RISIS

RESEARCH INFRASTRUCTURE FOR SCIENCE AND INNOVATION POLICY STUDIES

Signal Sequences: Venture Capital, IPO and Valuation of Entrepreneurial Ventures at Acquisitions

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RISIS Seminar

13 January 2021

This project is funded by the European Union under Horizon2020 Research and Innovation Programme Grant Agreement n° 824091

Research Problem

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This research focuses on the **valuation** that entrepreneurial ventures get when they are **acquired.**

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PRACTICAL RELEVANCE

Acquisition is popular

BUT

- Acquisitions have recently become more appealing for **young firms** and **VCs**.
- Liquidity needs
- Harvesting contributes to the functioning of the entrepreneurial ecosystem (Mason and Harrison, 2006)

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BUT

Valuation is challenging

- High uncertainty
- **intangible assets** (Officer, Poulsen, & Stegemoller, 2009; Ragozzino, 2016)
- No track records and reluctance to divulge information due to risk of **knowledge misappropriation** (Alvarez & Barney, 2001)

Research Problem

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This research focuses on the **valuation** that entrepreneurial ventures get when they are **acquired**

THEORETICAL RELEVANCE

Acquisition is popular	**BUT**	Valuation is challenging

- Firms' valuation is challenging due to **information asymmetry** between insiders and outsiders
- To overcome information asymmetries when information disclosure is not pursuable, prospective investors rely on **signals**.
- Signals occur in the form of observable and costly decisions taken by high-quality firms that distinguish them from other lower-quality companies for which bearing signalling costs is unprofitable (Spence, 1973).

Research Problem

SIGNALLING THEORY

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SIGNALLING IN **M&As**

Limited contributions (for some exceptions, see Reuer, Tong & Wu, 2012; Wu, Reuer & Ragozzino, 2013)

- Affiliation with reputable VCs
- Affiliation with high quality Alliance partners

Signalling in Acquisitions

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THEORETICAL GAPS

1. These works have been performed on samples containing only public companies

- Previous works highlighted that undergoing an IPO can be beneficial to increase the likelihood of becoming target of an acquisition (Pagano et al., 1998; Ragozzino, 2016) → "**dual-tracking**" strategy (Brau et al. 2010).
- Going through an IPO before being acquired reduces info asymmetry (Mello and Parsons, 1998)
- Being the listing process highly costly, going through an IPO is also a quality signal (Pagano, Panetta and Zingales, 1998; Ragozzino and Reuer, 2007)

Signalling in Acquisitions

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→ Going through an IPO before being acquired reduces info asymmetry

→ Being the listing process highly costly, going through an IPO is also a quality signal (Pagano, Panetta and Zingales, 1998; Ragozzino and Reuer, 2007)

2. The effect on firms' valuation of the temporal sequence of signals of different strength is understudied

→ In dealing with multiple signals, extant research has mainly focused on signal bundling, defined as the simultaneous occurrence of multiple signals (e.g., Hoehn-Weiss and Karim, 2014; Vanacker et al., 2020).

Hypothesis Development

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RQ: how does **going through an IPO before being acquired** interact with **VC backing** signal in determining the valuation of entrepreneurial ventures at acquisitions?

INFORMATION ASYMMETRY

Hypothesis Development

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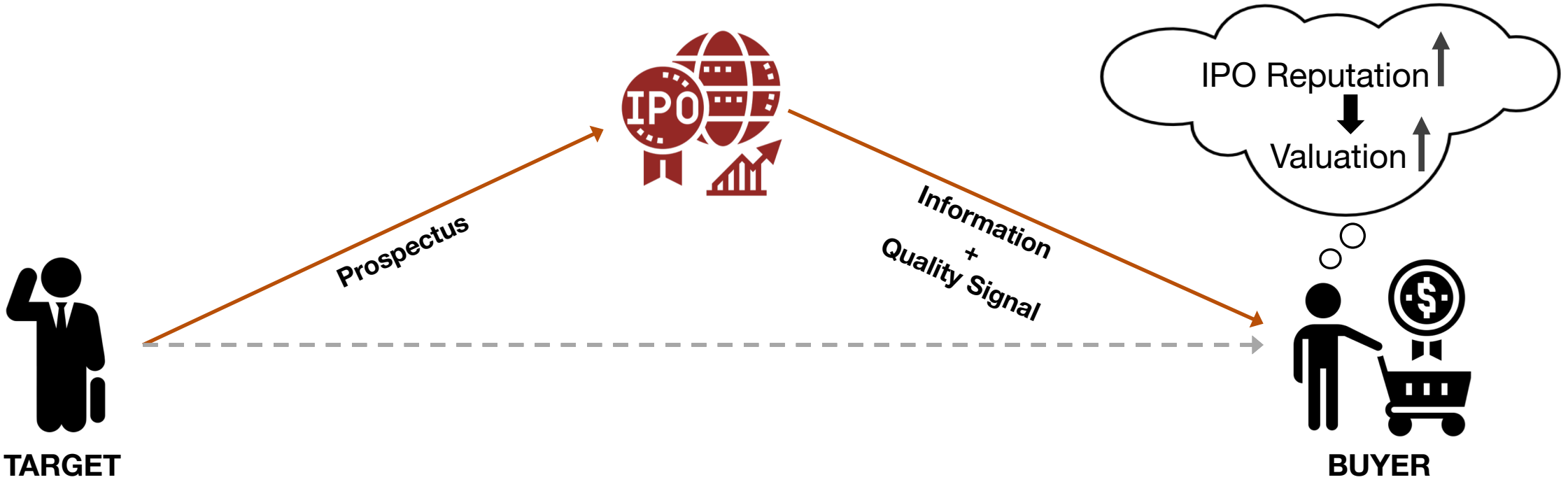

