

THE IMPLICATIONS OF THE SIZE AND DIVERSITY OF INVESTOR SYNDICATES FOR STARTUP PERFORMANCE

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Research Question

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- What is the impact of having more investors on the performance of a startup?

Why the VC investors impact the performance of their portfolio companies?

- **"Smart Money"** – the investors in the VC industry see themselves as suppliers of added value to their portfolio companies (e.g. Gompers & Lerner 2000; Hellmann & Puri 2000; Gompers & Lerner 2001; Hellmann & Puri 2002; Sørensen 2007; Dushnitsky & Shapira 2010)

Complementarities

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- The company's competitive advantage is achieved by developing a set of unique capabilities (Barney, 1991; Prahalad & Hamel, 1990)
- The company should obtain complementary assets and capabilities from outside the firm (Prahalad & Hamel, 1990; Teece, 1986)
- Startups must rely on outside support for their development and commercialization process (Gans, Hsu, & Stern, 2002; Teece, 1986; Tripsas, 1997)
- Startups need complementary assets in terms of production, marketing and distribution
- **But** - startups also need the complementary capabilities of their owners

Previous research

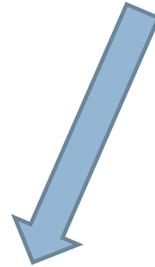
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- Previous literature examined mostly the contribution of a single type of investor (VC, CVC etc.):
 - ▣ **VCs** - Recruiting policies, Innovation effectiveness, CEO turnover, Higher probability of Hiring a marketing VP, Introducing an employee stock-option scheme, Faster growth rates, Increased survival probability, Higher profit volatility
 - ▣ **Angels** - Involved in the startups in day-to-day operations, Human resource operations, Mentoring and business advice, Networking activities, Strategic planning, Supervision
 - ▣ **CVCs** - Supplying infrastructure for product development, Supportive manufacturing resources and marketing, Sales and post-sales activities

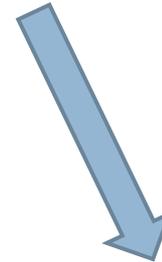
Research Question

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- What is the impact of having more investors on the performance of startups?



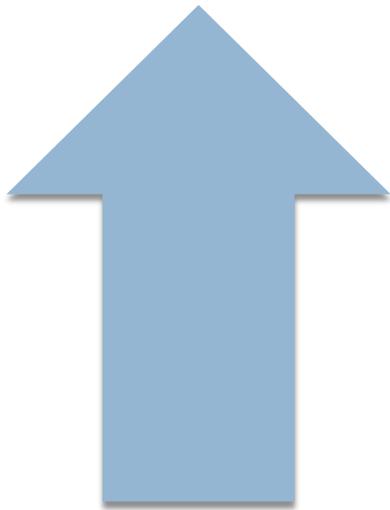
Greater number
of (any)
investors



Greater
number of
investor types
(diversity)

The Benefits & Detriments of Syndicates

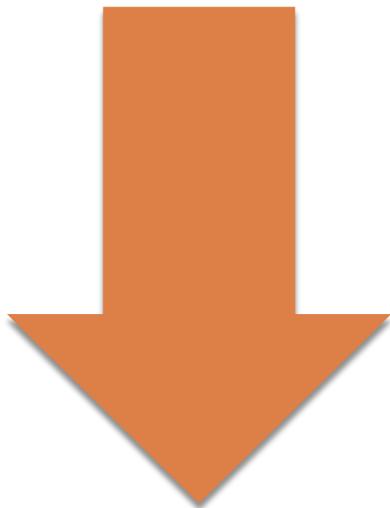
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Benefits:

More capabilities, second opinion & support

Amit and Antweiler, 2002; Das, Jo and Kim, 2011; Tian, 2011



Detriments:

More coordination costs, agency costs & difference in goals

Du, 2009; Guler & McGahan, 2007; Agarwal, 2011

Hypotheses

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Hypothesis 1:

- There is a linear and positive relation between the number of investors a startup has and its performance

Hypothesis 2:

- There is a linear and negative relation between the number of investors a startup has and its performance

Hypothesis 3:

- There is a linear and positive relation between the diversity of investor a startup has and its performance

Hypothesis 4:

- There is a linear and negative relation between the diversity of investors a startup has and its performance

Data

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- IVC online website data
- 3005 companies
- 10,958 investment rounds
- Years 1990-2008
- 7 main investors types:
 - ▣ 1008 angels
 - ▣ 60 CVCs
 - ▣ 601 VCs (405 foreign VCs and 196 local VCs)
 - ▣ 35 incubators
 - ▣ 983 industry-related companies
 - ▣ 880 finance-related companies
 - ▣ 55 other investor types

Variables

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Dependent variables:

- Exit Dummy = 1
- Company Active = 0
- Ceased to Operate Dummy = -1

Main independent variables:

- Number of Investors, Number of Investors²
- Diversity of Investors, Diversity of Investors²

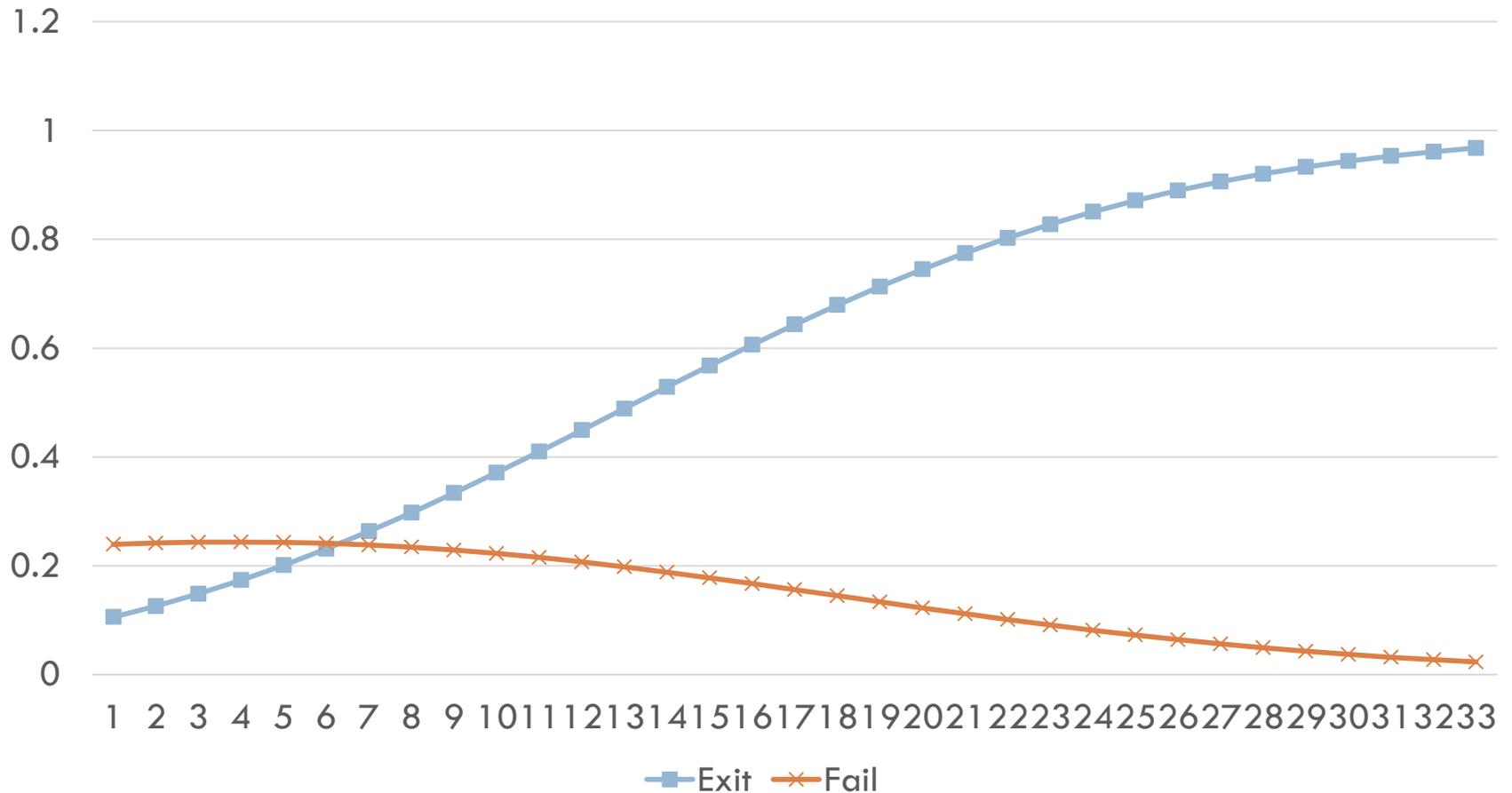
Number of Investors

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Dependent Variable	Write-off Dummy	Exit Dummy	Write-off Dummy	Exit Dummy
Column	(1)	(2)	(3)	(4)
Number of Investors	0.047**	0.16***	0.028	0.24***
	0.021	0.018	0.036	0.035
Number of Investors²			0.0015	-0.004***
			0.0018	0.0015
Number of Rounds	-0.078	0.17**	-0.053	0.061
