The Entrepreneur's Idea and Outside Finance:
Theory and Evidence about Entrepreneurial Roles

Presentation

June 29, 2015

The Entrepreneur's Idea and Outside Finance

- Entrepreneur's Roles
  - Hébert and Link (2009)
  - Manne (2014)

- Complexity ➡ Probability of early outside finance ➡ Probability of commercial agreements

- NRC SBIR data

SBIR Project

Phase I $\longrightarrow$ Phase II $\longrightarrow$ further development $\longrightarrow$ commercialization

- Basic structure of an SBIR project

- Audretsch, et al. (2002)

SBIR Project

Phase I $\longrightarrow$ Phase II $\longrightarrow$ further development $\longrightarrow$ commercialization

Early Outside,
Third-Party
Finance

$$= f(\text{complexity of idea}, \ldots)$$

- Complexity → Communications costs → Less room for mutually agreeable bargain between entrepreneur and outside financier

- Callaud & Tirole (2007), communications problems with multiple technologies

- More ways components can turn out along dimensions that must be consistent across the components → consistent solutions are:
  - – large in absolute number → divergent opinions
  - – a small proportion of outcomes → focus on failure

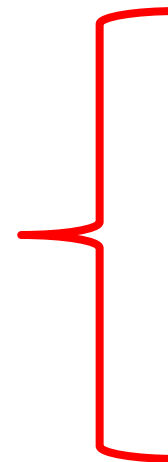- Measure of Complexity of entrepreneurial idea

SBIR Project

Phase I → Phase II → further development → commercialization

Early Outside,
Third-Party
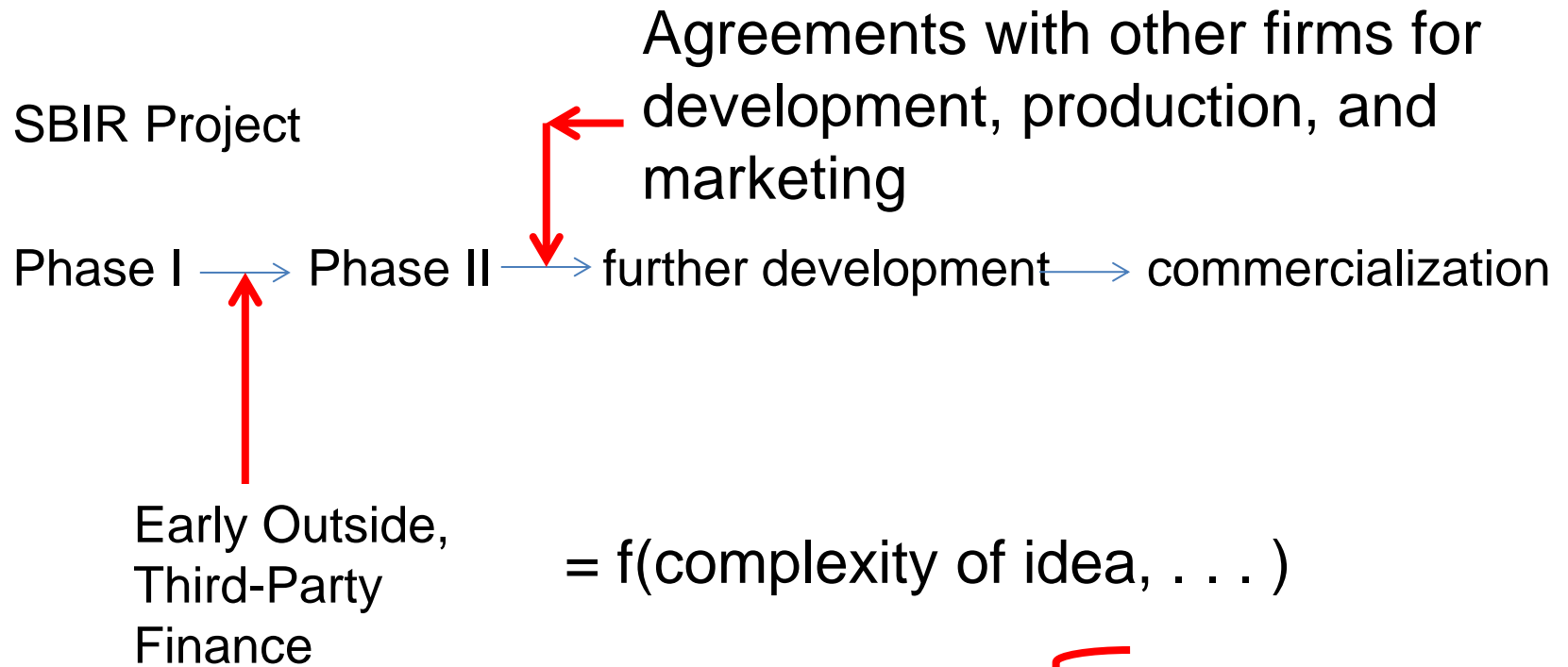Finance

= f(complexity of idea, . . .)

Controls
{
Prior SBIR
Founders' business
 background
Minority ownership
Broad Technology
Agency
Geographic Region

Complex Ideas & Probability of Outside Finance

	Low Complexity	High Complexity
High Probability Case: in West, for Army, computers, no prior SBIR, no business background for founders, not minority owned	0.98	0.78
Low Probability Case: in Northeast, for DARPA, computers, no business background for founders, not minority owned	0.15	0.0071

p-value = 0.11, so the probability of a negative effect this large or larger is 0.06 against the null hypothesis.

SBIR Project

Agreements with other firms for development, production, and marketing

Phase I → Phase II → further development → commercialization

Early Outside, Third-Party Finance

= f(complexity of idea, . . .)

Controls {
Prior SBIR
Founders' business
    background
Minority ownership
Broad Technology
Agency
Geographic Region
}

SBIR Project

Agreements with other firms for development, production, and marketing

Phase I → Phase II → further development → commercialization

Outside finance → Probability of commercial agreements (Link, Ruhm, and Siegel, 2014)

Early Outside, Third-Party Finance

= f(complexity of idea, . . .)

Greater likelihood of commercial agreements with other firms

Probability the Entrepreneur Wears All the Hats

	Zero-One for Explanatory Variable	Prediction for Explanatory Variable
Early Outside Finance	0.77	
No Early Outside Finance	0.91	
High Predicted Probability of Outside Finance		0.79
Low Predicted Probability of Outside Finance		0.90
p-value	0.083	0.37

- Signaling value of outside finance rather than unobserved effects

Complex Entrepreneurial Ideas & Outside Finance

- Policy
  - Public-private partnership for evaluation: Panels of reviewers qualified to evaluate entrepreneurs' technology-spanning ideas

- Future Research
  - A different measure of complexity
  - A different sample

Thank You