Hypothesis Development – H1

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	Non VC-backed	VC-backed (LOW)	VC-backed (HIGH)
No IPO	V_0	$\Delta_{1,\ VC\ LOW} > 0$	$\Delta_{1,\ VC\ HIGH} > \Delta_{1,\ VC\ LOW}$
IPO (LOW)	$\Delta_{2,\ IPO\ LOW} > 0$		
IPO (HIGH)	$\Delta_{2,\ IPO\ HIGH} > \Delta_{2,\ IPO\ LOW}$		

SIGNAL STRENGTH: whether signals are more - or less- correlated with unobservable firm quality (Connelly et al., 2011; Vanacker et al., 2020)

Hypothesis Development – H1

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Hypothesis 1

Doing an IPO before being acquired is positively related to the valuation obtained by an entrepreneurial venture at acquisition.

In particular, companies that go public in a high quality market obtain higher valuation at acquisition than companies that go public in a low quality market.

Hypothesis Development – H2

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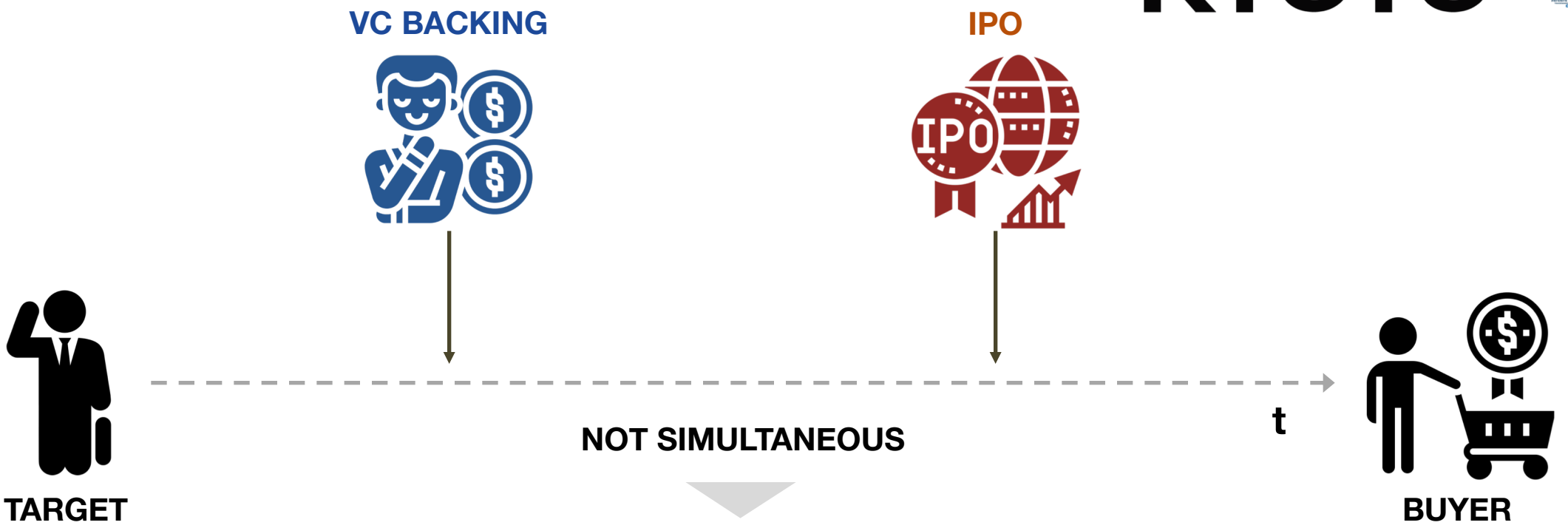

How do receivers interpret signal sequences in this context?

With this paper, we compare the valuation obtained at acquisition by private and non-VC backed firms with the one of companies

(i) VC-backed
and/or
(i) that went through an IPO before the acquisition.