	0.084	0.085	0.096	0.094
Number of Rounds²	-0.010	-0.023**	-0.014	-0.012
	0.0097	0.0099	0.012	0.0099
Industry Controls	√	√	√	√
Headquarter Location Controls	√	√	√	√
Time Control	√	√	√	√
Constant	-0.68***	-1.91***	-0.67***	-1.95***
	0.22	0.27	0.22	0.27
Observations	2,762	2,762	2,762	2,762
Prob > chi²	0	0	0	0

The Marginal Effect of an Additional Investor (Linear Prediction)

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Number of Investors Bounded to 10

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Dependent Variable	Write-off Dummy	Exit Dummy	Write-off Dummy	Exit Dummy
Column	(9)	(10)	(11)	(12)
Number of Investors - Bounded	0.057**	0.22***	-0.029	0.27***
	0.024	0.023	0.064	0.064
Number of Investors - Bounded²			0.0091	-0.0039
			0.0062	0.0057
Number of Rounds	-0.11	0.015	-0.061	0.00041
	0.089	0.086	0.10	0.087
Number of Rounds²	-0.0052	-0.0043	-0.013	-0.0027
	0.010	0.0082	0.014	0.0085
Industry Controls	√	√	√	√
Headquarter Location Controls	√	√	√	√
Time Control	√	√	√	√
Constant	-0.68***	-1.92***	-0.60***	-1.99***
	0.22	0.27	0.23	0.29
Observations	2,762	2,762	2,762	2,762
Prob > chi²	0	0	0	0

