

Mikko Jääskeläinen. 2009. Venture capital syndication: synthesis and future directions. Espoo, Finland. 42 pages. Helsinki University of Technology, Department of Industrial Engineering and Management, Report 2009/1.

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VENTURE CAPITAL SYNDICATION: SYNTHESIS AND FUTURE DIRECTIONS

Mikko Jääskeläinen
Helsinki University of Technology
Institute of Strategy
P.O. Box 5500
FI-02015 TKK, Finland
Telephone: +358 50 341 5267
Telefax: +358 9 451 3095
Email: Mikko.Jaaskeläinen@tkk.fi

Abstract: This paper reviews and synthesizes the extant literature on venture capital syndication. By considering the questions of how, why, and when syndication affects the performance of VC firms and their portfolio ventures, we form a schematic structure of the syndication literature and identify areas for further research. The results of the review show that while the venture-level aspects are relatively well understood, the current literature lacks an understanding of how and why syndication affects the performance of VC firms. This suggests that more attention should be directed towards syndication as a component of the overall strategy of VC firms.

Key words: venture capital, syndication

1 INTRODUCTION

The frequent and continued cooperation of venture capitalists (VCs) through the syndication of investments is one of the defining features of the venture capital industry. Instead of investing alone in new ventures, VC firms form syndicates in which multiple investors provide financing for a venture. The practice is a prevalent feature of the venture capital industry, as approximately 40%-80% (Wright & Lockett 2003; Jääskeläinen *et al.* 2006; Manigart *et al.* 2006) of all investments made by venture capitalists are syndicated¹.

Syndicates are a form of inter-organizational co-operation that serve the purposes of financial intermediation, as well as the goals of individual VC firms. While syndicates have formal structures and are based on contracting between participating VC firms and entrepreneurs, the decision to invite other VC firms to join a syndicate and the decision to participate are driven by the needs and opportunities of both the ventures being financed and the VC firms themselves. Accordingly, the syndication of investments is an inherently multileveled phenomenon combining aspects of contracting, venture development, VC firm strategies, partnership formation, and inter-organizational networks.

Responding to the central role of syndication in venture capital, research has directed considerable attention to the phenomenon. For this review, we identified nearly 60 syndication related articles published in finance, economics, sociology, entrepreneurship, strategy, and management-related journals. However, this cumulative interest in syndication has resulted in a fairly fragmented view. While there exist reviews of specific aspects of syndication, such as contracting (Tykvova 2007), motivations (e.g. Lockett & Wright 2001; Manigart *et al.* 2006), and the strategic approaches of VC firms (De Clercq & Dimov Forthcoming), these contributions have focused on their specific areas, and the understanding of aspects covered by the research as a whole is dispersed among individual contributions. Consequently, the research

¹ The share of syndicated investments in all investments varies with respect to markets and years. While in the UK in 2001, only 13.6% of investments were syndicated (Wright & Lockett 2003; Manigart *et al.* 2006), the typical share for European markets is between 40% and 50% (Wright & Lockett 2003), and the corresponding figure for US markets is closer to 80% (Jääskeläinen *et al.* 2006).

lacks an integrated view on syndication that would allow us to assess what is known and where further contributions are needed.

To review the existing literature and to identify areas for further contributions, we present the following questions to the literature: *how, why, and under what circumstances does syndication influence the performance of ventures and VC firms?* We review the published literature and selected contemporary working papers² on venture capital syndication³ for the purpose of providing the answers to these questions when they can be found in existing research and identifying the gaps when we find the research lacking. The key results of the review are presented in Figure 1, which provides a schematic structure of syndication – from its antecedents to performance effects – as presented in the extant literature, and the key areas for further research. Table I presents the individual contributions categorized under the topics of their main interest.

In this paper, we review the literature following the elements of Figure 1 in five steps. First, we trace the antecedents of syndication to the role of the VC as a financial intermediary, identifying both a functional and strategic antecedent. Second, we review the literature focusing on the decision to syndicate, categorizing the suggested drivers into firm- and venture-level motivations. Third, we address the syndicates in terms of their structure, composition, and dynamics. Fourth, we review the literature addressing the performance effects, and finally we conclude with suggestions for further research.