Hypothesis Development – H2

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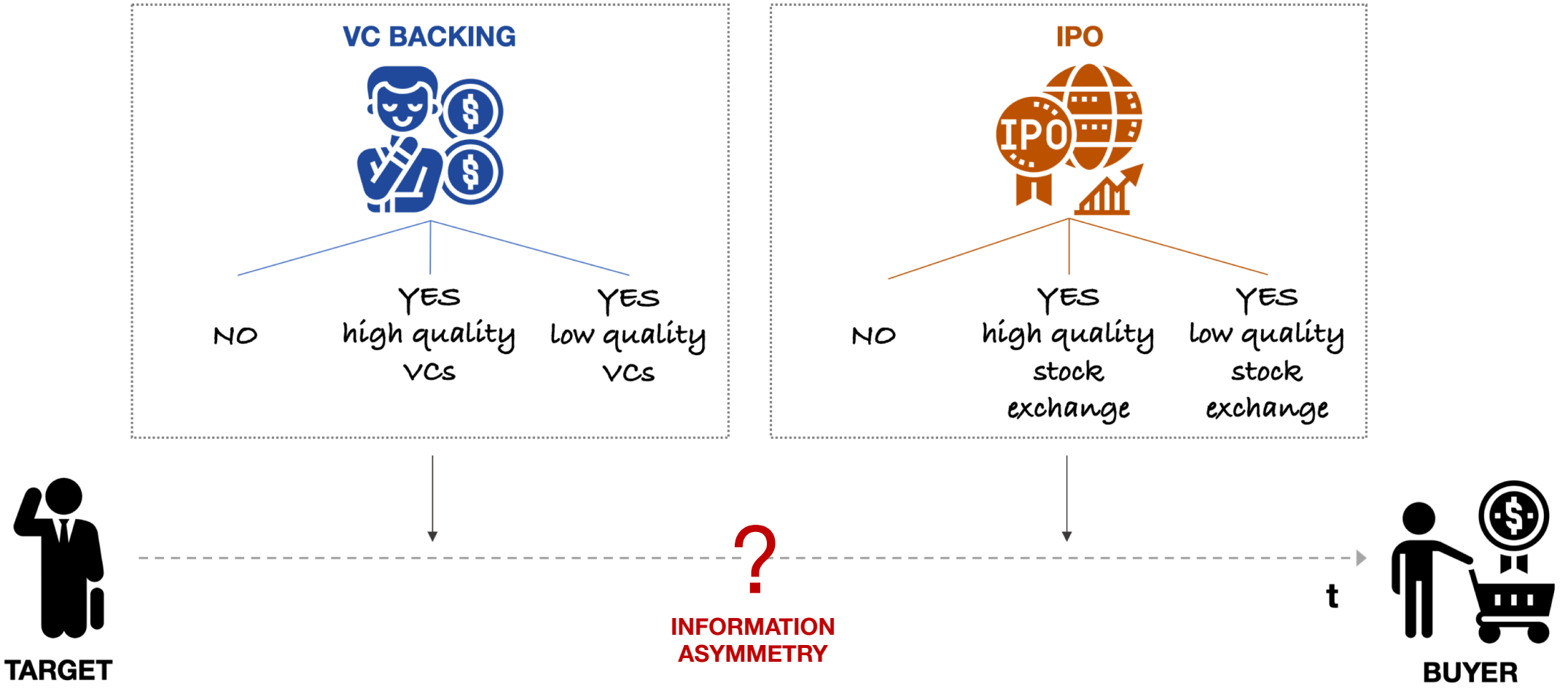
Idea: compare the valuation obtained at acquisition by firms that went through different **financing path**



Hypothesis Development – H2

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- **Focus on the interpretation of signals by the receiver**
- Although the origins of signalling theory lie in economics (Spence, 1973), management scholars have adopted a broader set of theoretical assumptions regarding the way signal receivers process information:
  - signal **receivers do not perceive all signals equally** (due to bounded rationality)
  - aspects of the **signalling environment** may "make signals more or less observable" (Connelly et al., 2011: 62).
  - With this papers, we challenge the "mechanistic understanding of signalling" (Connelly et al., 2011 p. 61) and cast light upon how signal receivers perceive and interpret signals coming in sequence.

Hypothesis Development – H2

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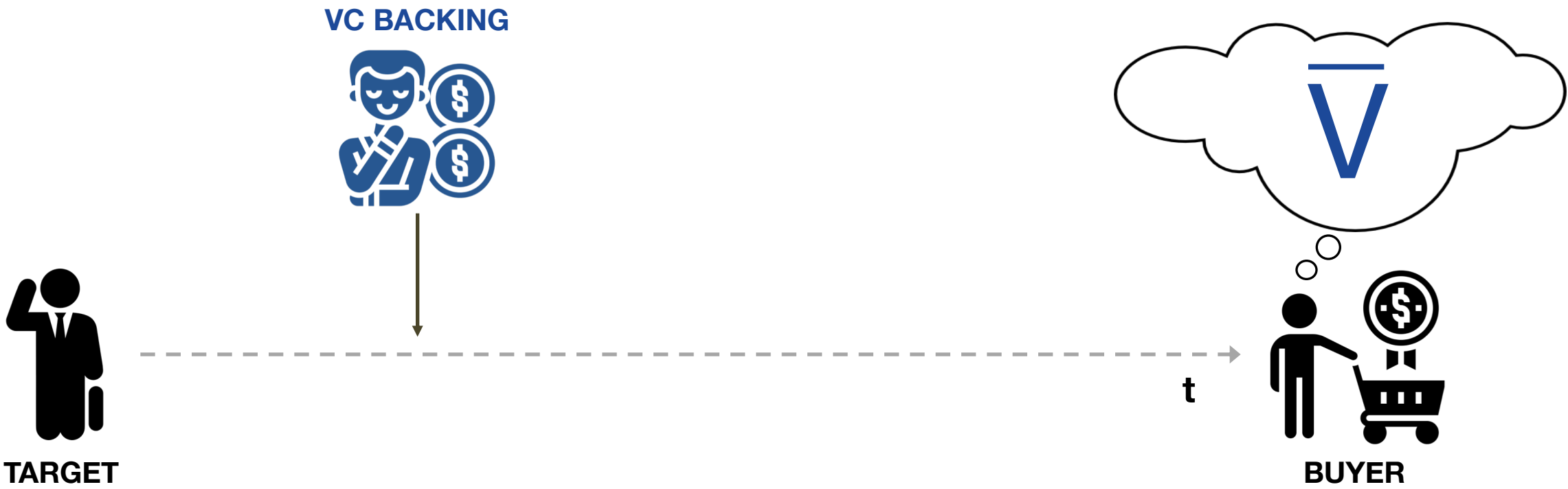

When the **first signal** is received, **the receiver sets an estimated valuation for the company sending that signal on the basis of the strength of the signal**. This estimation will become a **reference point** called aspiration level.

