Board dynamics over the startup life cycle

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Allocation of control and board dynamics

- Board is where VCs often exercise their control rights
- Founders' and investors' roles change as startup matures $\Rightarrow$ dynamics of board composition and allocation of control matter
- Existing data on startup board composition are limited
- Public and private firm boards are different $\Rightarrow$ studying private boards helps understand the role of the board in general

Features of public firm boards

1. Face a large set of regulations
   - majority of independent directors

2. Insiders and independent directors representing dispersed public owners

3. Independent directors play two key roles:
   - Monitoring

     Hermalin and Weisbach 1998; Fich and Shivdasani 2006; Weisbach 1988; Yermack 1996; and many others

   - Advising

     Adams and Ferreira 2007; Coles, Daniel, and Naveen 2008; Field, Lowry, and Mkrtchyan 2013; Harford and Schonlau 2013; and others

Boards of private startups: Different?

1. No regulatory requirements on board composition
   - presence of independent directors is voluntary

2. Executives, VCs, and independent directors (IDs)
   - ID: not affiliated with either, jointly elected, fiduciary duty to firm

3. Monitoring role of IDs is relatively less important
   - VCs are large active blockholders
   - Nevertheless, IDs are widespread and are given substantial voting power

This paper

What we do:

- Comprehensive dataset on dynamic evolution of 7,200 startup boards over 2002-2017
- New facts about composition, allocation of control, and evolution from first financing to exit

Questions we ask:

- What determines board composition and allocation of control over time and across firms?
- Why are IDs given substantial voting power?

This paper

What we show:

- There is a shift of control from E to VC over the life cycle, with IDs playing an important role in between
- Board dynamics are consistent with the mediation role of independent directors
- Over years, board control has shifted from investors to founders

Data

1. **Form D filings** on SEC EDGAR
   - must be filed within 15 days of first sale of securities to qualify for an exemption under Regulation D
   - data on all directors, including executive-directors
   - start and end dates

