PE-owned, listed, or non-listed non-PE
- → We scale coefficients by realized component size
- $\mathbf{X}_i$: Initial concentration, market growth, and initial market size

$$\Delta Y_i = \alpha + \sum_{k \in \mathcal{K}} (\beta_k^O O_{ik} + \beta_k^G G_{ik} + \beta_k^N N_{ik}) + \mathbf{X}_i' \theta + \varepsilon_i,$$

We scale coefficients by realized component size

	Markup	TFP	Labor cost share	Cost of goods share
Panel A: By ownership type				
PE-owned	-0.003	-0.019**	0.001	-0.003
Listed	0.001	-0.014**	0.002	-0.010
Non-listed non-PE	0.029***	-0.014	0.010***	-0.004
Panel B: By decomposition channel				
Ownership reallocation	-0.006	-0.020***	0.001	-0.008
Differential growth	0.014**	-0.015	0.004	-0.004
Net entry	0.019***	-0.010	0.007***	-0.005

PE components are not associated with higher markups.

$$\Delta Y_i = \alpha + \sum_{k \in \mathcal{K}} (\beta_k^O O_{ik} + \beta_k^G G_{ik} + \beta_k^N N_{ik}) + \mathbf{X}_i' \theta + \varepsilon_i,$$

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Net entry	0.019***	-0.010	0.007***	-0.005

Non-listed components are associated with higher markups, mostly through firm dynamics.

$$\Delta Y_i = \alpha + \sum_{k \in \mathcal{K}} (\beta_k^O O_{ik} + \beta_k^G G_{ik} + \beta_k^N N_{ik}) + \mathbf{X}_i' \theta + \varepsilon_i,$$

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Higher labor shares are associated with non-listed contributions and with net entry.

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- 04 Main findings
- 05 **Mechanisms and heterogeneity**
- 06 What we learn

Similar ownership effects arise in different markets

- 1 PE/listed effects arise in different markets**
 - PE's ownership contribution is largest in small and concentrated industries.
 - Listed ownership consolidation is strongest in large and financially constrained industries.

- 2 Ownership type matters more for mark-ups**

- 3 Offsetting depends on whether the market ultimately consolidates**

Markup relationships differ more by owner than by market split

Mechanism and
heterogeneity

1 PE/listed effects arise in different markets

2 **Ownership type matters more for mark-ups**

- Mark-up changes are less sensitive to the type of industry
- Changes are more related to ownership types (PE -, Listed +, Non-listed -)

3 **Offsetting depends on whether the market ultimately consolidates**

Firm dynamics do not always offset ownership consolidation

1 PE/listed effects arise in different markets

2 Ownership type matters more for mark-ups

3 **Offsetting depends on whether the market ultimately consolidates**

- In deconsolidating markets, ownership and firm dynamics offset in 65% of cases
- In consolidating markets, they act as complements in 56% of cases

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Three takeaways

Conclusion

Ownership reallocation raises concentration

But differential growth and net entry often offset it

PE matters relative to other owners

PE and listed make similar ownership contributions, but different total contributions, and arise in different markets

Concentration is not automatically market power

PE-led consolidation is not systematically associated with higher markups.

**Antitrust agencies /
policy makers**

Evaluate cumulative ownership changes together with growth, entry, and sector context.

PE platforms and investors

Platform outcomes depend on rivals, entrants, and other owners—not acquisition execution alone.

Investors should assess market structure and competitive responses alongside operational improvements.

Common lesson: evaluate consolidation as a market process, not only as a transaction outcome.

1 Measure source of concentration change

Measure how PE and other owners reshape concentration through ownership, growth, and net entry.

2 Compare ownership types within framework

3 Relate industry structure to market outcomes

1 Measure source of concentration change

2 Compare ownership types within framework

Distinguish what is specific to PE by benchmarking it against listed and non-listed owners.

3 Relate industry structure to market outcomes

1 Measure source of concentration change

2 Compare ownership types within framework

3 Relate industry structure to market outcomes

Relate these owner-specific changes in market structure to markups, productivity, and cost shares.

Thank you!



Questions?

