



STRATEGIC ROLE OF INVESTORS IN FINANCING INNOVATION: SSI APPROACH OF VCS TO UK BIO- PHARMA SMEs

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Oct 2nd – 3rd, 2013

AGENDA

- Intro: Funding innovation - who and why? (1)
- Literature review: Characteristics and roles of VC (3)
- Methodological issues (2)
- Findings
 - Investor strategy, IKB and networks, investor features (3)
- Discussion and implications: Building IKB and strategy (5)



FUNDING INNOVATION: WHO AND WHY?

- Financing innovation different from financing other firm activities – Project features (Hall, 2010).
- BP innovative start-ups & SMEs (Westhead and Storey, 1997; Guiso, 1998; Giudici and Palaria, 2000; Grilli, 2005; Colombo and Grilli, 2007; Freel, 2007) seek VCs, BAs, and public sources at very/early stage (deeper financial constraints).
 - UK a top five performer in Europe in terms of private equity and VC deals value relative to GDP (Mina and Lahr, 2011).
- FFFFs (informal financiers) and banks less important sources of funding than in other sectors (e.g., software) (Ullah et al., 2009; Haslam et al., 2011).
- 41/130 top R&D BP investors listed at AIM (LSE/AIM; BIS, 2010). IPOs not a strong funding mechanism currently (Ernst and Young, 2013).
- **Questions:** *How do potential VC financiers of innovative UK bio-pharma build up their strategic approach to funding? Why do some investors prefer a diversified portfolio across sectors and others favour a specialised one?*

BACKGROUND LITERATURE

CHARACTERISTICS AND ROLES OF VC - 1

- Tech VC *different from* traditional investors...
Greater investment management & consulting experience (no difference in likelihood of receiving public funding) (Knockaert, Clarisse, and Lockett, 2010) possibly related to different fund selection behaviour (which tech-based firms to invest in)? (Knockaert, Clarisse, and Wright, 2010).
- According to selection criteria, *early stage investors* are (Knockaert, Clarisse, and Wright, 2010):
 - *technology investors* (decisions based on technology protection, investor-entrepreneur contact, uniqueness of product).
 - *people investors* (decisions based on entrepreneur's leadership and quality of team).
 - *financial investors* (decisions based on potential return of projects).
- *Late stage investors* fit financial investors led by lower risk (lower return) and shorter investment horizon (less distance to market).

BACKGROUND LITERATURE

CHARACTERISTICS AND ROLES OF VC - 2

- *Providing funds* ... and to different extents (Baum and Silverman, 2004; Engel and Keilbach, 2007; Colombo and Grilli, 2010)...
- *Scouting*: “identifying future potential projects” through powerful screening capabilities (Chan, 1983; Amit et al., 1998; Gompers and Lerner, 2001; Knockaert, Clarisse, and Wright, 2010; Bertoni et al., 2011).
 - Screening projects/companies for certain characteristics & selecting best investment opportunities (“gut feeling”, experience, co-investment) (Chan, 1983; Freeman and Soete, 1997; Amit et al., 1998; Zacharakis and Shephard, 2007).
- *Coaching*: “helping realize that potential” (Gorman and Sahlman, 1989; MacMillan et al., 1989; Bygrave and Timmons, 1992; Sapienza, 1992; Barney and Busenitz, 1996; Sapienza et al., 1996; Kaplan and Strömberg, 2004; Bertoni et al., 2011).
 - Assistance for better strategic decision-making & access to wider network of business contacts (Gorman and Sahlman, 1989; MacMillan et al., 1989; Bygrave and Timmons, 1992; Sapienza, 1992; Barney and Busenitz, 1996; Sapienza et al., 1996; Hellmann and Puri, 2002; Kaplan and Strömberg, 2004) + Provision of strategic resources (technological synergies and brand image) (*CVC*) & helping raise additional funding, recruiting key figures, and professionalising company (*independent VC*) (Maula and Murray, 2002; Ernst et al., 2005; Maula et al., 2005; Dushnitsky, 2006; Katila et al., 2008; Narayanan et al., 2009).
- *Monitoring*: “controlling to avoid moral hazard” or wrong use of funds (opportunistic behaviour) (Sahlman, 1990; Gompers, 1995; Lerner, 1995; Hellmann, 1998; Kaplan and Strömberg, 2003, 2004).
- *Certificating*: “advertising” good quality of project/firm to attract third parties (Megginson and Weiss, 1991; Stuart et al., 1999) to network (Colombo et al., 2006; Hsu, 2006; Lindsey, 2008).