² As this emerging body of knowledge may be subject to biases resulting from the identification and availability of the studies, we have taken care to explicate the publication status of sources.

³ It should be noted that we specifically focus on literature on venture capital and private equity syndication, thus removing from our scope the research addressing syndication in other financial settings, such as investment banking and loan markets. While sharing the aspects of information production, joint decision making, and risk-sharing, the syndicates formed around securities offerings are significantly different from venture capital syndication. Most importantly, syndicates formed to facilitate issues or loans are essentially focused on short-term information and liquidity production (e.g. Pichler & Wilhelm 2001) and thus lack one of the defining issues of venture capital syndication, that is, long-term value creation. For a concise review of investment banking syndicates see e.g. Song (2004).

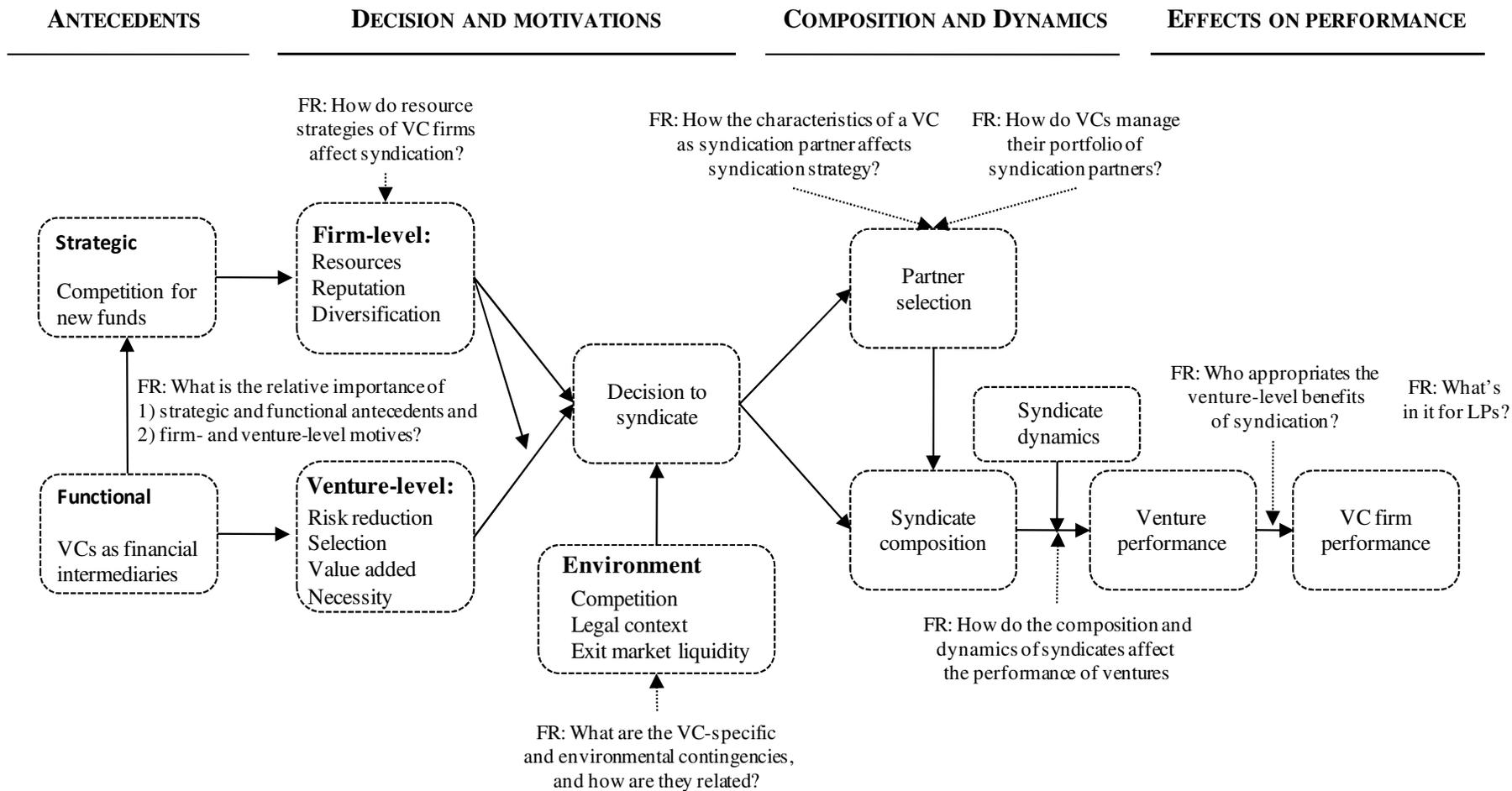


Figure 1 Schematic structure of syndication process based on extant literature and identified areas for further research