Hypothesis Development – H2

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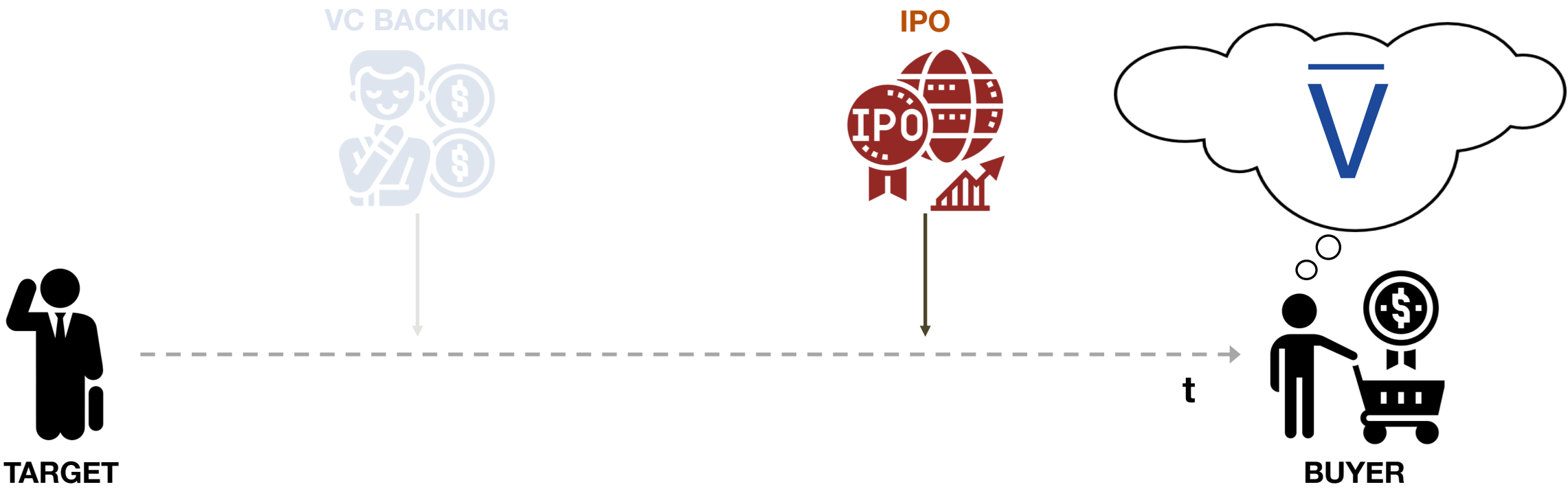

When the **second signal** is received, **the receiver will change the estimated valuation for the company sending the signal** not only on the basis of the **strength of the second signal**, but **comparing the effect** that the second signal would have if it wasn't part of a sequence **with the reference level set previously**.

Problemistic search theory

Hypothesis Development – H2

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Problemistic search theory:

- decision makers have certain aspirations that define an acceptable level of performance (Cyert & March, 1963; Frank, 1935; March & Simon, 1958)

- Whenever decision makers receive new information that reveals performance shortfall, they implement a problemistic search to adjust their decision-making process by identifying local alternative solutions that could restore performance to the aspired level

Processing Information is costly → the receiver will update the valuation of the company only if the second signal is far (below) from the reference point

In this paper, we consider **prospective investors** as decision makers that monitor the companies in which they are willing to invest and periodically adjust their investment preferences

Hypothesis Development – H2

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	Non VC-backed	VC-backed (LOW)	VC-backed (HIGH)
No IPO	V_0	$\Delta_{1,\ VC\ LOW} > 0$	$\Delta_{1,\ VC\ HIGH} > \Delta_{1,\ VC\ LOW}$
IPO (LOW)			
IPO (HIGH)	$\Delta_{2,\ IPO\ HIGH} > \Delta_{2,\ IPO\ LOW}$	$\Delta_{2,\ IPO\ HIGH} > \Delta_{2,\ LH} > 0$	$\Delta_{2,\ HH} = 0$

Hypothesis Development – H2

RISIS

	Non VC-backed	VC-backed (LOW)	VC-backed (HIGH)
No IPO	V_0	$\Delta_{1,\ VC\ LOW} > 0$	$\Delta_{1,\ VC\ HIGH} > \Delta_{1,\ VC\ LOW}$
IPO (LOW)	$\Delta_{2,\ IPO\ LOW} > 0$	$\Delta_{2,\ LL} = 0$	$\Delta_{2,\ HL} < 0$
IPO (HIGH)			

Hypothesis Development – H2

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Hypothesis 2

The effect of the signal generated by undergoing an IPO before being acquired depends not only on the strength of the IPO signal itself, but also on the reference point generated by the VC-backing signal.

