

# **Board dynamics over the startup life cycle**

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# Board composition, control, and dynamics

- Board has ultimate authority  $\Rightarrow$  board composition and who has **board control** is key for how decisions are made
- Especially important in **VC-backed startups**:
  - major shareholders have different payoffs from key decisions
  - investors play an active role in management and operations
- Founders' and investors' roles evolve as startup matures  $\Rightarrow$  **dynamics** of board composition and allocation of control matter

# Board composition, control, and dynamics

- What are the **roles** of VC, executive, and independent directors **over the life cycle**?
  - Independent: not affiliated with VCs or entrepreneurs, jointly elected
  - Literature: VC directors, but not **executives** and **independent**
- Independent directors on startup boards vs. public boards:
  - Not required by law
  - Monitoring role is less important (VCs are large active blockholders)
- Existing databases on startup boards have important gaps and do not allow to study these questions

# This paper

## **What we do:**

- Comprehensive dataset on dynamic evolution of almost 7,800 startup boards over 2002-2017
  - observe full composition; director types; start and end dates
- New facts about composition, allocation of control, and evolution from first VC financing to exit

## **Questions we ask:**

- What determines board composition and allocation of control over the life cycle and across firms?
- What are the roles of independent directors (IDs)?

# This paper

## What we show:

1. There is a **shift of control** from entrepreneurs to VCs **over the life cycle**, with **IDs** playing a key role **in between**
2. Board dynamics are consistent with the **mediation role** of independent directors
  - IDs' **roles evolve** over the life cycle: from mediation to advising

# 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

Check Box(es) that Apply:  Promoter  Beneficial Owner  Executive Officer  Director

Full Name (Last name first, if individual)

*Holden, Jeff*

Business or Residence Address (Number and Street, City, State, Zip Code)

*1201 Third Avenue, Suite 800, Seattle, WA 98101*

Check Box(es) that Apply:  Promoter  Beneficial Owner  Executive Officer  Director

Full Name (Last name first, if individual)

*Vengroff, Darren*

Business or Residence Address (Number and Street, City, State, Zip Code)

*1201 Third Avenue, Suite 800, Seattle, WA 98101*

Check Box(es) that Apply:  Promoter  Beneficial Owner  Executive Officer  Director

Full Name (Last name first, if individual)

*Gossman, William E.*

Business or Residence Address (Number and Street, City, State, Zip Code)

*1110 – 112th Avenue NE, Suite 300, Bellevue, WA 98004*

Check Box(es) that Apply:  Promoter  Beneficial Owner  Executive Officer  Director

Full Name (Last name first, if individual)

*Murphy, Matt*

Business or Residence Address (Number and Street, City, State, Zip Code)

*2750 Sand Hill Road, Menlo Park, CA 94025*

Check Box(es) that Apply:  Promoter  Beneficial Owner  Executive Officer  Director

Full Name (Last name first, if individual)

*Noll, Stephan*

### 3. Related Persons

Last Name

*Bole*

Street Address 1

*280 Summer Street*

City

*Boston*

Relationship:  Executive Officer  Director  Promoter

Clarification of Response (if Necessary):

First Name

*Axel*

Street Address 2

*5th Floor*

State/Province/Country

*MASSACHUSETTS*

Last Name

*Schlessinger*

Street Address 1

*280 Summer Street*

City

*Boston*

Relationship:  Executive Officer  Director  Promoter

Clarification of Response (if Necessary):

First Name

*Joseph*

Street Address 2

*5th Floor*

State/Province/Country

*MASSACHUSETTS*

Last Name

*Diaz*

Street Address 1

*280 Summer Street*

City

*Boston*

Relationship:  Executive Officer  Director  Promoter

First Name

*Reinaldo*

Street Address 2

*5th Floor*

State/Province/Country

*MASSACHUSETTS*

# Data

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- data on all directors, including executive-directors
- start and end dates