2. Supplement with **VentureSource**
   - data on investors + some independent directors

⇒ dynamics of 7200 startup boards over 2002-2017

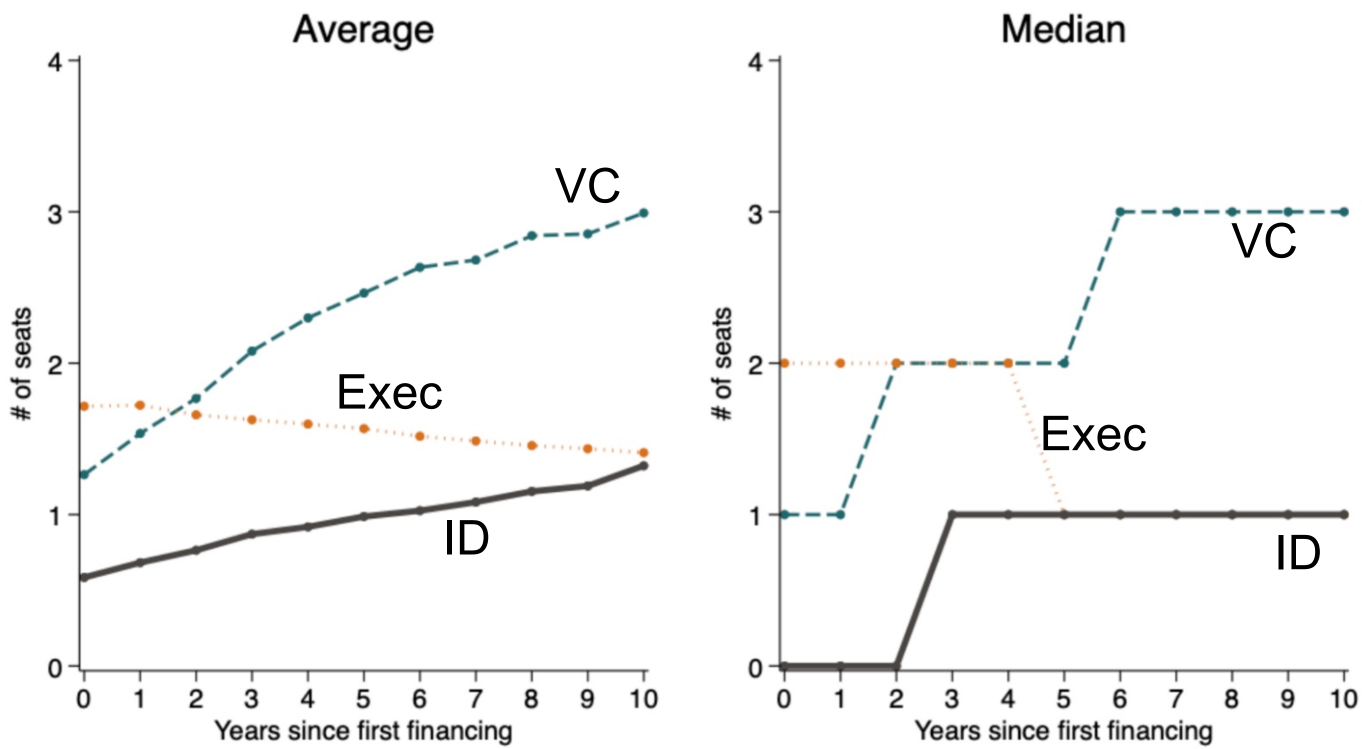
Summarizing all board-years

- Median board has four directors
- Independent directors are common:
    - Nearly half of startups have independent directors
- Sharing control:
    - Independent directors are often given a tie-breaking role

	Panel B: Firm-financing years; all boards					
	Obs	Mean	25th	Median	75th	Std dev
Board size	16,642	4.430	3.000	$\boxed{4.000}$	6.000	2.016
# VC directors	16,642	1.957	1.000	2.000	3.000	1.554
# executive directors	16,642	1.681	1.000	2.000	2.000	0.788
# independent directors	16,642	0.792	0.000	0.000	1.000	1.063
% VC directors	16,642	0.393	0.250	0.429	0.571	0.248
% executive directors	16,642	0.457	0.250	0.400	0.600	0.265
% independent directors	16,642	0.150	0.000	0.000	0.250	0.188
Has ID	16,642	$\boxed{0.479}$	0.000	0.000	1.000	0.500
Year	16,642	2011.408	2008.000	2012.000	2015.000	3.995

