

Alumni Networks in Venture Capital Financing

Jon A. Garfinkel

University of Iowa

Erik J. Mayer

University of Wisconsin

Ilya A. Strebulaev

Stanford University

Emmanuel Yimfor

Columbia Business School

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Stanford students are short-circuiting VC firms by investing in their peers

- Stanford MBA class of 2020 started Stanford 2020, an “investment club.”
 - Invests exclusively in startups of classmates
 - Raised \$2 million across 175 students
 - “Stanford 2020’s competitive advantage is largely the personal relationship it has with the companies it will invest in.”

There is large variation in alumni networks even among top schools

Alma mater			Entrepreneurs		Investors		
Rank	University Name	Mean SAT	# Founders Per 000s	# Firms	# Investors Per 000s	# Deals	% Same Alma Mater
4	Massachusetts Institute of Technology	1545	75.07	603	27.61	1022	20.35
6	Stanford University	1497	336.59	2959	128.90	5143	49.06

What role do alumni networks play and why?

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To answer it we need:

- ① Data on deals, universities attended by founders and investors, employment history
- ② Data on startups that have not yet received VC funding
- ③ Measure of investor's network, given the heavy reliance on syndication in VC deals
- ④ Exogenous variation in likelihood of funding to identify effects of alumni networks for the marginal deal

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Approach:

- ① Complement PitchBook with LinkedIn data on employment history and universities attended and department of education data on school selectiveness
- ② Use LinkedIn resume data on partner departures to suggest causality
- ③ Build measures of investor's network (Past Affiliation) using rich deal data from PitchBook

Alumni networks influence matching, funding, and success

① Do alumni networks explain startup-investor matching and the size of startup investments?

- Yes: One in three deals involve an investor and founder from same alma mater
- Rounds with both the founder and investor from the same alma mater are 20% larger
- Founders from a given alma mater are less likely to get funded by an investment firm when a partner from that alma mater leaves the firm

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② Do alumni networks matter conditional on school prestige?

- Alma mater matching is stronger for less-prestigious schools
- Alma mater matching is stronger when information about founder's ability is likely less clear
- Alma mater predicts matching controlling for other network measures

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③ Why do alumni networks matter for matching and investments?

- Facilitates information acquisition: alumni investments more likely to succeed

Data

Our data is from PitchBook: best coverage of entrepreneurial financing

- **PitchBook**
 - U.S. Angel and VC investments from 2002 to 2020
 - Exit Outcomes: IPOs and Acquisitions
- **U.S. Department of Education:** School statistics from college scorecard
- **LinkedIn (Datahut):** VC & Non-VC backed startups formed by graduates of U.S. schools
- **Merged PitchBook-Scorecard Data**
 - **Startups:** Founders, CEOs, COOs, CTOs, and CMOs that attended the largest 485 (by deal count) U.S. Universities
 - **Investors:** Partners, Managing Directors, Founders, General Partners that attended the top 485 U.S. Universities (90 percent coverage of all U.S. deals)

To what extent are investor-founder alma mater connections related to investor-founder matching?

We only observe completed, not considered deals

- **Lead Investor Consideration Set:** Other deals in the same Industry Sector, Year, State, and Investment Stage

Investor	Startup
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Bessemer Venture	Vasona
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Initialized Capital	Coinbase
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Investor	Startup	Investor	Startup	I(Investment)	I(Same Alma Mater)
Bessemer Venture	Vasona	Bessemer Venture	Vasona	1	1
Initialized Capital	Coinbase	Bessemer Venture	Coinbase	0	1
		Initialized Capital	Vasona	0	1
		Initialized Capital	Coinbase	1	0

Anecdotal evidence suggests that we are not 100% wrong

Coinbase

On a late summer evening in 2012, the email came in to Ethan Kurzweil's inbox with the subject line: "Demo day, follow up, Coinbase." After the standard pleasantries, the sender, Coinbase founder and CEO Brian Armstrong quickly got to the point: "What questions can I answer for you in the next two weeks that would cause you to invest in Coinbase?" The round on offer was \$500k on a standard SAFE at a \$10M cap for something almost no one had ever heard of! Ethan's pithy response would go on to earn Brian and Coinbase a spot in the Anti-Portfolio for life: "There's really no questions you could answer that would cause me to invest!" Almost nine years later, Coinbase would go public in a direct listing valuing the leading crypto exchange at \$85.8 billion – or just a mere 8,580x the price Brian had eagerly offered up!