## 2. Supplement with **VentureSource**

- data on investors + some independent directors

## 3. **Manual categorization** (CrunchBase, LinkedIn, Pitchbook, Google)

⇒ dynamics of 7,780 startup boards over 2002-2017

# Summarizing all board-years

- Median board has four directors
- Independent directors are present in nearly half of startups
- Sharing control:
  - Independent directors often hold a [tie-breaking](#) vote

	Obs	Mean	25th	Median	75th	Std dev
Board size	18,303	4.513	3.000	4.000	6.000	2.039
# VC directors	18,303	2.008	1.000	2.000	3.000	1.571
# executive directors	18,303	1.684	1.000	2.000	2.000	0.794
# independent directors	18,303	0.821	0.000	0.000	1.000	1.082
% VC directors	18,303	0.399	0.250	0.429	0.600	0.246
% executive directors	18,303	0.449	0.250	0.400	0.500	0.263
% independent directors	18,303	0.153	0.000	0.000	0.250	0.188
Has ID	18,303	0.489	0.000	0.000	1.000	0.500
Year	18,303	2011.502	2008.000	2012.000	2015.000	3.979

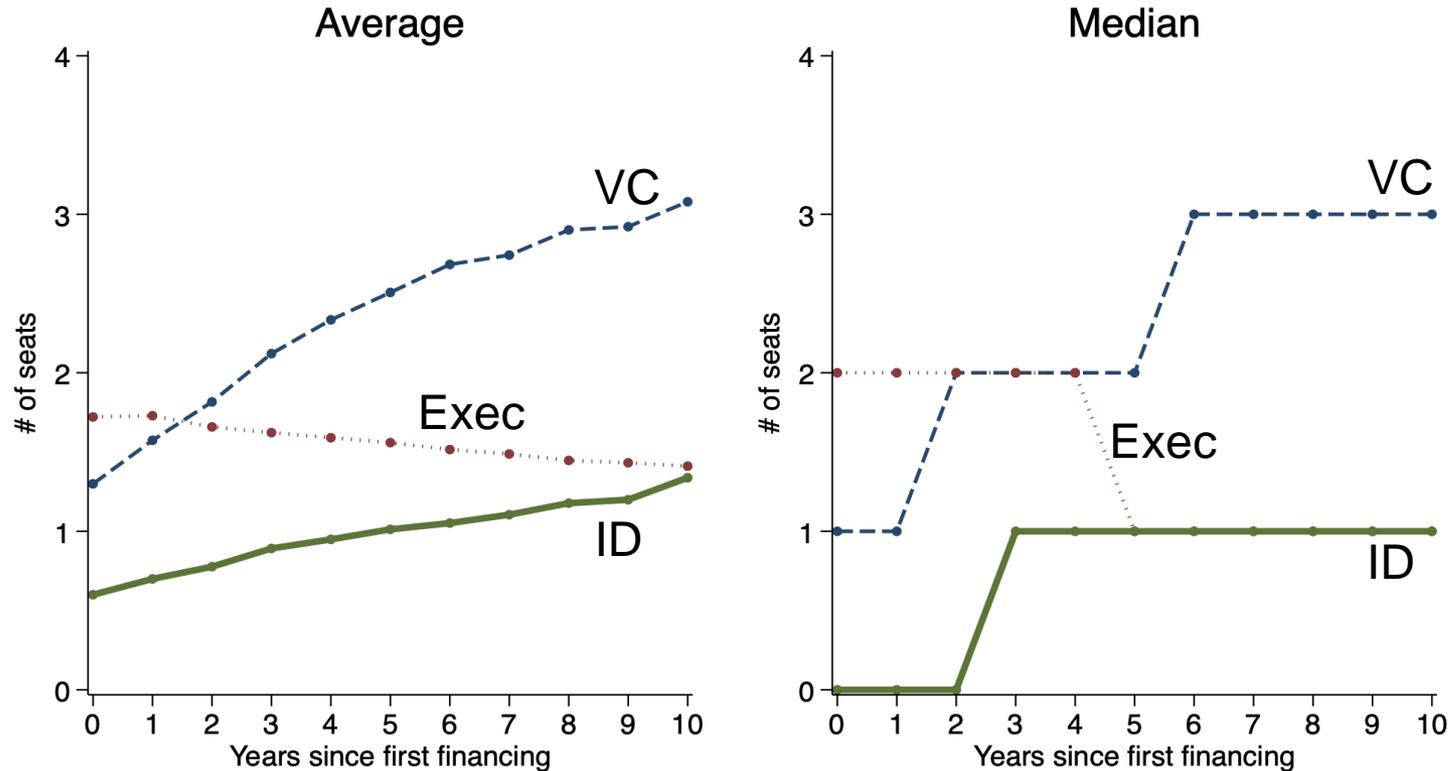
# Are independent directors “truly independent”?