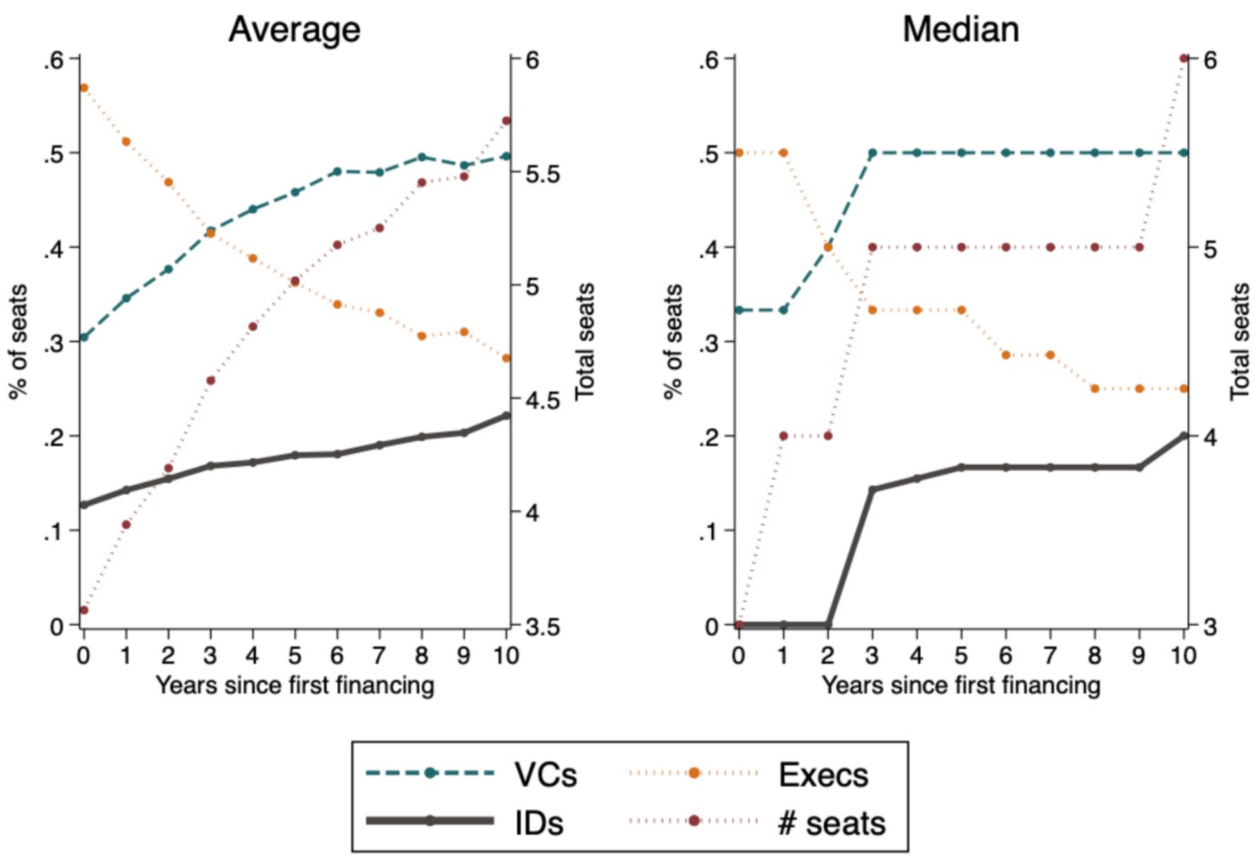
Board dynamics over the life cycle

Board seat count by age



- Number of VC directors and IDs grows over time
- Independent directors are typically added in year 3 (round 2)

Board composition by age



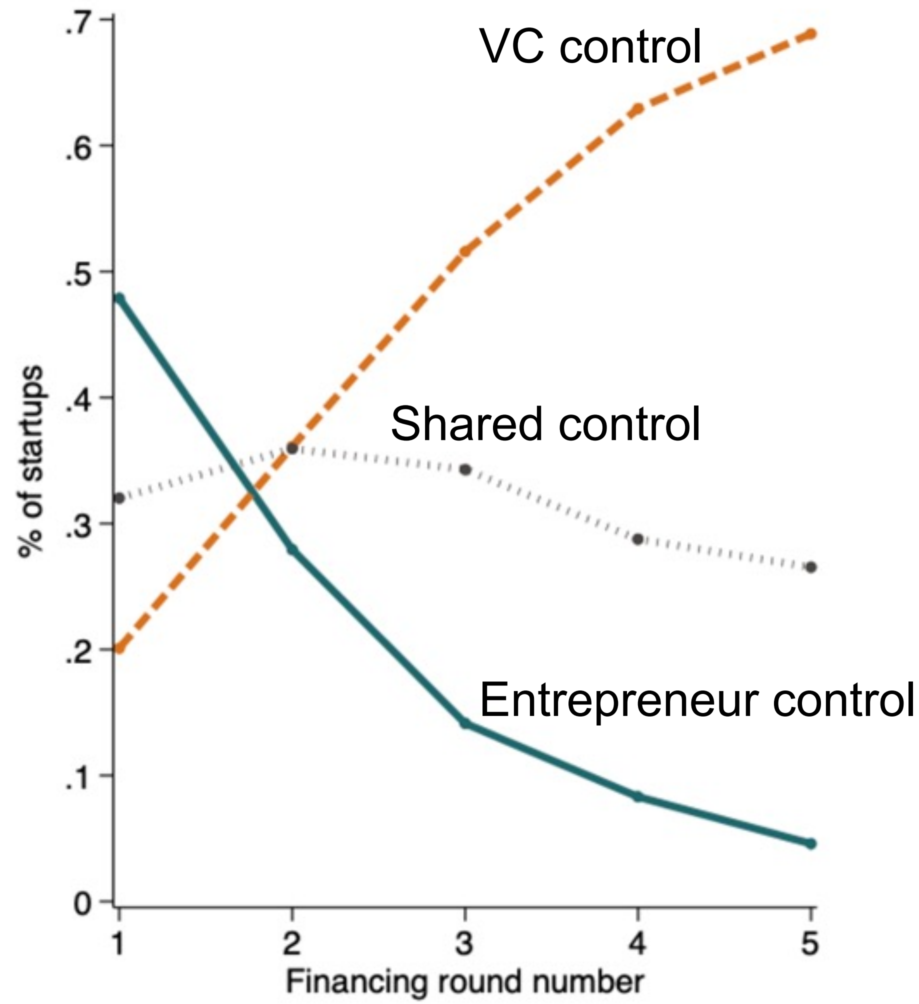
- % of entrepreneur-controlled seats decreases with age
- % of VC-controlled seats increases with age