In particular:

- *2a. The incremental effect generated by going public on a high performing stock exchange will be more positive for firms backed by low quality VCs compared to firms backed by high quality VCs;*

- *2b. The incremental effect generated by going public on a low performing stock exchange will be negative for firms backed by high quality VCs while positive for firms backed by low quality VCs.*

Data

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Unit of Analysis

→ **1.** **RISIS-VICO4.0**: European + Israeli entrepreneurial ventures founded after 1988 and that received at least one VC round within 10 years since their foundation and in the period between 1998 and 2014– population of EU VC-backed

24'238 firms

→ **2.** **ORBIS**: We then downloaded a random sample of 225.687 non VC-backed companies from the Orbis population → CEM Algorithm (Iacus, King and Porro, 2012). Pre-treatment variables:

- geographical location
- industry of belonging (divided into five classes, as described in Table 4), identified through the NACE Rev.2. 2-digits classification
- company age (for VC-backed companies, we considered the age of the company at the moment of the first round of investment).

16.001 VC with
222.758 non VC

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Unit of Analysis

→ **3.** **ZEPHYR**: acquisition deals with European companies as targets happened between 1997 and 2017. We considered as acquisitions only the deals where a majority stake was acquired.

7016 companies
(1888 VC and 5128
non VC)

→ 4. Discarding observations with missing value on acquisition valuation or on total asset in the year before the acquisition

2080* companies
(722 VC and 1358
non VC)

*of which 338 did an IPO before the acquisition

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Model

→ **Diff-in-Diff**: two OLS regressions that include

- the variables capturing the presence of VC (HIGH – LOW) and of previous IPO (HIGH – LOW)
- the interaction between these variables

Model

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Variables

- Dependent = *TobinQ* (log)

- Independent:
  - *IPO_dummy* → split in *IPO_US* vs *IPO_else*
  - *VC dummy* → split in *VC_US* vs *VC_else*
  - Interactions:
    - *IPO_USxVC_US*
    - *IPO_USxVC_else*
    - *IPO_elsexVC_US*
    - *IPO_elsexVC_else*

- Control:
  - Size
  - Age
  - Industry
  - Market Sentiment
  - Performance on stock exchange for public companies
  - IMR – Prob Acquisition (Heckman)

Results – Model with no strength

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log_TobinQ	Model 1		Model 2	
IPO_dummy	.28	[.23]	.37	[.23]
VCb_dummy	.29***	[.07]	.33***	[.08]
IPOxVC			-.23	[.16]
log_Totalassets	-.42***	[.05]	-.42***	[.05]
log_Age	-.74***	[.19]	-.75***	[.19]
avg_ROA_IPO	.08	[.15]	.09	[.14]
IPOMarketSent	0	[.00]	-.00	[.00]
AcqMarketSent	.00*	[.00]	.00*	[.00]
Prob_Acquisition	-4.27***	[.99]	-4.3***	[.99]
Dummies industry	YES		YES	
Dummies geographical location	YES		YES	
Constant	10.1***	[1.54]	10.1***	[1.54]
Number of obs	**2080**		**2080**	
Adj R-squared	**0.36**		**0.36**	
*** *p<0.01*, ** *p<0.05*, * *p<0.1*				

Results – Model with strength

RISIS

	Model 3			Model 4		
log_TobinQ	Coef.	St. Err.	Sig	Coef.	St. Err.	Sig
IPO_US	.673	[.29]	**	.697	[.31]	**
IPO_else	.235	[.23]		.34	[.23]	
VC_US	.669	[1.00]	***	.74	[.11]	***
VC_else	.159	[.08]	*	.195	[.09]	**
IPO_USxVC_US				-.124	[.54]	
IPO_USxVC_else				-.03	[.21]	
IPO_elsexVC_US				-.455	[.18]	**
IPO_elsexVC_else				-.03	[.35]	
log_Totalassets	-.426	[.05]	***	-.426	[.05]	***
log_Age	-.752	[.19]	***	-.758	[.19]	***
avg_ROA_IPO	.076	[.15]		.092	[.15]	
IPOMarketSent	0	[0]		0	[0]	
AcqMarketSent	.001	[0]	*	.001	[0]	**
prob_Acq	-4.359	[1.00]	***		[1.00]	
Dummies industry		YES			YES	
Dummies geographical location		YES			YES	
Constant	10.30	[1.54]	***	10.329	[1.54]	***
Number of obs			2080			2080
Adj R-squared			0.304			0.306

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

- *Statistically significance*
- *Coefficient size*

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Number of obs			2080			2080
Adj R-squared			0.304			0.306

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

***H1** (partially) confirmed:*

- *Statistically significance*
- *Coefficient size*

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IPOMarketSent	0	[0]		0	[0]	
AcqMarketSent	.001	[0]	*	.001	[0]	**
prob_Acq	-4.359	[1.00]	***		[1.00]	
Dummies industry		YES			YES	
Dummies geographical location		YES			YES	
Constant	10.30	[1.54]	***	10.329	[1.54]	***
Number of obs			2080			2080
Adj R-squared			0.304			0.306