## **In most cases, yes**

- Jointly elected (“mutually acceptable”)
- Case law / court decisions
  - Fiduciary duty to the common
  - Presence of IDs and whether they are disinterested matters
- Conversations with VCs, lawyers, and legal scholars
  - General consensus is that startups and their investors should seek truly independent IDs
- Compensated with salary and options on common
- Do not serve on multiple boards; repeat directors are rare

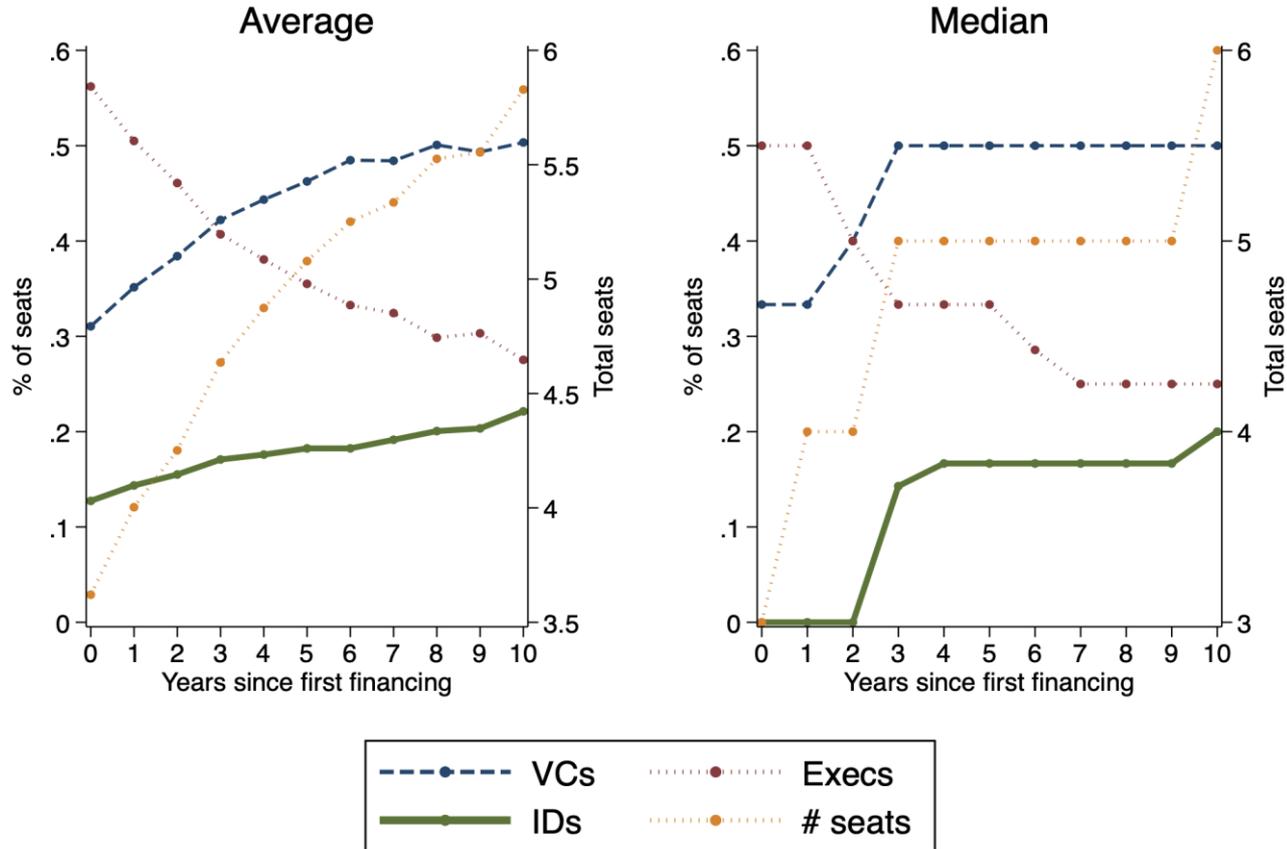