Defining allocation of control

- **VC control** = VC has > 50% of seats
- **E control** = E has > 50% of seats
- **Shared control** = both E and VC have < 50%, and thus ID plays a tie-breaking role (or both have 50%)

Board control over the life cycle

- E control is most common in early stages
- VC control is most common in late stages
- Shared control is most common in between
  - 30% of obs. in each round



Putting it all together

Board control changes over the startup life cycle:

- Entrepreneurs lose control of the board
- VCs control the late-stage board
- Shared control emerges in the second financing round

Independent directors play a key role in these changes

Questions we explore

1. What determines the allocation of board control?
2. Why are independent directors frequently given a tie-breaking vote?
3. What are independent directors' roles on the board?

Mediation role: Idea

- Present a toy model that can help answer these questions and explain time-series and cross-sectional patterns
  - Aghion and Bolton 1992; Broughman 2010, 2013; Burkart et al 2020
  - Incomplete contracts ⇒ allocation of control is crucial

- Independent directors as mediators between Es and VCs
  - Resolve potential conflicts between them
    - timing of IPO; raising a new financing round; sale of the firm; CEO replacement
  - This can increase both ex-post and ex-ante efficiency

Mediation role: Idea

1. IDs as tie-breakers ⇒ ex-post efficient decisions

2. Ex-ante, IDs as tie-breakers = commitment by both VC and E to not engage in future opportunistic behavior

   ⇒ E is willing to contribute human capital

   ⇒ VC is willing to contribute capital

Optimal allocation of control depends on the relative importance and replaceability of E's human capital vs. VC's capital

- IDs as tie-breakers emerge when both are "equally" important

Predictions

(1) Over the firm's life cycle (as VC investments increase, while E's human capital becomes less important):

E-control → Shared control with IDs → VC control

Presented some evidence for this earlier

Board control transition probabilities

		Panel A: All financing years		
		Board control at t		
		E	Shared	VC
Board control at $t-1$	E	57.22%	30.47%	12.31%
	Shared	5.55%	63.47%	30.98%
	VC	1.19%	9.83%	88.98%