Table I Areas and topics addressed within extant research

	Published literature	Emerging literature
Syndication: Decision and motivations		
Reviews	Origins (Michie 1981), Motivations (Lockett & Wright 1999, 2001) (Manigart <i>et al.</i> 2006), VC strategy (De Clercq <i>et al.</i> Forthcoming)	
Syndication decision	Deal characteristics (Cumming 2006a), Experience (Lerner 1994), Reputation and status (Dimov <i>et al.</i> 2009), Legality (Cumming <i>et al.</i> 2006)	Deal characteristics (Deli <i>et al.</i> 2003), Distance (Fritsch & Schilder 2006), Prior syndication experience (Gerasymenko <i>et al.</i> 2008), Career concerns of VCs (Baker 2000), Cross-border syndication (Meuleman <i>et al.</i> 2009)
Necessity: Agency & information	Agency problems (Admati <i>et al.</i> 1994; Schmidt 2003), Commitment to liquidation (Huang <i>et al.</i> 2003), Asymmetric information (Casamatta <i>et al.</i> 2007), Security type (Cumming 2005), Idea theft (Biais <i>et al.</i> 2008)	Agency problems (Fluck <i>et al.</i> 2009), Idea theft (Bachmann <i>et al.</i> 2005), Two-sided asymmetric information (Cestone <i>et al.</i> 2007)
Syndication strategy	Degree of syndication (De Clercq <i>et al.</i> 2004), Deal flow generation (Jungwirth <i>et al.</i> 2004)	Syndication strategy (Walske 2008), Frequency of syndication (Hopp <i>et al.</i> 2006)
Syndication network	Structure (Bygrave 1987, 1988)	
Syndicates: Composition and dynamics		
Structure	Structuring (Wright <i>et al.</i> 2003; Cumming <i>et al.</i> 2005), Composition (Hellmann 2002; Mäkelä <i>et al.</i> 2008),	Size (Hopp <i>et al.</i> 2006)
Partner selection	Partner selection (Tykvová 2007), Formation (Sorenson <i>et al.</i> 2001; Trapido 2007; Hopp 2008; Sorenson <i>et al.</i> 2008), Gift exchange (Ferrary 2003)	Partner selection (Cestone <i>et al.</i> 2007; Hopp 2007; Du 2008), Reciprocity (Mäkelä 2004) Formation (Meuleman <i>et al.</i> 2008, 2009), Reciprocity (Piskorski 2004),
Dynamics and effects	Group processes (Birmingham <i>et al.</i> 2003; Dimov <i>et al.</i> 2006; Guler 2007), Commitment of partners (Mäkelä <i>et al.</i> 2006), Venture effects (Elango <i>et al.</i> 1995; Kaplan <i>et al.</i> 2004; Bottazzi <i>et al.</i> 2008; De Clercq <i>et al.</i> 2008; Kaplan <i>et al.</i> 2003; Mäkelä <i>et al.</i> 2005)	
Effects on performance		
Effects of syndication	Performance (Brander <i>et al.</i> 2002; Mason <i>et al.</i> 2002; Fleming 2004; Jääskeläinen <i>et al.</i> 2006; De Clercq & Dimov 2008; Hill <i>et al.</i> 2009), Governance (Filatotchev <i>et al.</i> 2005; Filatotchev <i>et al.</i> 2006), Portfolio size (Cumming 2006b)	Performance (Cumming <i>et al.</i> 2004)
Effects of syndicate composition	Performance (Birmingham <i>et al.</i> 2003; Dimov <i>et al.</i> 2006; Giot <i>et al.</i> 2007; Guler 2007)	Performance (Du 2008; Hege <i>et al.</i> 2008; Kotha 2008)
Effect of networks	Performance effect (Hochberg <i>et al.</i> 2007; Abell <i>et al.</i> 2007; Echols <i>et al.</i> 2005), Information distribution (Walker 2008)	Performance effect (Bothner <i>et al.</i> 2008a; Bothner <i>et al.</i> 2008b; Jääskeläinen <i>et al.</i> 2008), Investment valuation (Meuleman <i>et al.</i> 2006)