# Board dynamics over the life cycle

# 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



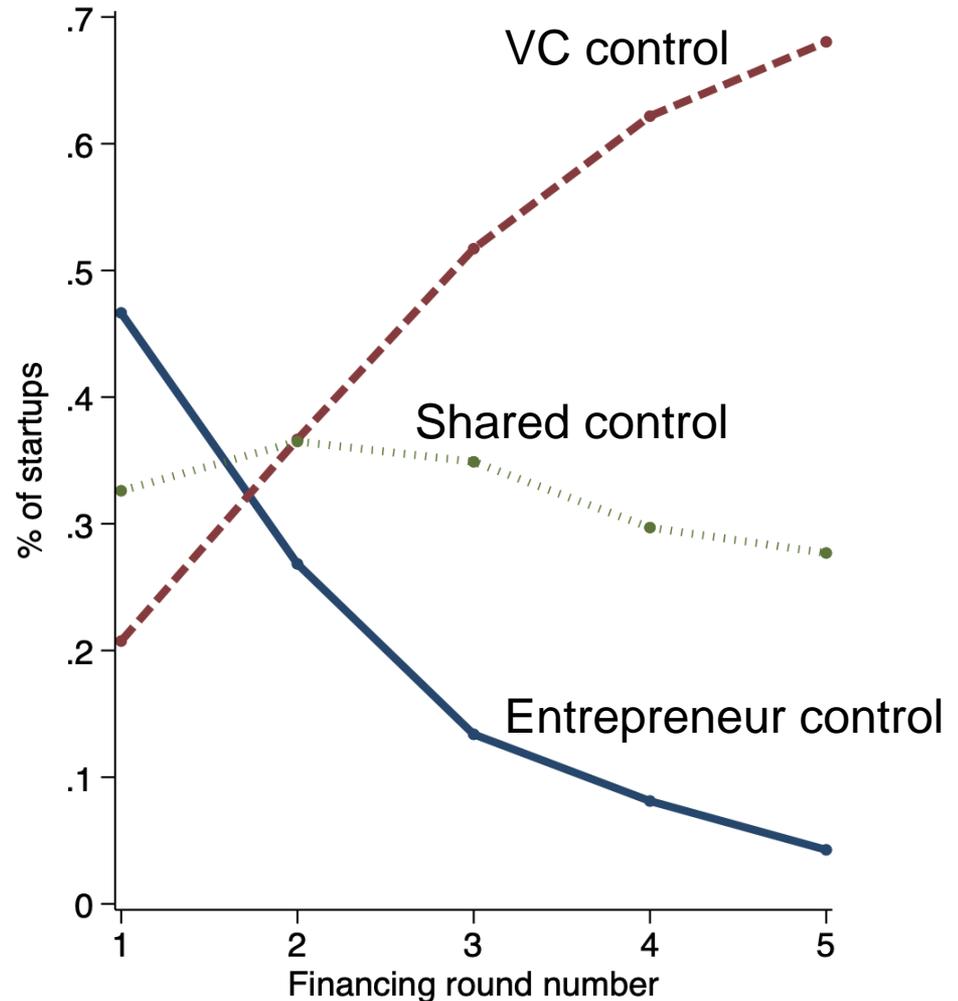
- % of entrepreneur-controlled seats decreases with age
- % of VC-controlled seats increases with age

# 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 has a **tie-breaking** vote (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** between VCs, entrepreneurs, and independent directors?
2. Why are independent directors frequently given a **tie-breaking vote**? What are their **roles** on the board?