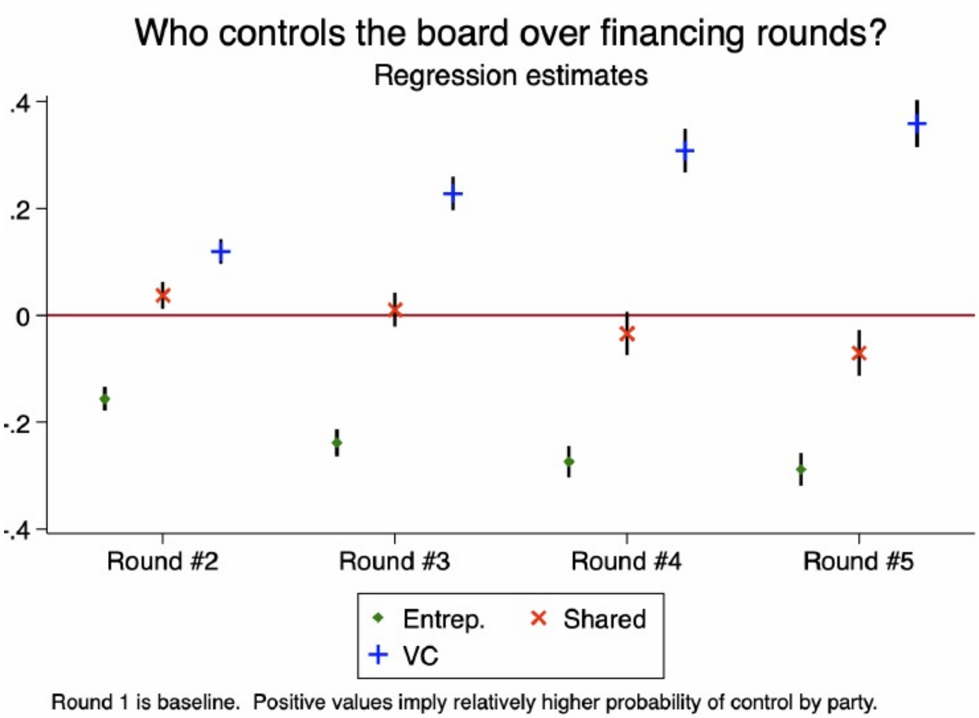
- Conditional on a change in board control:
  - E control is 71% likely to switch to Shared control
  - Shared control is 85% likely to switch to VC control

E-control → **Shared control with IDs** → **VC control**

Regression estimates: Financing round

Controls for capital raised, ownership, industry-year and location f.e.:

- **VC control** is increasingly **more likely** over financing rounds
- **E control** is increasingly **less likely** over financing rounds



Board control
and VC bargaining power

Predictions

(1) Over the firm's life cycle:

E-control → Shared control with IDs → VC control

(2) Across firms, as VC bargaining power increases relative to E

(importance of VC capital ↗ relative to E's human capital):

E-control → Shared control with IDs → VC control

Proxies for bargaining power:

- Recent VC equity stakes in industry (b.p. over valuations)
  - Gompers, Lerner (2000): VC fund inflows ⇒ demand pressures increase valuations and entrepreneurs' bargaining power
- Dry powder in region

Bargaining power correlates with board seats

Higher VC bargaining power ⇒

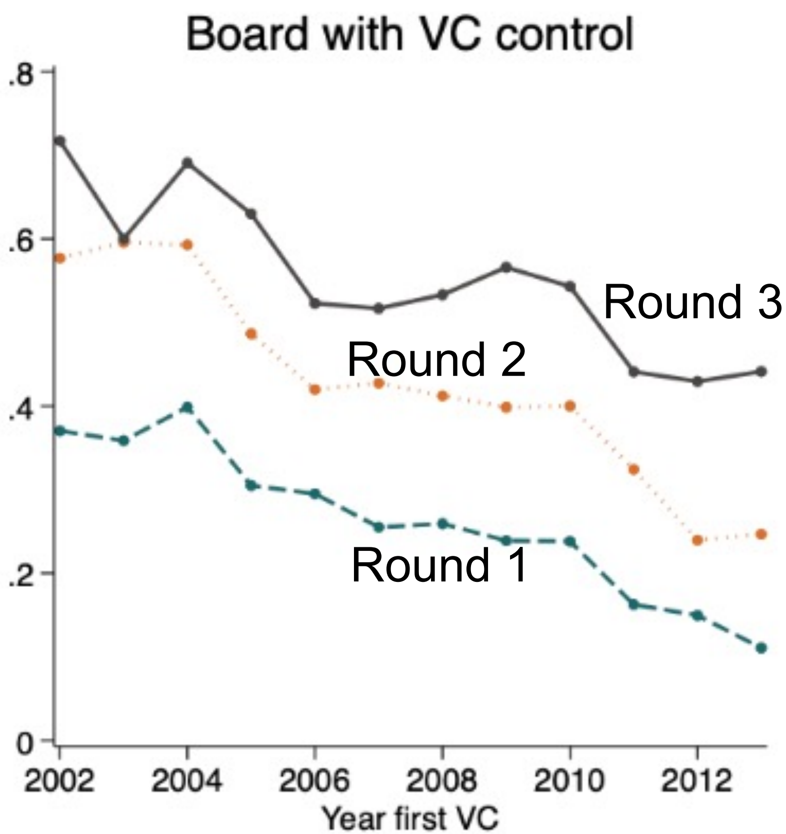
Entrepreneur control is less likely; VC control is more likely