I(Same alma mater): Senior investor/startup executive pair match on alma mater

- **Deal:** Bessemer Venture leads Series B funding for Vasona Networks in 2013
- **Kent Bennett:** Partner at Bessemer Venture partners (2008 - Present)
- **Peter Dayton:** CFO at Vasona Networks (2012 - 2018)

Bessemer Venture	Vasona	Bessemer	Vasona	Alma Mater1	Alma Mater2	I(Alma Mater Inv.)
		Kent	Peter	Harvard	Harvard	1
		Kent	Peter	Uni. Virginia	Uni. Virginia	1
Kent Bennett	Peter Dayton					

Same alma mater appears to be a substitute for public signal of skills/intelligence

	I(Investment)					
Same Alma Mater	0.2176*** (0.0341)	0.2341*** (0.0357)	0.1751*** (0.0371)	0.0192 (0.0617)	0.0637 (0.0587)	0.0860 (0.0593)
Mean SAT Score	-0.0274 (0.0167)	-0.0135 (0.0172)	-0.0284* (0.0167)	-0.0267 (0.0167)	-0.0274* (0.0167)	-0.0280* (0.0167)
Same Alma Mater x Mean SAT Score		-0.0819** (0.0379)				
I(Overlapping Graduation)			0.1461** (0.0586)			
I(Same School)				0.2434*** (0.0655)		
I(MBA)					0.1936*** (0.0631)	
I(Bachelors)						0.1666*** (0.0633)
Investor X State X Year X Industry?	YES	YES	YES	YES	YES	YES

How do Investor x State X Year X Industry fixed effects help?

Regression estimates are not influenced by:

- Deal activity across investor-state-year-industry
- Investor-specific attributes that vary (or not) across state-year-industry (Experience, Investor Type)
- State-specific attributes that vary (or not) across industries and years (California effect)
- Industry-specific attributes that vary (or not) over time (Information Technology)
- Year-specific effects

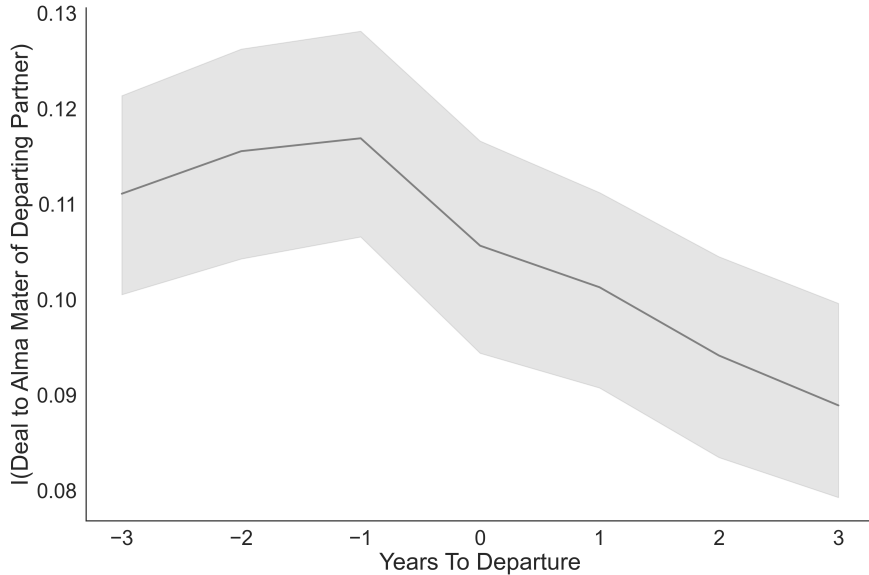
To what extent is investor-founder alma mater matching related to obtaining venture funding (New Counterfactual – LinkedIn Sample)?

Funding Likelihood 30% higher for same alma mater founders

I(Raised VC) – LinkedIn Sample				
Same Alma Mater	0.0140*** (0.0018)		0.0102*** (0.0019)	0.0088*** (0.0023)
Mean SAT Score		0.0059*** (0.0006)	0.0047*** (0.0006)	0.0044*** (0.0006)
Same Alma Mater x Mean SAT Score				0.0027 (0.0024)
Ln(# Founders)	0.0209*** (0.0018)	0.0224*** (0.0018)	0.0209*** (0.0018)	0.0211*** (0.0018)
State x Founding Year x Industry FE x Investor	YES	YES	YES	YES

Partner departures suggest a causal interpretation

Deal likelihood falls when partner from a given alma mater leaves firm



To what extent is investor-founder alma mater matching related to amount of venture funding?

Investors allocate about 20% more funding to alma mater startups

	Ln(Funding Raised)				
Same Alma Mater	0.1825*** (0.0367)	0.1837*** (0.0369)	0.0976** (0.0393)	0.0460 (0.0743)	0.2124*** (0.0705)
Same Alma Mater x Mean SAT Score		-0.0212 (0.0376)			
I(Overlapping Graduation)			0.2208*** (0.0465)		
I(Same School)				0.1552** (0.0755)	
I(MBA)					-0.0346 (0.0692)
Investor X State X Year X Industry?	YES	YES	YES	YES	YES

Why does same alma mater predict matching and investment?