Extension slides

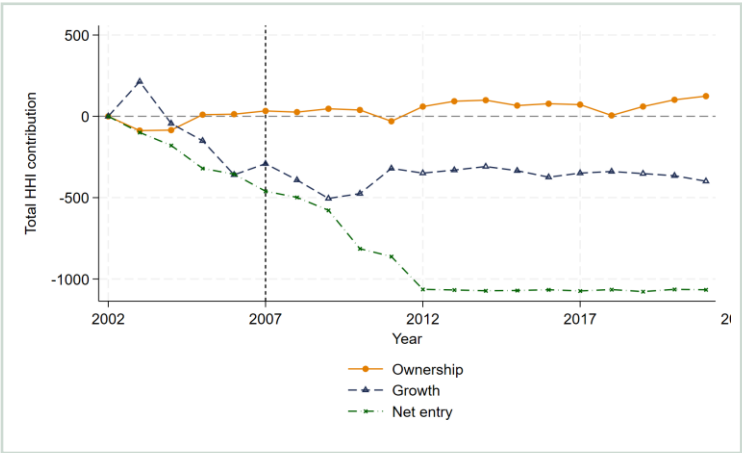


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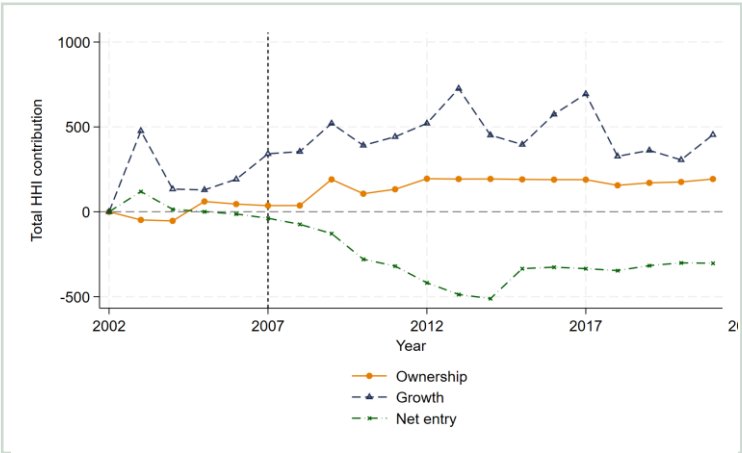
Source deconsolidation by sector