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

***H2a**: effect of going through a **IPO US**:*

***For VC US**: 0.697 – 0.124 = 0.573*

Results – Model with strength

RISIS

	Model 3			Model 4		
log_TobinQ	Coef.	St. Err.	Sig	Coef.	St. Err.	Sig
IPO_US	.673	[.29]	**	.697	[.31]	**
IPO_else	.235	[.23]		.34	[.23]	
VC_US	.669	[1.00]	***	.74	[.11]	***
VC_else	.159	[.08]	*	.195	[.09]	**
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IPO_USxVC_else				-.03	[.21]	
IPO_elsexVC_US				-.455	[.18]	**
IPO_elsexVC_else				-.03	[.35]	
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log_Age	-.752	[.19]	***	-.758	[.19]	***
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IPOMarketSent	0	[0]		0	[0]	
AcqMarketSent	.001	[0]	*	.001	[0]	**
prob_Acq	-4.359	[1.00]	***		[1.00]	
Dummies industry		YES			YES	
Dummies geographical location		YES			YES	
Constant	10.30	[1.54]	***	10.329	[1.54]	***
Number of obs			2080			2080
Adj R-squared			0.304			0.306

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

***H2a**: effect of going through a **IPO US**:*

***For VC ELSE**: 0.697 – 0.03 = 0.667 but non significance of coefficients*

Results – Model with strength

RISIS

	Model 3			Model 4		
log_TobinQ	Coef.	St. Err.	Sig	Coef.	St. Err.	Sig
IPO_US	.673	[.29]	**	.697	[.31]	**
IPO_else	.235	[.23]		.34	[.23]	
VC_US	.669	[1.00]	***	.74	[.11]	***
VC_else	.159	[.08]	*	.195	[.09]	**
IPO_USxVC_US				-.124	[.54]	
IPO_USxVC_else				-.03	[.21]	
IPO_elsexVC_US				-.455	[.18]	**
IPO_elsexVC_else				-.03	[.35]	
log_Totalassets	-.426	[.05]	***	-.426	[.05]	***
log_Age	-.752	[.19]	***	-.758	[.19]	***
avg_ROA_IPO	.076	[.15]		.092	[.15]	
IPOMarketSent	0	[0]		0	[0]	
AcqMarketSent	.001	[0]	*	.001	[0]	**
prob_Acq	-4.359	[1.00]	***		[1.00]	
Dummies industry		YES			YES	
Dummies geographical location		YES			YES	
Constant	10.30	[1.54]	***	10.329	[1.54]	***
Number of obs			2080			2080
Adj R-squared			0.304			0.306

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

***H2b**: effect of going through a **IPO ELSE**:*

***For VC US**: 0.34 – 0.455 = – 0,115*

Results – Model with strength

RISIS

	Model 3			Model 4		
log_TobinQ	Coef.	St. Err.	Sig	Coef.	St. Err.	Sig
IPO_US	.673	[.29]	**	.697	[.31]	**
IPO_else	.235	[.23]		.34	[.23]	
VC_US	.669	[1.00]	***	.74	[.11]	***
VC_else	.159	[.08]	*	.195	[.09]	**
IPO_USxVC_US				-.124	[.54]	
IPO_USxVC_else				-.03	[.21]	
IPO_elsexVC_US				-.455	[.18]	**
IPO_elsexVC_else				-.03	[.35]	
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log_Age	-.752	[.19]	***	-.758	[.19]	***
avg_ROA_IPO	.076	[.15]		.092	[.15]	
IPOMarketSent	0	[0]		0	[0]	
AcqMarketSent	.001	[0]	*	.001	[0]	**
prob_Acq	-4.359	[1.00]	***		[1.00]	
Dummies industry		YES			YES	
Dummies geographical location		YES			YES	
Constant	10.30	[1.54]	***	10.329	[1.54]	***
Number of obs			2080			2080
Adj R-squared			0.304			0.306

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

***H2b**: effect of going through a **IPO ELSE**:*

***For VC ELSE:** 0.34 – 0.03 = 0.31 but non significant*

Results – Model with strength

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Pairwise comparisons of average marginal effects – Model VCE: Robust – Expression: Linear prediction, predict ()

Delta Method			
	Margin	Std. Error	Unadjusted Groups
Private (base outcome)			
IPO US			
Non-VC-backed	0.73	0.29	A
VC_US	0.31	0.50	A
VC_else	0.88	0.39	A
IPO else			
Non-VC-backed	0.35	0.23	B
VC US	-0.12	0.26	A
VC else	0.12	0.26	AB

Note: Margins sharing a letter in the group label are not significantly different at the 5% level.
Note: dy/dx for factor levels is the discrete change from the base level.