# Mediation role

- Present a toy model that can help answer these questions
  - Broughman 2010, 2013; Aghion and Bolton 1992
- Independent directors as **mediators** between Es and VCs
  - Resolve potential conflicts between them
  - Timing of exit; raising a new financing round; CEO replacement

*“These outsiders can **mediate** issues that arise between the company and investor-elected board members”*

(“Venture Deals” by Brad Feld and Jason Mendelson)

*“One of the really important roles for independents is to serve as a **catalyst and bridge** between management and investors”*

(Reid Hoffman, LinkedIn co-founder; VC)

## Mediation role: Idea

1. IDs as tie-breakers  $\Rightarrow$  board makes efficient decisions
2. Ex-ante, IDs as tie-breakers = commitment by both VC and E to not engage in future opportunistic behavior
  - $\Rightarrow$  E is willing to contribute human capital
  - $\Rightarrow$  VC is willing to contribute capital
3. Equilibrium allocation of control depends on 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** (Rajan 2012; Kaplan et al. 2009; Khanna-Mathews 2016):

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

**Presented some evidence for this earlier**

# Board control transition probabilities

		Board control at t		
		E	Shared	VC
Board control at t-1	E	55.79%	31.36%	12.85%
	Shared	5.41%	63.81%	30.78%
	VC	1.25%	10.06%	88.68%

**E-control**

→ **Shared control with IDs** →

**VC control**

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

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- 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**

# Board control transition probabilities

		Board control at t		
		E	Shared	VC
Board control at t-1	E	55.79%	31.36%	12.85%
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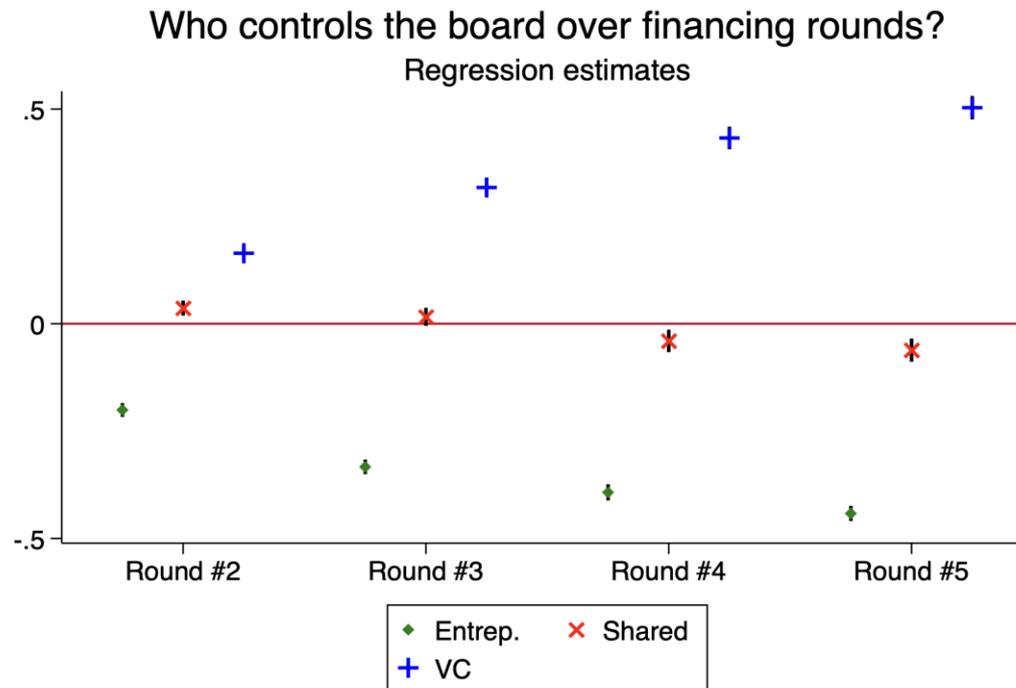
- Conditional on a change in board control:
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  - Shared control is 85% likely to switch to VC control

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

# Regression estimates: Financing round

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

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



Round 1 is baseline. Positive values imply relatively higher probability of control by party.