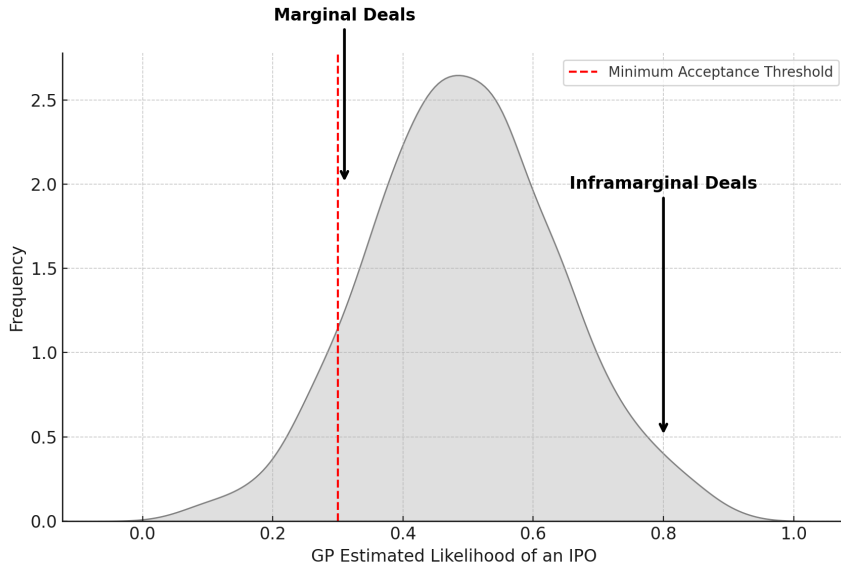
Why does same alma mater predict matching/investment?

- Same Alma Mater matching could:
 - Improve investors' information about founders abilities
 - Outcomes from same-alma-mater matches should be **more** likely to succeed
 - Investors' preferences ("Taste-based" discrimination)
 - The average quality of same-alma-mater deals is lower than other deals, which are more scrutinized
 - Outcomes from same-alma-mater matches should be **less** likely to succeed (Gompers (2016))
- We examine outcomes (IPOs & Acquisitions) to shed light on this.

Alma mater investments are 50% more likely to conduct an IPO

	I(IPO)				
Same Alma Mater	2.5675*** (0.5985)	2.0554*** (0.6030)	2.6066*** (0.6866)	1.8463 (1.2930)	-0.0300 (1.0635)
Mean SAT Score	0.6265** (0.2954)	1.2823*** (0.3184)	0.6274** (0.2957)	0.6329** (0.2951)	0.6215** (0.2953)
Same Alma Mater x Mean SAT Score		-2.3305*** (0.6362)			
I(Overlapping Graduation)			-0.1085 (0.9699)		
I(Same School)				0.8320 (1.3362)	
I(MBA)					3.1134*** (1.1327)
Investor X State X Year X Industry?	YES	YES	YES	YES	YES

The marginal deal is close to the GPs threshold



We find the same effect even when we focus on the marginal deal

	I(IPO)			
Same Alma Mater	3.525*** (0.706)	7.340*** (1.806)	7.893*** (2.619)	6.751** (2.685)
Mean SAT Score			-0.175 (0.493)	0.327 (0.509)
Ln(University Size)				0.549 (0.347)
Cragg-Donald Wald F	.	765.81	395.79	377.00

The evidence is consistent with better selection of deals

	I(IPO)			
Same Alma Mater	3.5757*** (0.7159)	3.3847*** (0.7369)	2.0619*** (0.7223)	2.0638*** (0.7214)
Same Alma Mater X Partner Departure	-1.9674 (4.7254)	-1.9773 (4.7309)	-1.2537 (4.6882)	-1.4820 (4.6891)
Partner Departure	0.5585 (3.5356)	0.5456 (3.5452)	-1.4948 (3.5480)	-1.3654 (3.5279)
Mean SAT Score		0.4054 (0.3421)	0.6856** (0.3404)	0.8428** (0.3573)
State x Year x Industry FE	Yes	Yes	Yes	Yes

Does the use of networks perpetuate inequalities?

Minority students select high alumni-matching schools (fixing SAT)

	P(Same Alma Mater Deals)			
	(1)	(2)	(3)	(4)
P(Black Undergrads)	-6.6460** (2.8961)	8.6948** (3.4216)	7.7391** (3.4769)	7.4807** (3.5086)
SAT Score		4.2121*** (0.6358)	4.2709*** (0.6245)	4.1607*** (0.6208)
Ln(Undergraduate Population)			1.6578*** (0.2609)	1.8626*** (0.4276)

Conclusion: Alma mater matters for matching/investment/success

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 - One in three deals involve alumni networks
 - Alumni networks matter conditional on school prestige and other network measures (past affiliation)
 - Alumni networks are positively related to the likelihood of investor-founder matching and the size of investment

Conclusion: Alma mater matters for matching/investment/success

- To what extent are alumni networks important for startup funding and success?
 - One in three deals involve alumni networks
 - Alumni networks matter conditional on school prestige and other network measures (past affiliation)
 - Alumni networks are positively related to the likelihood of investor-founder matching and the size of investment
- Alumni networks appear to facilitate information acquisition
 - Investors' alma mater investments outperform their non alma mater investments
 - Even the marginal deals outperform
 - Good performance even following departure of alumni partner suggests a selection effect

Thanks for your attention!