Results – Model with strength

RISIS

log_TobinQ	Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
IPO_US	.67**	[.29]	.69**	[.31]								
IPO_else	.24	[.23]	.34	[.23]								
IPO_UWReputation_HIGH					.35	[.23]	.38*	[.23]				
IPO_UWReputation_LOW					.24	[.27]	.40	[.27]				
IPO_TotMarketCap_HIGH									.47*	[.25]	.56**	[.27]
IPO_TotMarketCap_LOW									.14	[.26]	.30	[.27]
VC_US	.67***	[1.00]	.74***	[.11]								
VC_else	.16*	[.08]	.20**	[.09]								
VC_HIGH					.40***	[.09]	.45***	[1.00]	.38***	[.09]	.44***	[1.00]
VC_LOW					.17	[.09]	.17*	[.11]	.16*	[.09]	.18*	[.11]
IPO_USxVC_US			-.12	[.54]								
IPO_USxVC_else			-.03	[.21]								
IPO_elsexVC_US			-.46**	[.18]								
IPO_elsexVC_else			-.03	[.35]								
IPO_UWReputation_HIGHxVC_HIGH							-.02	[.22]				
IPO_UWReputation_HIGHxVC_LOW							-.06	[.26]				
IPO_UWReputation_LOWxVC_HIGH							-.70**	[.31]				
IPO_UWReputation_LOWxVC_LOW							-.09	[.24]				
IPO_TotMarketCap_HIGHxVC_HIGH											-.23	[.26]
IPO_TotMarketCap_HIGHxVC_LOW											-.09	[.25]
IPO_TotMarketCap_LOWxVC_HIGH											-.50*	[.27]
IPO_TotMarketCaP_LOWxVC_LOW											-.09	[.24]
log_Totalassets	-.43***	[.05]	-.43***	[.05]	-.42***	[.05]	-.42***	[.05]	-.42***	[.05]	-.42***	[.05]
log_Age	-.75***	[.19]	-.76***	[.19]	-.73***	[.19]	-.73***	[.19]	-.76***	[.19]	-.76***	[.19]
avg_ROA_IPO	.08	[.15]	.09	[.15]	.08	[.16]	.11	[.15]	.08	[.13]	.11	[.14]
IPOMarketSent	0	[0]	0	[0]	0	[0]	0	[0]	0	[0]	0	[0]
AcqMarketSent	.00*	[0]	.00**	[0]	.00*	[0]	.00*	[0]	.00*	[0]	.00*	[0]
Prob_Acquisition	-4.4***	[1.00]		[1.00]	-4.2***	[1.00]	-4.2***	[1.00]	-4.4***	[1.02]	-4.4***	[1.01]
Dummies industry	YES		YES		YES		YES		YES		YES	
Dummies geography	YES		YES		YES		YES		YES		YES	
Constant	10.3***	[1.54]	10.3***	[1.54]	10.0***	[1.53]	10.1***	[1.53]	10.3***	[1.56]	10.3***	[1.56]
Number of obs	**2080**		**2080**		**2050**		**2050**		**2047**		**2047**	
Adj R-squared	**0.37**		**0.37**		**0.36**		**0.37**		**0.37**		**0.37**	
*** *p<0.01*, ** *p<0.05*, * *p<0.1*												

Alternative measures of signals strength

IPO:

- **Reputation of lead underwriter** (Migliorati and Vismara, 2014)

- **Percentage Market Cap** of the stock exchange in which the IPO happened (Tot Market Cap Stock exchange in a year / Sum of Tot Market Cap of all markets in the same year)

VC:

- **Reputation of the VC** (tot succ exit in 5 years before the investment)

Robustness Check

RISIS

1 – IV approach (on model with no strenght)

	Model 1a IPO_dummy			Model 2a VC_dummy			Model 3a log_TobinQ		
	Coef.	St. Err.	Sig	Coef.	St. Err	Sig	Coef.	St. Err	Sig
IPO dummy							1.59	1.21	
VCb dummy							1.05	.23	***
IPOVC							-.73	.28	***
log Totalassets	.24	.02	***	-.01	.01		-.38	.04	***
log Age	.46	.12	***	.56	.11	***	-.75	.14	***
avg ROA IPO							.87	.50	*
IPOMarketSent							-.00	0	
AcqMarketSent	0	0		0	0		.00	0	***
Prob Acquisition	.62	.53		.99	.56	*	-3.39	.68	***
Log IPOMSent Found	.07	.05		.09	.04	**			
Log min dist VChub	-.05	.05	***	-.05	.02	***			
Dummies industry	NO			NO			YES		
Dummies geographical location	NO			NO			YES		
Constant	-5.08	.79	***	-2.6	.72	***	8.79	1.07	***
Number of obs	2073			2073			2073		
Adj R-squared	0.14			0.03			0.27		

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

- Endogeneity of IPO_dummy and VC_dummy
- We followed Adams et al. (2009)
- 1 (probit): instruments are log_min_dist_VChub and log_IPOMarkSent_Found
- 2: we regressed IPO_dummy and VC_dummy on the exogenous variables in our model and the fitted probabilities of 1 stage.
- 3: ivregress log_TobinQ using the exogenous variables and the fitted values of the second stage as instruments.

Robustness Check

RISIS

2 – Average Marginal Effect on Firm Age

	Delta-method					
	dy/dx	Std.Err.	t	P>t	[95%Conf.	Interval]
0.IPO_US (base outcome)						
1.IPO_US						
_at						
1	1.231	0.343	3.580	0.000	0.557	1.904
2	0.911	0.285	3.190	0.001	0.352	1.471
3	0.568	0.274	2.070	0.038	0.030	1.105
4	0.096	0.349	0.280	0.783	-0.588	0.780
0.IPO_else (base outcome)						
1.IPO_else						
_at						
1	0.410	0.225	1.820	0.069	-0.032	0.852
2	0.369	0.220	1.670	0.094	-0.063	0.800
3	0.324	0.232	1.400	0.161	-0.130	0.779
4	0.264	0.271	0.970	0.331	-0.268	0.796
0.VC_US (base outcome)						
1.VC_US						
_at						
1	0.715	0.134	5.340	0.000	0.452	0.978
2	0.664	0.099	6.680	0.000	0.469	0.859
3	0.609	0.147	4.150	0.000	0.321	0.896
4	0.533	0.268	1.990	0.047	0.008	1.058
0.VC_else (base outcome)						
1.VC_else						
_at						
1	0.245	0.091	2.680	0.007	0.066	0.424
2	0.202	0.080	2.510	0.012	0.044	0.359
3	0.156	0.099	1.580	0.114	-0.038	0.349
4	0.092	0.152	0.610	0.544	-0.206	0.390