2 FUNCTIONAL AND STRATEGIC ANTECEDENTS OF SYNDICATION

The question of *why* VCs syndicate their investments can be answered on two levels. On the one hand, we can follow the existing research on syndication motivations and answer by suggesting the specific effects VCs seek from syndication. Manigart *et al.* (2006; also De Clercq & Dimov Forthcoming) have suggested that these motivations fall under four headings: 1) finance-related motivations, such as risk reduction and diversification; 2) deal flow motivation, denoting the function of syndication as a mechanism providing access to increased deal flows; 3) deal selection, as joint decision making enhances the accuracy of assessment regarding the potential of ventures, and 4) value-added motives referring to the complementary contributions of syndicate members to the post-investment development of ventures. A similar categorization is suggested by Lockett and Wright (2001), who categorize the motives into: 1) financial, 2) resources-based, and 3) deal flow motives.

On the other hand, we can step back and ask why VCs use syndication to achieve these effects, i.e., what the antecedents of syndication are. This shifts our focus to the drivers of the syndication, which are reflected not only in the decision to syndicate, but also in the structure, composition, and effects of syndicates. We suggest that the aspects of syndication can be fruitfully addressed from two complementary antecedents: 1) the VC firm's role as a financial intermediary, here referred to as *functional* antecedent, and 2) its strategic needs and opportunities to survive and perform within the frames of this role, referred to as *strategic* antecedent.

2.1 SYNDICATION AND VCS' FUNCTION AS FINANCIAL INTERMEDIARIES

The functional antecedent stems from the role of VCs as financial intermediaries. The economic reason for the existence of the venture capital industry and the value of venture capitalists as financial intermediaries is based on the contractual structure of the industry (Sahlman 1990; Black & Gilson 1998), which solves the otherwise prohibitive information problems stemming from moral hazards and asymmetric information related to the financing of new ventures (Leland & Pyle 1977; Chan 1983; Diamond 1984; Gompers 1995; Amit *et al.* 1998; Kaplan & Stromberg 2003; Ueda 2004). To

solve the agency and information concerns between ventures and VC firms, venture capitalists utilize contracts that, on one hand, screen ventures ex ante, tying the entrepreneur's effort to the allocation of control and cash flow rights (Kaplan & Stromberg 2003; Dessi 2005), and, on the other hand, provide VC firms with effective means for ex-post monitoring and involvement through board memberships and the staging of the investments (Sahlman 1990; Gompers 1995). In addition to utilizing effective contracting, VCs specialize and focus their operations to enhance the screening and monitoring of ventures. Focusing on and specializing in specific industries (Gupta & Sapienza 1992), financing stages (Norton & Tenenbaum 1993), and geographical regions (Lerner 1995) lessens the informational asymmetry between VCs and entrepreneurs and economizes the time required for the active monitoring and management of investments.

The role of VCs as informed intermediaries is the basis for the syndication of investments. Joint effort in the selection of investments leads to enhanced screening (Lerner 1994; Brander *et al.* 2002; Cumming *et al.* 2005; Cumming 2006a; Casamatta & Haritchabalet 2007; Cestone *et al.* 2007; Dimov & Milanov 2009), and facilitates the monitoring of the ventures (Lerner 1995; Sorenson & Stuart 2001; Fritsch & Schilder 2006; Meuleman *et al.* 2009). In other words, from the perspective of financial intermediation, venture capitalists syndicate and structure their syndicates in order to increase the amount of information, skills, and resources available for the decision making, monitoring, and development of individual ventures. This enhances the value of the investment by reducing the costs of asymmetric information and agency and increasing the size and probability of positive outcomes.