BACKGROUND LITERATURE

CHARACTERISTICS AND ROLES OF VC - 3

- Which function prevails?
 - “If the VC investment–startup performance relationship is driven by VCs' ability to identify particularly promising startups, then startup characteristics should affect VCs' decisions to invest in the same way that they affect startups' performance. If, however, the VC investment-startup performance relationship is driven by VC's ability to provide management expertise and network contacts to the startup, then startup characteristics that affect VCs' investment decisions need not affect startups' performance in the same way; they may be either unrelated to or diverge in their effects.” (Baum and Silverman, 2004)

- *Coaching* may be desirable for individual firms, but “*socially inefficient, as private equity may not accrue to the companies capable of making the best use of it*” (Revest and Sapio, 2010) and would help investees “*rationalize technology searches and to focus on the opportunities with the highest commercial potential*” (Mina and Lahr, 2013).
 - High tech companies better at taking advantage of opportunities offered by corporate VC coaching (Dushnitsky and Lenox, 2006).

- Scouting may be better “*if the growth performance of a firm and its probability to receive venture capital are correlated with the same set of variables*” (Revest and Sapio, 2010).

METHODOLOGICAL ISSUES - 1

- Qualitative approach. Sector-based (BP) case study to build theory (not to test it).
 - Subject requires qualitative information (e.g., Haslam et al., 2011);
 - Complexity (different actors, issues and subtleties regarding interactions in characteristic environment) demands depth of case study;
 - Flexibility to continuously incorporate feedback into theoretical analysis – Iterative building up/enhancing of explanation (Hakim, 1987; Eisenhardt and Graebner, 2007; Yin, 2009)
- Semi-structured interviews. Interviewees selected “... *because they are particularly suitable for illuminating and extending relationships and logic among constructs.*” (Eisenhardt and Graebner, 2007).
- Criterion sampling for potential interviewees (UK BP innovative SME CEO/CSO/CFOs and BP funders)
- Snowball sampling to get to persons of interest (Draucker et al., 2007); cold contact very difficult.



METHODOLOGICAL ISSUES - 2

Number	Roles and organizations	BP related experience
16	Senior VC investors (many types of VC funds)	7 to over 20 years experience Academia / Firms / VC
5	Senior firm managers (CEO/CSO/CFO)	12 to over 30 years experience Researchers / Entrepreneurs / Managers
3	Senior BP non-firm organisation managers	4 to over 8 years experience

- Analysis:
 - i)* listening and transcription of interviews; *ii)* deconstruction of interview transcript data into blocks of info focused on seven main issues; *iii)* construction of issue-based matrix through analytical comparison of transcript blocks (data reduction) - similarities and differences in experience and views of participants; *iv)* creation of narrative based on data transcripts - reference to main issues (sense-making structuring); *v)* interpretation of findings and elaboration of theoretical proposal (dialogue with theoretical framework)

FINDINGS: INVESTOR STRATEGY, KB AND NETWORKS - 1

- a) VC investors have diverse strategic approaches to funding UK bio-pharma innovation :
 - *"Some [investors] are specialist, some are non-specialists, and if they're specialists then clearly they have sectoral expertise."*
 - *"If you are a brand name life sciences fund, you are going to have more than enough deal flow for the amount of deals you want to do. And that's sort of unsolicited."*
 - *"... [generalist funds] are almost averse to wanting to see bio-therapeutics type opportunities because the capital requirements and the time to exit are so long that it is not really a sensible place for those sorts of funds to invest. Consequently, they do not actively hunt for deals in this industry, although they can be approached by some companies."*
 - a fund whose investment capital was raised within a joint funding initiative between the European Commission and the European Investment Bank and is addressed at the biomedical area. **"A hundred percent of it [the funds] is to be invested in the North-West of England and half of it in the Merseyside area in companies established here or wanting to move into this geographic area."**

