

Life Cycle of Corporate Venture Capital

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The Life Cycle of Corporate Venture Capital

Question: Why firms engage in Corporate Venture Capital (CVC)

Main Result:

- **CVC Entry:** CVC enters when internal innovation deteriorate
- **CVC Investment:** Same technological space but not overlapping knowledge base
- **CVC Exit:** After termination the parent firm recovers

Take away: More consistent with strategic view (synergies) than other theories (agency)

Main Comments

1. Testing the theories and boundaries of the firm
2. Empirical issues: Testing the agency view and others
3. Magnitude of investment and alternative interpretation

Comment: Testing the theories


Why do firms engage in CVC?

Agency view -> managerial perks

Financial View -> financial returns

Strategic View -> look for innovation

It is likely that all play some role.

The evidence is suggestive  important role of strategic view

Empirical results aim to rule out agency and financial view, but not conclusive (more to come)

Comment: Testing the theories

How can firms acquire innovation or knowledge?

- Internal R&D
- Acquisition of firms
- Lease or Buy patents
- CVC (outsourcing exploration)

Thus, theories of the boundaries of the firm should play a role in explaining CVC behavior

Important theory absence from the paper

Suggestion: Testing the theories

Theories of the boundaries of the firm should play a role in explaining CVC behavior

Look at heterogeneity at the industry level in terms of

- Property Right
- Asset types, etc.

Clear predictions about intensity of outsourcing, compelling and complementary evidence of strategic interactions

Comments: Empirical Issues, testing agency view

When testing the agency view, innovation shocks are excluded:

	(1)	(2)	(3)	(4)	(5)	(6)
			$I(CVC) = 1$			
$\Delta \ln(\text{NewPatent})$	-0.007*** (-6.227)		-0.006*** (-4.705)			
$\Delta \ln(\text{Pat. Quality})$		-0.004*** (-4.459)	-0.004*** (-3.775)			
Institutional Shareholding				0.001 (0.578)		-0.002 (-0.154)
G-Index					0.001 (0.903)	0.001 (0.729)
Size (Log of Assets)	0.003*** (11.090)	0.003*** (11.034)	0.003*** (10.741)	0.004*** (10.929)	0.007*** (3.872)	0.008*** (3.837)
Leverage	-0.005** (-2.371)	-0.004** (-2.051)	-0.005** (-2.356)	-0.004* (-1.777)	-0.033** (-2.193)	-0.034** (-2.190)
Firm R&D	0.015*** (3.439)	0.011*** (3.093)	0.014*** (3.319)	0.017*** (4.215)	0.076* (1.862)	0.081* (1.893)
Firm ROA	-0.003 (-1.275)	-0.003 (-1.567)	-0.003 (-1.332)	0.000 (0.051)	-0.012 (-0.497)	-0.016 (-0.577)
Observations	25,976	25,976	25,976	25,976	5,061	5,061
Pseudo R-squared	0.122	0.121	0.122	0.063	0.227	0.208
Industry \times Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Suggestion: Strongest test of agency view:

Include both measure change in innovation and governance, but also focus on the interaction between governance and innovation.

Comments: Empirical Issues, validity of the instrument

Technology evolution can be endogenous to the firms.

High impact firms (leaders) are driving the “obsolesce” measure because they are focusing in other technologies

Current test does not rule that out

Panel B: Heterogeneity of Innovation Impact of a Firm				
	(1)	(2)	(3)	(4)
	2SLS	2SLS	2SLS	2SLS
$\Delta \ln(\text{NewPatent})$	-0.010** (-2.649)		-0.003** (-2.535)	
$\Delta \ln(\text{Pat. Quality})$		-0.004* (-1.989)		-0.001*** (-4.395)
Subsample	High Innovation Impact		Low Innovation Impact	
Observations	14,563	14,563	11,413	11,413
R^2	0.389	0.175	0.506	0.236
Industry \times Year FE	Yes	Yes	Yes	Yes

Suggestion: Using the differences in the coefficients the bias can be bounded.

Comments: Robustness with respect to 2000 boom

How much of the investment decision results are driving by those deals?

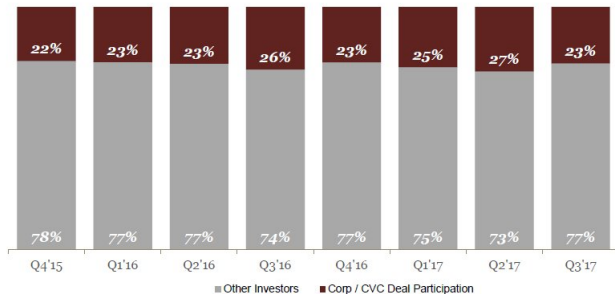
Year	No. of Launches	No. of Deals	Year	No. of Launches	No. of Deals	Year	No. of Launches	No. of Deals
1980	6	2	1989	9	32	1998	18	155
1981	6	14	1990	2	18	1999	72	460
1982	17	18	1991	4	11	2000	40	891
1983	25	37	1992	2	14	2001	9	430
1984	24	54	1993	9	14	2002	10	211
1985	26	46	1994	5	11	2003	2	179
1986	20	63	1995	16	33	2004	3	229
1987	12	51	1996	18	74	2005	3	255
1988	7	46	1997	15	112	2006	1	194

Anecdotal evidence suggest that 2000 was a rare environment where a lot of the investment shifted to internet companies

Comments: Magnitude and alternative interpretation

What is the magnitude of CVC investment?

20 % of VC investment in the last years



PwC | CB Insights MoneyTree™ Report Q3 2017

However,...

Comments: Magnitude and alternative interpretation

Overall investment in 2015 about 73B -> CVC funding about 14.6B
(source: cb insight report)

Firm private investment in R&D in 2015 -> 297B (source: nsf)

Therefore, total investment in innovation made by **CVC is about 5%**

Magnitude seems small

Alternative agency problem: **“CVC investments as a side show”**

Allow managers to deviate attention and focus on solving the problems.

Consistent with all empirical findings.

Suggestions: Magnitude and alternative interpretation

S1: Test market reaction to CVC creation announcement.

- If not reaction, can rule out investments as a side show.

S2: Current specification on technology incorporation is bundle of 5 years post:

$$Cite_{ij} = \alpha_i + \beta I(CVC_i - Portfolio_j) \times I(Post_{ijt}) + \dots + \varepsilon_{it}$$

- Look at the dynamics of the $Post_{ijt}$ effect

Conclusion

Very interesting paper that make a convincing case that strategic complementarities are important for CVC investment

Exploration of heterogeneity linked to boundaries of the firm is relevant for the interpretations

Looking forward to read the new version.

Thank you!