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:

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

# Bargaining power correlates with board seats

Equity stake proxy	First round financing board control		
	E control	Shared control	VC control
Lowest VC b.p.	0.057*** (0.020)	-0.043** (0.019)	-0.015 (0.014)
Low VC b.p.	0.030 (0.019)	-0.018 (0.018)	-0.012 (0.013)
High VC b.p.	-0.075*** (0.019)	0.0088 (0.018)	0.066*** (0.014)
Highest VC b.p.	-0.18*** (0.016)	0.036** (0.016)	0.15*** (0.013)
Observations	7779	7779	7779
R <sup>2</sup>	0.064	0.0086	0.059
Mean dependent variable	0.47	0.33	0.21
Industry FE	Y	Y	Y
Location FE	Y	Y	Y

# 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		
	E control	Shared control	VC control
Lowest VC b.p.	0.057*** (0.020)	-0.043** (0.019)	-0.015 (0.014)
Low VC b.p.	0.030 (0.019)	-0.018 (0.018)	-0.012 (0.013)
High VC b.p.	-0.075*** (0.019)	0.0088 (0.018)	0.066*** (0.014)
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Industry FE	Y	Y	Y
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# 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**

**(3) A negative shock to the importance of VC capital relative to E's human capital:**

**E-control** ↗ and **VC control** ↘

# Negative shock to importance of VC capital

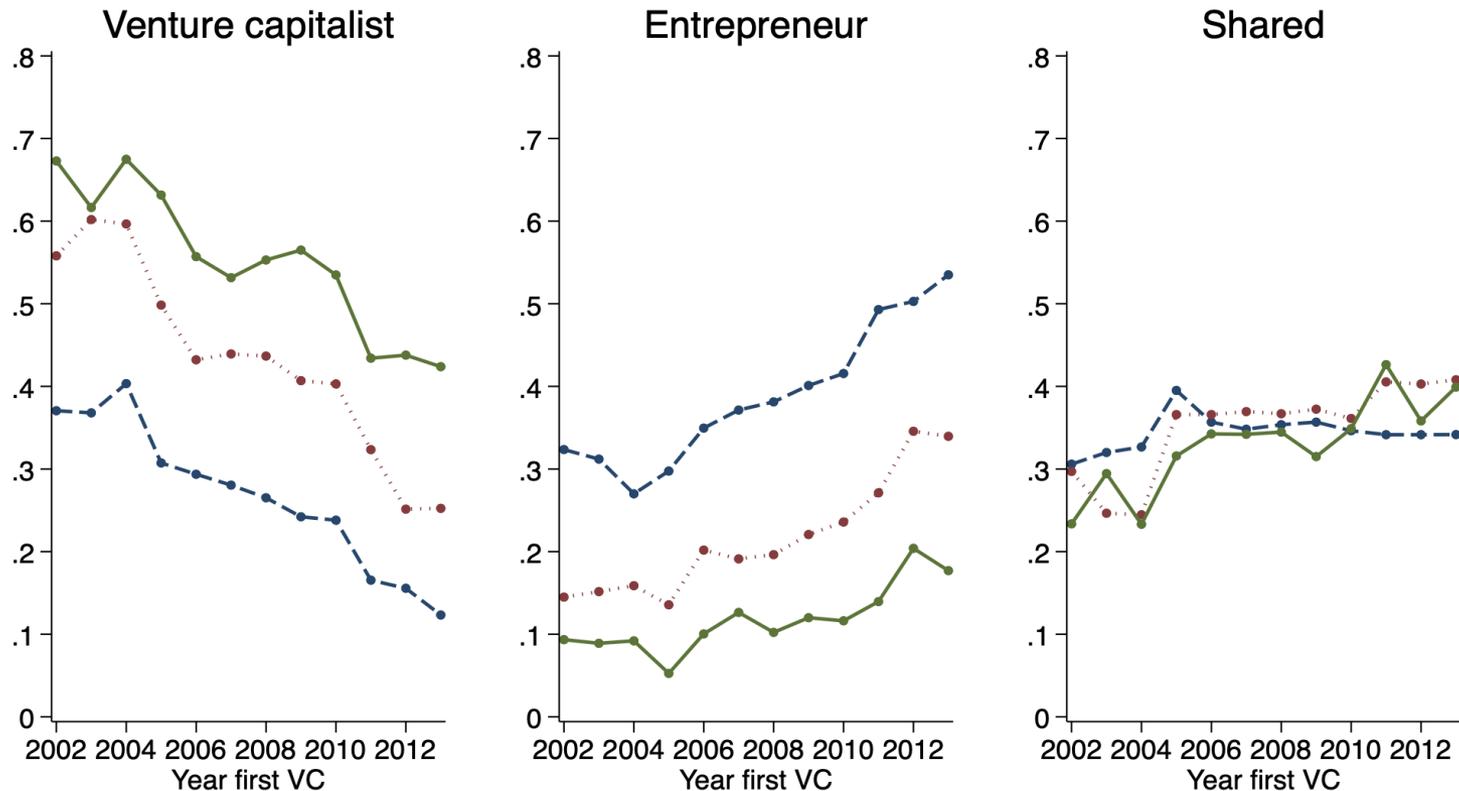
- Introduction of Amazon Web Services in 2006  $\Rightarrow$  lower early stage capital needs (Ewens, Nanda, and Rhodes-Kropf, 2018)
- Treated industry segments  $\equiv$  most affected by cloud computing