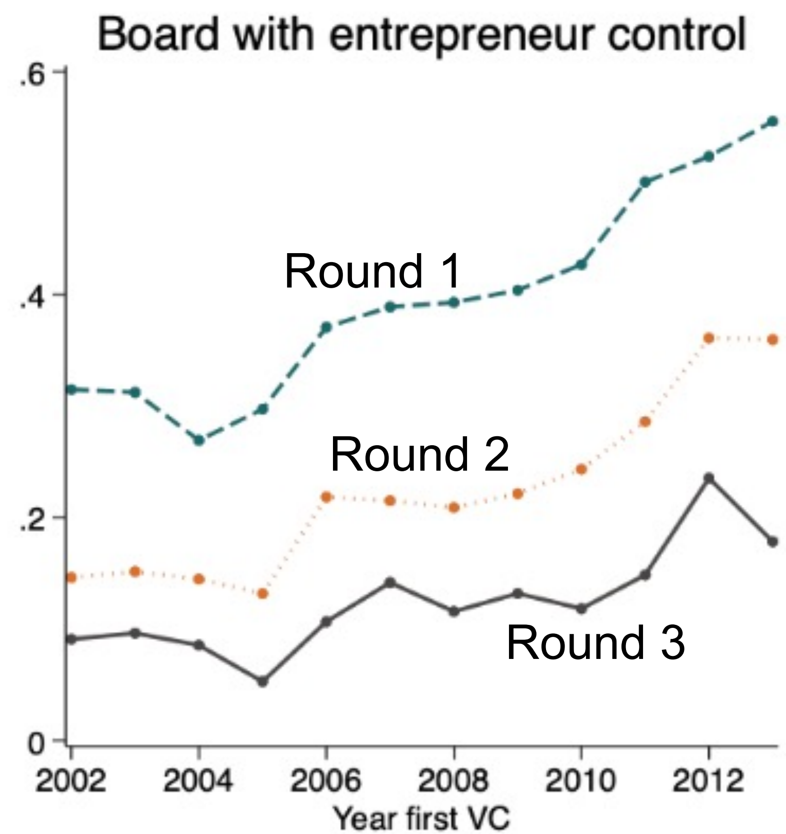
Equity stake proxy	*First round* financing board control		
Excluded: middle b.p. quintile	E control	Shared control	VC control
Lowest VC b.p.	0.067***	-0.045**	-0.022
	(0.021)	(0.020)	(0.015)
Low VC b.p.	0.037*	-0.019	-0.019
	(0.020)	(0.019)	(0.013)
High VC b.p.	-0.082***	0.011	0.070**
	(0.019)	(0.018)	(0.014)
Highest VC b.p.	-0.19***	0.046***	0.14***
	(0.017)	(0.016)	(0.013)
Observations	7199	7199	7199
R^2	0.069	0.0094	0.032
Mean dependent variable	0.48	0.32	0.20
Industry FE	Y	Y	Y
Location FE	Y	Y	Y