Measurement

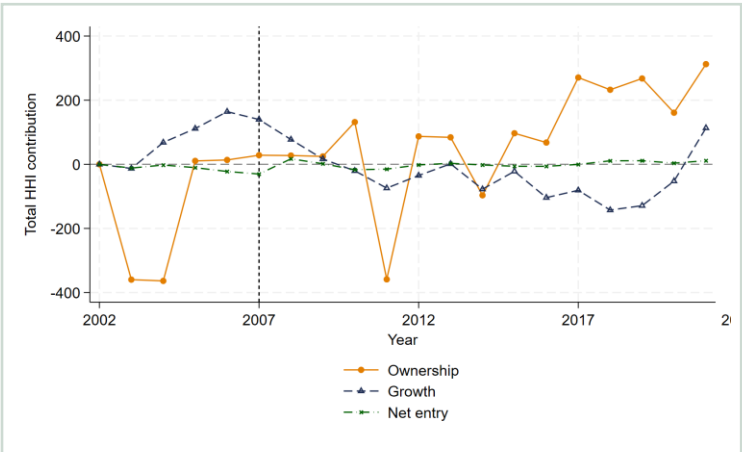
Panel A: Healthcare



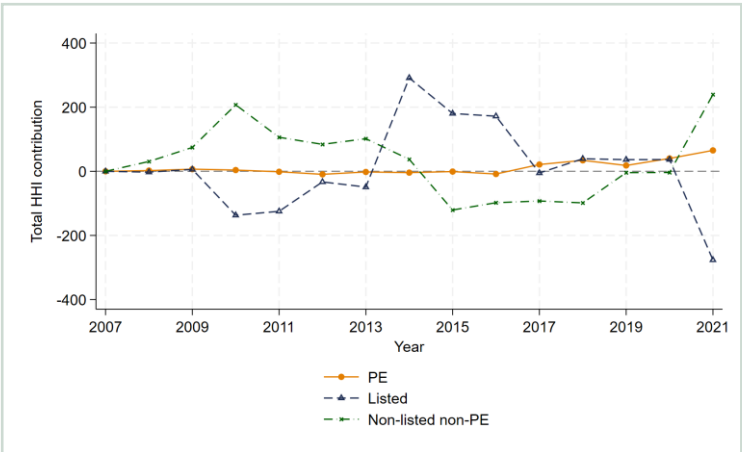
Panel B: Recreation



Panel C: Accommodation and Food



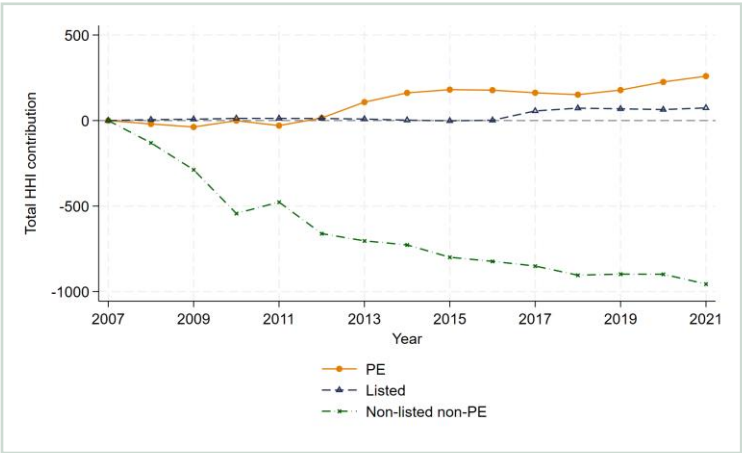
Panel D: Information



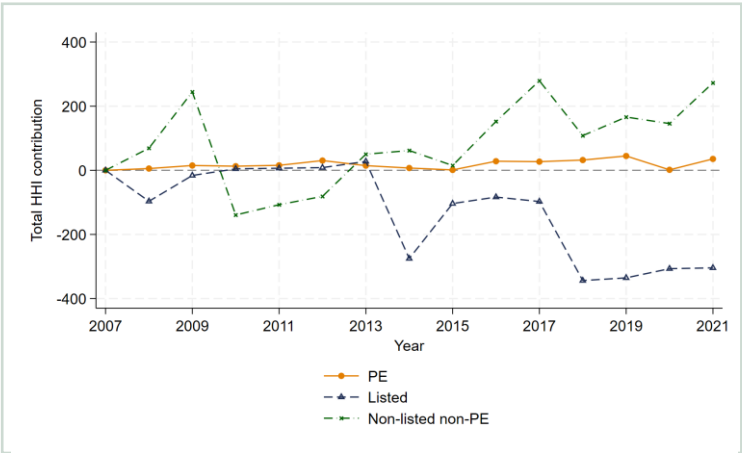
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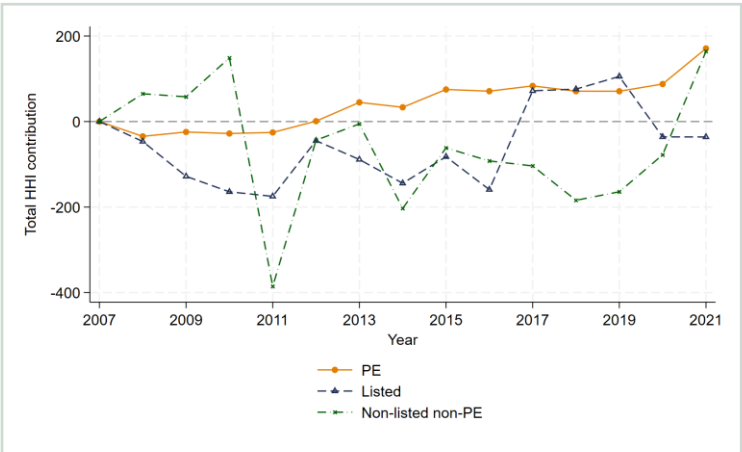
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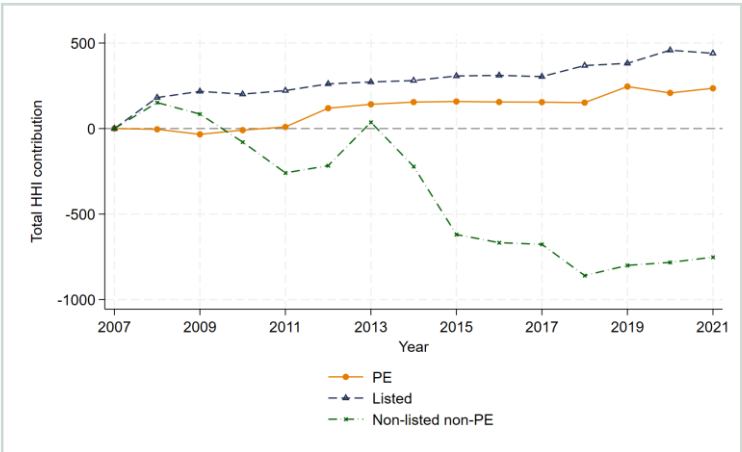
Panel B: Recreation