Number of obs = 2,080
Model VCE: Robust
Expression: Linear prediction, predict()
dy/dx w.r.t. : 1.IPO_US 1.IPO_else 1.VC_US 1.VC_else

1._at : log_Age = 1.8
2._at : log_Age = 2.2
3._at : log_Age = 2.63
4._at : log_Age = 3.22

→ Robustness Check to measure whether the effect of the signal is greater for younger companies compared to older ones

Robustness Check
3 – Time Elapsed between signals

RISIS

	Model 5a			Model 6a		
log_TobinQ	Coef.	St. Err.	Sig	Coef.	St. Err.	Sig
IPO_US	.88	.32	***	.79	.31	***
IPO_else	.28	.22		.36	.23	
VC_US	.68	.10	***	.74	.11	***
VC_else	.17	.08	**	.19	.09	**
IPO_USxVC_US				.33	.69	
IPO_USxVC_else				.12	.56	
IPO_elsexVC_US				-.63	.23	***
IPO_elsexVC_else				-.17	.17	
log_Totalassets	-.43	.05	***	-.43	.05	***
log_Age	-.76	.19	***	-.76	.19	***
avg_ROA_IPO	.08	.15		.09	.15	
IPOMarketSent	0	0		0	0	
AcqMarketSent	.00	0	*	.00	0	**
prob_Acquisition	-4.40	1.00	***	-4.44	1.00	
Timing_IPO_USxVC_US	-.09	.09		-.13	.12	
Timing_IPO_USxVC_else	-.03	.05		-.04	.09	
Timing_IPO_elsexVC_US	.00	.06		.08	.05	
Timing_IPO_elsexVC_else	-.04	.04		-.03	.04	
Dummies industry	YES			YES		
Dummies geographical location	YES			YES		
Constant	10.33	1.54	***	10.37	1.55	***
Number of obs			2080			2080
Adj R-squared			0.30			0.31

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Robustness Check
4 – Investors base at exit

RISIS

	Model 7a			Model 8a			Model 9a		
log_TobinQ	Coef.	St.Er.	Sig	Coef.	St.Er.	Sig	Coef.	St.Er.	Sig
IPO_US	.74	.29	**						
IPO_else	.35	.23							
IPO_UWReputation_HIGH				.37	.23				
IPO_UWReputation_LOW				.40	.28				
IPO_TotMarketCap_HIGH							.57	.27	**
IPO_TotMarketCap_LOW							.30	.27	
VC_US_exit	.75	.11	***						
VC_else_exit	.19	.09	**						
VC_HIGH_exit				.75	.12	***	.75	.12	***
VC_LOW_exit				.14	.09		.14	.09	
IPO_USxVC_US_e	-.65	.63							
IPO_USxVC_else_e	.25	.31							
IPO_elsexVC_US_e	-.37	.27							
IPO_elsexVC_else_e	-.21	.17							
IPO_UWReputation_HIGHxVC_HIGH_e				-.28	.26				
IPO_UWReputation_HIGHxVC_LOW_e				.10	.22				
IPO_UWReputation_LOWxVC_HIGH_e				-.92	.28	***			
IPO_UWReputation_LOWxVC_LOW_e				-.23	.29				
IPO_TotMarketCap_HIGHxVC_HIGH_e							-.58	.35	
IPO_TotMarketCap_HIGHxVC_LOW_e							.00	.23	
IPO_TotMarketCap_LOWxVC_HIGH_e							-.52	.26	**
IPO_TotMarketCap_LOWxVC_LOW_e							-.25	.25	
log_Totalassets	-.43	.05	***	-.43	.05	***	-.43	.05	***
log_Age	-.75	.19	***	-.74	.19	***	-.77	.19	***
avg_ROA_IPO	.08	.15		.12	.15		.11	.14	
IPOMarketSent	-.00	0		-.00	0		-.00	0	
AcqMarketSent	.00	0	*	.00	0	*	.00	0	*
prob_Acq	-4.39	.99	***	-4.32	.99	***	-4.50	1.02	***
Dummies industry		YES			YES			YES	
Dummies geographical location		YES			YES			YES	
Constant	10.31	1.54	***	10.22	1.54	***	10.46	1.57	***
Number of obs			2080			2050			2047
Adj R-squared			0.37			0.37			0.37

*** *p<0.01*, ** *p<0.05*, * *p<0.1*

Conclusion

RISIS

→ Going through an IPO before the acquisition does not necessarily bring benefits

Only performing the IPO *high performing* stock exchange has a positive effect

Going public on a *less performing* stock exchange does not bring any effect, *unless the company is VC-backed.*

In that case, it sets aside the positive effect of VC affiliation, especially if the company was backed by a high reputable VC.

Contribution

RISIS

Main Limitations & Next Steps

→ 1. Generalizability of results

→ 2. Some control (still) missing

Practical Contribution

- Providing practitioners (entrepreneurs and investors) interested in dual tracking with valuable insights: going through an IPO before being acquired can become a **double edged sword**!

Theoretical Contribution

- Integrating Signalling Theory with Problemistic Search Theory
- Providing insights into signal sequencing under bounded rationality assumption