FINDINGS: INVESTOR STRATEGY, KB AND NETWORKS - 2

- b) Different approaches involve variations in networking for deal flow, knowledge accumulation, and structuring of operation:
 - “[At] XXX Group, the funders that I know best, ... **a lot of the investment managers are recent ex-scientists** and they have an interesting model where they often... the investment manager in a particular project becomes part of the spinout company as the spinout company grows, so that they’ll become CFO or COO or something like that; and **that’s the way that XXX Group turns its staff over and makes sure their knowledge is up to date.** It’s a good model for everybody.”
 - “The **funding companies will also have their contacts in the academic setting** either from people they are actually funding or people they have funded and they use those people as informal consultants; so **I’ve been approached more than once to provide an opinion on a technology opportunity that a funding company has been given.** So, we are talking sometimes about very large sums of money and the funders, however much the money they have got, they are not going to just take a risk.”
 - “The usual **networking and business finding mechanism for dedicated funds includes attending and partnering conferences in the sector or visiting universities to scout for projects** so to ‘bias what sort of deal flow you get.’ **A reason for generalist funds avoiding this strategy has to do with time and money costs.**”
 - “even if you have a background in a given area in say, clinical developments or discovery research, **you can’t be a master of everything that you need to know.** You can go so far generically but **these things are so specific that you still tend to need an expert...** So it’s all credentials, it’s all networking...”
 - “**Working with credible people, people who have a demonstrable checked record, is the best way to mitigate risk...**”

FINDINGS: INVESTOR STRATEGY, KB AND NETWORKS - 3

- c) Investor characteristics entail peculiarities in investment strategy.
 - *Investment sources* (private or public, companies, individuals or organisations) may direct and restrain investments (e.g., gap VC vs independent or corporate VC). “Pocket depth” a factor (particularly if the VC investor has to split its resources across a portfolio of different sector projects/firms).
 - *Time horizon , follow on funding and timing.* 8-10 year “time windows” artificial, not based on time framework of project/ firm or industry. Short termism and time horizon mismatches may condition VCs investment decisions. Entrance and exit timing dependent on characteristics of project/company, wants of investors, macro & micro contextual factors.
 - *Investment structure* (co-investing vs stand alone, leading vs following). Syndicates with funders of different nature (e.g., public and private, corporate and independent, VCs and BAs) a factor for initial and follow on funding (wide range of objectives, time horizons, expectations, “pocket depth”).
 - *Preferred stage for investment.* “Early-stage” has different meanings in BP. For some investors it includes inception (discovery or idea has just “come across the innovator’s mind”). Some VC investors throw money and advisory in very early to “crystallise” investment options more easily and manage risk better. Stage preferences also connected to timing of investment.
 - *Preferred exit mode.* Exit in UK BP through corporate buy-outs and M&As, selling out to another investor. IPOs and management buy-ins less frequent. Exit mode usually conditioned by macro factors.



DISCUSSION AND IMPLICATIONS: BUILDING IKB AND STRATEGY - 1



Differences *generalist* vs *dedicated* VC investors explained...

- Search behaviour dimensions (Katila and Ahuja, 2002) adapted for investment decisions:

Scope (degree of new knowledge about more sectors explored)

Depth (degree to which search revisits existing knowledge and need for further knowledge about a sector)

A trade off involved:

- *Wider scope* = more sectors (*diversified portfolio*)
- *Deeper reach* = one sector (*specialised portfolio*)

Depth involves greater *knowledge*...

Knowledge implies *learning*...

Learning involves *networks*

Knowledge about a space (e.g., bio-pharma) or sub-space (e.g., immunology) a function of investors' *networking effort* (strength and continuity of network enhancing).

Search is costly, so *networking effort* for *learning* more compatible with *specialisation*.

DISCUSSION AND IMPLICATIONS: BUILDING IKB AND STRATEGY - 2

- *Learning* (acquiring knowledge from and about interactions within the networks and incorporating the knowledge present in the networks entered into) influenced by networking dimensions (Yang et al., 2009):

Intensity ("the number of instances of repetition in the learning-by-doing process")

VC accumulates knowledge by evaluating actions and outcomes and by drawing generalisations concerning causal relations between such actions and outcomes. It refers to linking and interactions within networks and to volume of deal flow generated through networking.

Diversity ("the extent to which experience is accumulated through the solution of a diverse range of problems associated with subjects of interest")

Applies to networking effort and to problems that concern each specific investment opportunity (project/company) (idiosyncrasy of BP innovation).

Acquisition effect ("the experience [and knowledge] borrowed from others")

Successful networking effort (effective linking with experts in sector sub-spaces through network)... e.g., CVCs experience acquisition through parent company's participation in innovative company (Yang et al., 2009).