Trends in board control

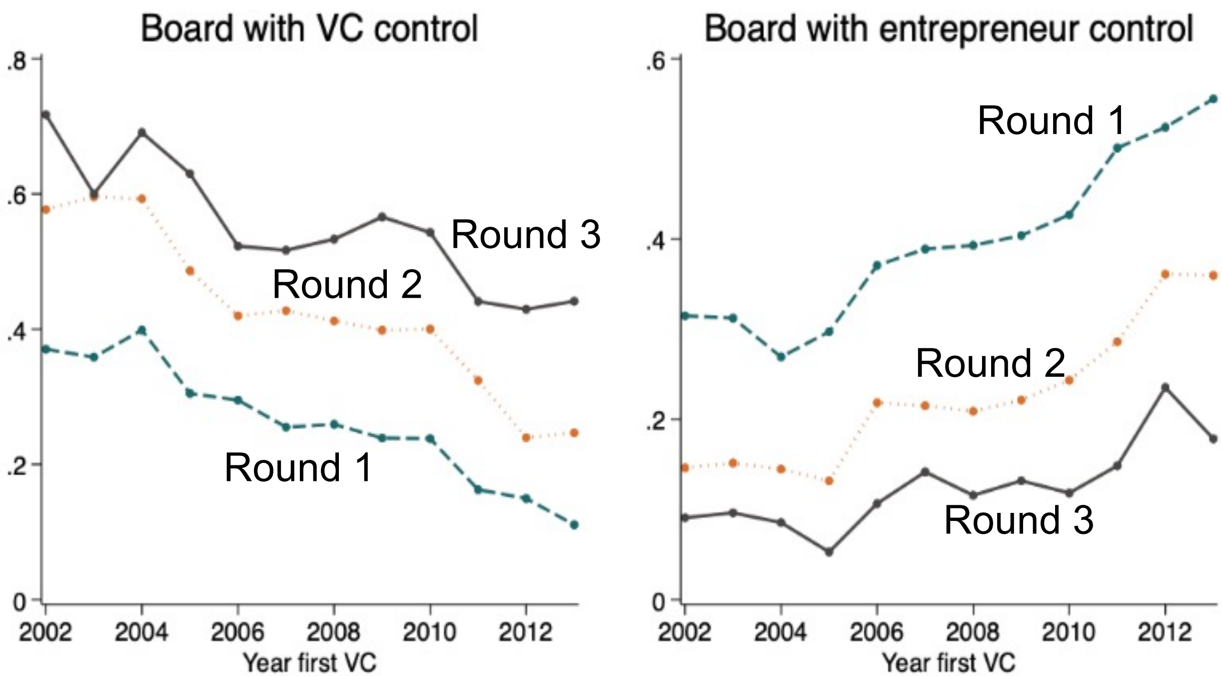
Board control shifting from VCs to entrepreneurs

VC-controlled boards are twice less likely in 2013 vs. 2002





What can explain these trends?



1. Lower VC bargaining power due to higher supply of capital
   - Deregulation of PE markets (Ewens,Farre-Mensa ‘20)
   - Non-traditional investors (Fang,Ivashina,Lerner ’15; Chernenko,Lerner,Zeng ’18)
2. Lower VC investments due to technological developments
   - Amazon's Web Services in 2006 (Ewens, Nanda, Rhodes-Kropf ’18)

Independent directors as advisors

Not just mediation

- In addition to mediation, IDs’ advisory role is likely to be important

- The relative importance of mediation and advising is likely to change over the life cycle
  - Mediation early on
  - Advising later on

- We find:
  - IDs have more managerial and director experience in later stages
  - Inexperienced VCs are more likely to use IDs in later stages

Conclusion

- Build the first comprehensive dataset of startup board composition and dynamics
- Board dynamics reveal changes in the allocation of control and unique role of independent directors
  - IDs as mediators between VCs and entrepreneurs
- Time trends suggest a changing balance of power between VCs and entrepreneurs

Director types

1. **Executive director** (E): founder or executive
2. **Investor director** (VC): VC representative or angel
3. **Independent director** (ID): not affiliated with either party, jointly elected
   - fiduciary duty to the firm
   - results robust to viewing connected directors as non-independent