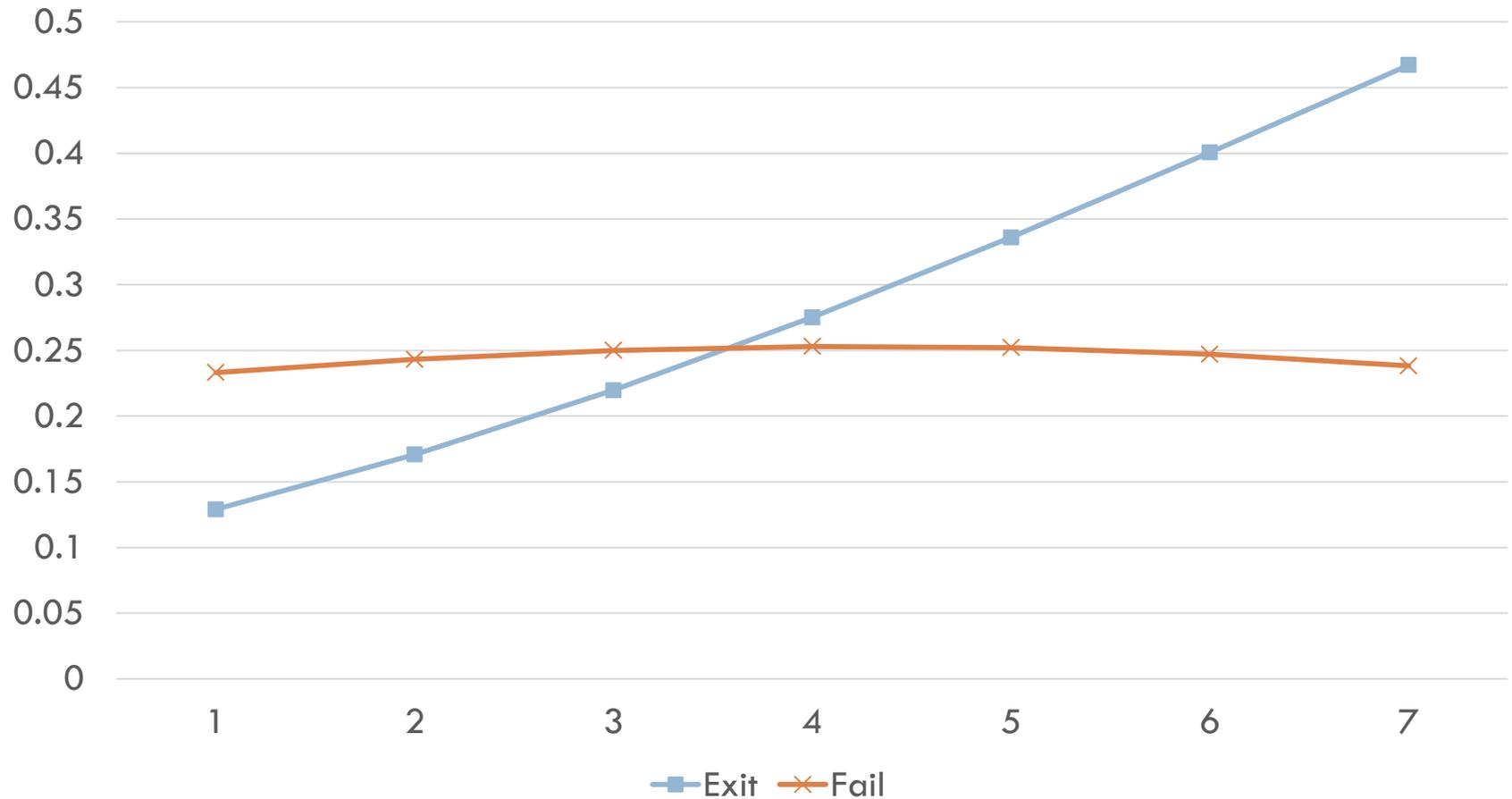
Diversity of Investors

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Dependent Variable	Write-off Dummy	Exit Dummy	Write-off Dummy	Exit Dummy
Column	(5)	(6)	(7)	(8)
Diversity of investors	0.12**	0.29***	-0.073	0.29*
	0.050	0.049	0.16	0.16
Diversity of investors²			0.040	0.00071
			0.032	0.030
Number of Rounds	-0.10	0.24***	-0.081	0.24***
	0.086	0.079	0.092	0.081
Number of Rounds²	-0.0039	-0.015*	-0.0080	-0.016*
	0.0099	0.0080	0.011	0.0084
Industry Controls	√	√	√	√
Headquarter Location Controls	√	√	√	√
Time Control	√	√	√	√
Constant	-0.74***	-2.18***	-0.59**	-2.18***
	0.22	0.27	0.26	0.30
Observations	2,762	2,762	2,762	2,762
Prob > chi²	0	0	0	0

The Marginal Effect of an Additional Type of Investor

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Robustness

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Results may be influenced by two main issues:

- ▣ Endogeneity:
 - Instrumental variable
- ▣ Confounding effect between the ‘number of investors’ and the ‘number of investor types’:
 - Keep the diversity of investors fixed
 - Use an alternative measurement for the ‘number of investor types’ – Herfindal index

Main Findings

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- An increase in the number of investors has two opposing effects on the performance of the startup:
 - ▣ The prospects for exit increases
 - ▣ The prospects for write-off also increases
- The marginal contribution of an additional investor to the exit prospects of startups is positive, but once the number of investors exceeds about 14-15 we get a diminishing effect
- Similar results were found on the relation between the diversity of investors and the performance of startups
- The findings suggests that having a diverse set of investors will improve the performance of the startup more than a more homogenous investor set of the same size

Discussion and Conclusions

- Expands the discussion on complementarities to investors-invested company
- Sharpens the concept of having more investors:
 - ▣ Having a larger number of investors regardless of their type
 - ▣ Having a larger number of investor types
- Diversity has a more immediate impact on the performance.

Thank you