First round board control, 2002-2010

	E control	Shared control	VC control
Treated x Post-2005	0.062** (0.028)	0.033 (0.023)	-0.095*** (0.028)
Treated	-0.048** (0.021)	0.019 (0.033)	0.029 (0.033)
Observations	2694	2694	2694
R <sup>2</sup>	0.039	0.054	0.10
Mean dependent variable	0.20	0.42	0.37
State FY	Y	Y	Y
Industry FE	Y	Y	Y
Year FE	Y	Y	Y

# Board control shifting from VCs to entrepreneurs

VC-controlled boards are **twice less likely** in 2013 vs. 2002  
Shared control continues to be **prevalent**



# Mediation role and ex-ante conflicts

# Ex-ante conflicts and IDs in first round

- If VC was aggressive in replacing CEOs in the past  
⇒ **higher** need for mediation

	Has ID	Shared control with ID
<b>Has top CEO replacer</b>	<b>0.070***</b> (0.014)	<b>0.028**</b> (0.012)
Log VC experience	-0.019*** (0.0042)	-0.019*** (0.0034)
Observations	7779	7779
R <sup>2</sup>	0.052	0.028
Mean dependent variable	0.37	0.18
State FY	Y	Y
Industry FE	Y	Y
Year FE	Y	Y

Mediation and advising over the life cycle

# Mediation and advising over the life cycle

- IDs could also play an **advisory** role
  - complement the value-add of VC investors
  - facilitate the professionalization of the startup to public firm
- The relative importance of mediation and advising is likely to change over the life cycle
  - mediation early on
  - advising later on
- ID characteristics change over the life cycle:
  - IDs joining **at shared control** are more likely to be **unconnected**
  - IDs joining **later on** have more **managerial** and **public-board experience**

# Conclusion

- Build the first comprehensive dataset of full startup board composition, control, and dynamics
- Board dynamics reveal changes in the allocation of control and unique role of IDs
  - IDs as **mediators** between VCs and entrepreneurs
  - Mediation early on; advising later on
- Time trends suggest a changing balance of power between VCs and entrepreneurs