Panel C: Accommodation and Food



Panel D: Information



Heterogeneous effects on markups

	Concentration	Size	Growth	Fixed assets	Financial constraints
Panel A: Effects by owner type					
PE Low	-0.017**	-0.014***	-0.010***	-0.013***	-0.013***
PE High-Low	0.007	0.018	-0.004	0.002	0.008
Listed Low	0.003***	0.004	0.001	0.004***	0.002**
Listed High-Low	-0.002	-0.003	0.001	-0.003**	-0.001
Non-listed Low	0.039**	0.027***	0.025***	0.035***	0.032***
Non-listed High-Low	-0.016	-0.002	0.000	-0.017	-0.020

PE contributions are negatively associated with markup changes across every below-median group. Listed effects are small or positive, while non-listed effects are positive.

Heterogeneous effects on markups

	Concentration	Size	Growth	Fixed assets	Financial constraints
Panel B: Effects by source					
Ownership Low	-0.013	-0.013*	0.002	-0.015*	-0.017*
Ownership High-Low	0.012	0.018	-0.012	0.019	0.024*
Growth Low	0.02	0.011	0.012*	0.014	0.017**
Growth High-Low	-0.006	0.005	0.002	-0.002	-0.011
Net-entry Low	0.019**	0.018***	0.016***	0.022***	0.020***
Net-entry High-Low	-0.004	-0.006	-0.003	-0.012	-0.010

Net entry is positively associated with markup changes across every below-median group.

Findings weighted by market size

	Markup	TFP	Labour cost share	Cost of goods share
Panel A: Effects by owner type				
Total PE	-0.007	-0.010***	-0.001	-0.001
Total Listed	-0.010	-0.030	-0.002	-0.019*
Total Non-Listed	0.042*	-0.046	0.009	-0.016
Panel B: Effects by source				
Ownership	0.000	-0.016	0.004	-0.005
Growth	-0.004	-0.004	-0.003	-0.005
Net-Entry	0.029***	-0.066***	0.005	-0.026**

In economically large industries, PE and listed contributions remain unrelated to higher markups. The positive markup association is concentrated in net entry, which is also associated with lower TFP.

Head PE platforms consolidate most - but also fragment most

Mechanism

PE platform position	Consolidation inflow	Deconsolidation outflow	Net ownership	Share of gross inflow
Head	66.5	-53.6	12.9	75.30%
Middle	17.8	-1.6	16.2	20.20%
Tail	4	-0.1	4	4.60%

Head platforms are most active, but Middle platforms make the largest net contribution.

Gross PE consolidation is attributed mainly to Head-position activity

Mechanism

PE platform position	Head-attributed	Middle-attributed	Tail-attributed	Row total
Head	38.7	23.7	4.1	66.5
Middle	6.6	9.4	1.9	17.8
Tail	2.9	0.7	0.5	4.0

Head platforms generate most gross consolidation; Head and Middle receive nearly all of the attribution.