DISCUSSION AND IMPLICATIONS: BUILDING IKB AND STRATEGY - 3



- “Selection” approach *vs* “Learning and Shaping” approach

Generalist investors:

Low networking, shallow knowledge of several sectors, investment decisions based on “objective” criteria, essentially reactive nature (fund projects submitted by owners), risk diversification (portfolio)

vs

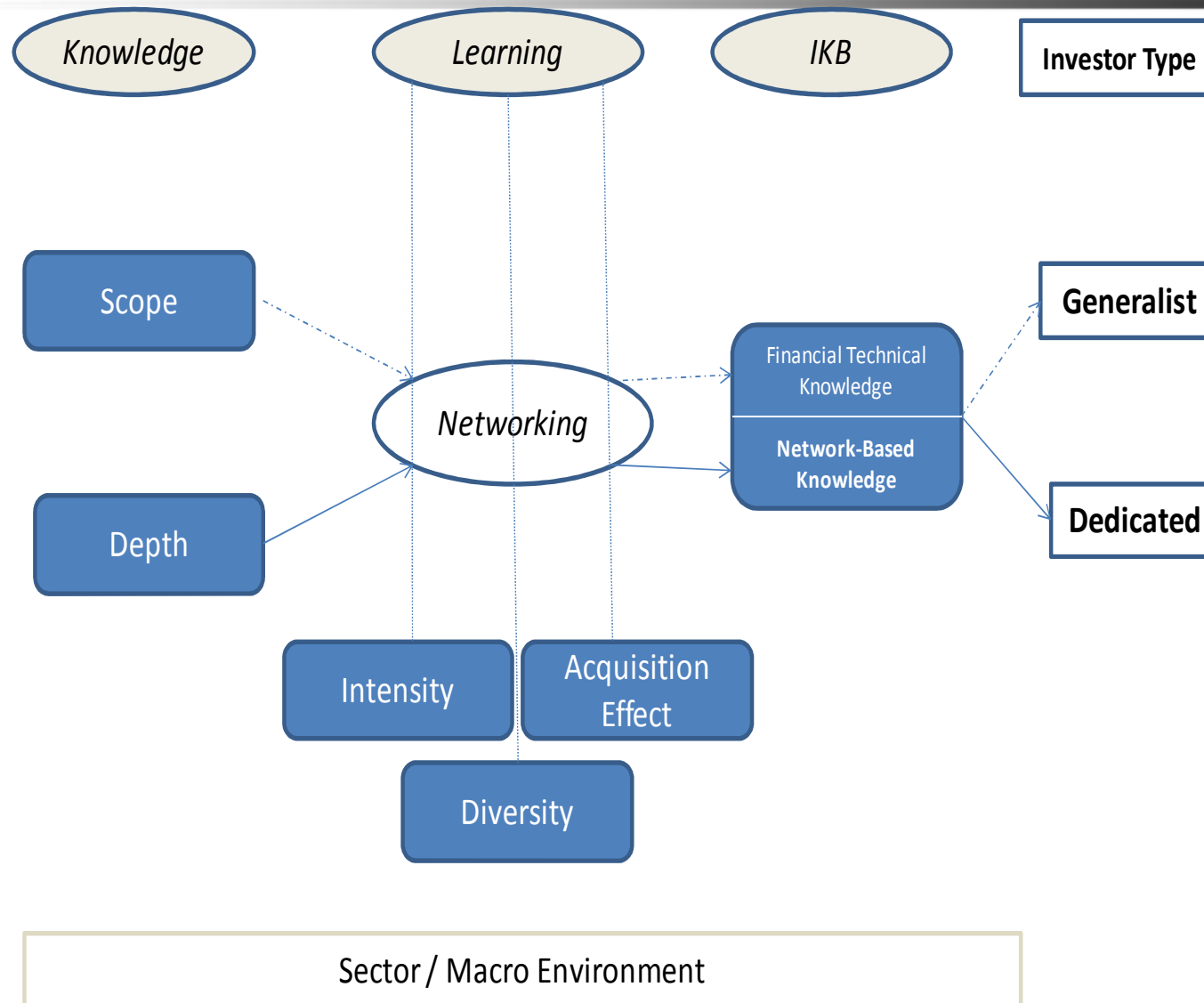
Dedicated investors:

High networking, deep knowledge of one sector, investment decisions based on “learning” criteria, essentially proactive nature, de-risking build up (help owners shape idea into business project)

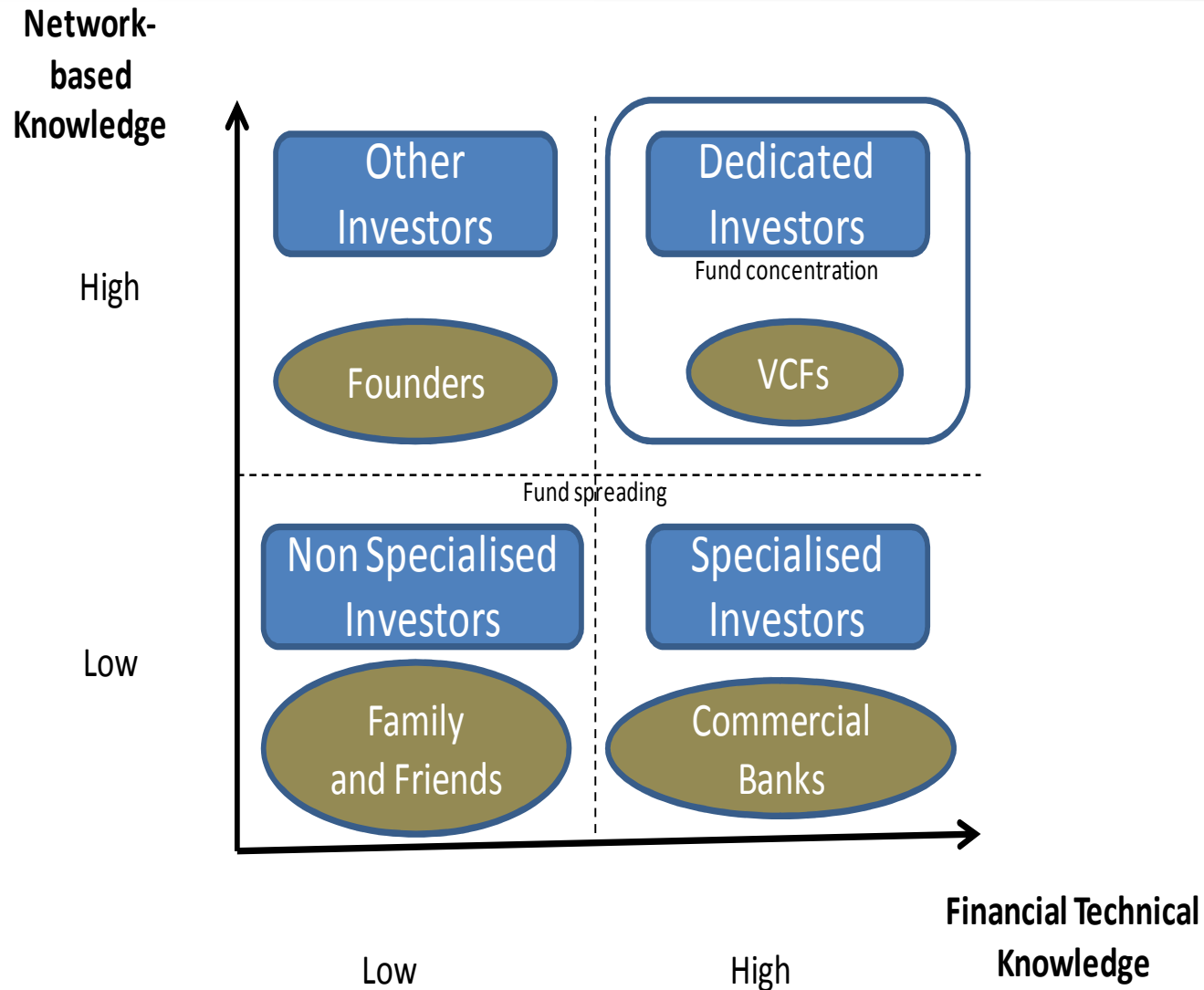
So,

Learning, building up knowledge is the core of DIs strategy...

DISCUSSION AND IMPLICATIONS: A MODEL OF IKB BUILDING - 4



DISCUSSION AND IMPLICATIONS: IKB AND FUNDING CATEGORIES - 5





THANK YOU VERY MUCH!

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