PE deconsolidation is concentrated in Head-position activity

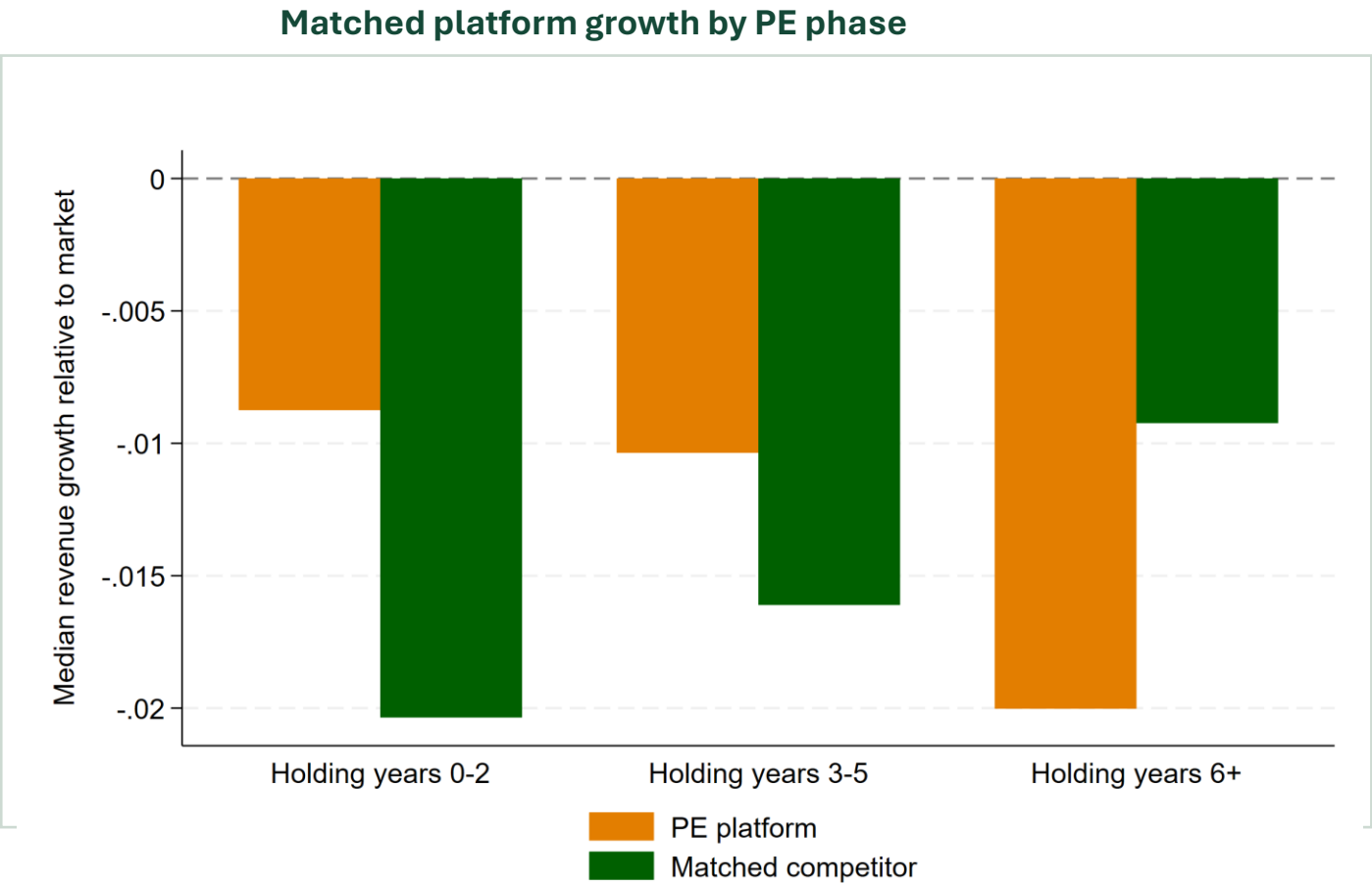
Measurement

PE platform position	Head-attributed	Middle-attributed	Tail-attributed	Row total
Head	-29.1	-20.2	-4.2	-53.6
Middle	-0.2	-0.9	-0.6	-1.6
Tail	<-0.1	<-0.1	<-0.1	-0.1

Head-position outflows absorb most of the gross consolidation generated by Head platforms.

Relative absolute growth

Measurement



PE platforms initially decline less than matched competitors.