2.2 SYNDICATION AND VCS' COMPETITION FOR FURTHER FUNDS

The strategic antecedent is based on the strategic behavior of VCs in their role as financial intermediaries. The contractual structure of venture capital mitigates the inherent uncertainty, asymmetric information, and agency costs of investing in new ventures. However, the contractually defined, non-involved role of limited partners in VC funds introduces the same conflicting interests between VC firms and their investors. Accordingly, contractual arrangements between VC firms and LPs are similar to those that structure the incentives between VC firms and ventures. The limited

lifetime of funds and the performance-based compensation of VC firms (Sahlman 1990; Gompers & Lerner 1999) create credible incentives for VC firms to screen, manage, and monitor ventures to maximize the returns on capital invested by institutional investors, even when the investors have effectively no control over the management of a fund.

For VC firms, this creates a situation not unlike the staging of investments that incentivizes ventures to perform in order to secure further financing. The success of venture capitalists in the process of raising further funds to continue their operations is dependent on their ability to generate a realized return that compares favorably with that of their competitors. Therefore, in addition to screening and minimizing agency costs, venture capitalists aim to increase the value of their investments by contributing to their development by drawing on the experience and contacts, i.e., the human and social capital, of their partners (Gorman & Sahlman 1989; Macmillan *et al.* 1989; Sapienza *et al.* 1996; Hellmann & Puri 2002; Walske 2008). Accordingly, the second source of rationales for syndications is the goal of enhancing their performance relative to that of their competitors. This implies that VC firms use syndication to enhance the performance of individual investments by pooling the resources and contributions of syndicate members. Venture capitalists draw on their earlier experience, as well as existing information and contacts, to provide advice on strategic and operational issues related to the ventures and to provide access to professionals and additional resources (Gorman & Sahlman 1989; Macmillan *et al.* 1989; Sapienza *et al.* 1996; Hellmann & Puri 2002). The expertise and contacts of individual VCs in a syndicate are at least partially non-overlapping, thus providing syndicated investment targets with enhanced support for their development.

2.3 RELATIVE INFLUENCE OF THE ANTECEDENTS

To illustrate how the use of the two perspectives, the functional and strategic antecedents, provides an effective approach to the structuring of the literature, consider the oft-cited motive of the diversification of a portfolio (e.g. Bygrave 1987; Lerner 1994; Lockett & Wright 2001). In the extant research the diversification of the portfolio is seen as a financial motivation, considered as a means to reduce the variability of portfolio returns and thus emphasizing diversification as a goal in itself. This approach does not explicate whether diversification serves the interests of LPs or the strategic

goals of VC firms. Our approach shifts the focus onto the question of whether diversification stems from a functional or strategic antecedent. While even within the limited portfolio sizes of VCs diversification can be expected to smooth the variation of returns, the rationale for diversification from the perspective of LPs is sound only if they invest in a very limited number of funds. Otherwise, the ability of LPs to diversify across funds cancels out the rationales for diversification on the fund level. Therefore, and perhaps more importantly, diversification reduces the risks of producing low results that might compromise the VC firm's abilities to attract further funds, thus suggesting that diversification is based more on strategic motives than functional ones. That is, when considered from the perspectives of functional and strategic antecedents, we posit that in contrast to the existing research, the motive for syndication with the purpose of diversification is to reduce the business risk of a VC firm rather than the financial risk of its portfolio.

This example of diversification suggests that the actions of VC firms in general cannot be assumed to be intrinsically targeted to maximizing the value of individual ventures or the performance of funds, but rather to enhancing the chances of survival. Thus, both the performance of funds and the use of syndication are at least partially instrumental to the survival of the VC firm. With respect to our guiding questions of how, why, and when syndication affects performance, adopting these perspectives helps in two respects. First, they allow us to structure the research on the motivations and forms of syndication, and second, they lead us to ask whose performance and what type of performance is relevant when considering syndication. In essence, the two antecedents help us to untangle the multiple levels of analysis and interests and detail the drivers that enable, force, and motivate venture capitalists to syndicate.

3 SYNDICATION: DECISION AND MOTIVATIONS

3.1 MOTIVES AND CONTINGENCIES IDENTIFIED BY EXTANT RESEARCH

What, then, are the motives presented by the existing literature and how does the adoption of the functional and strategic antecedents help us to structure this literature? As discussed above, the extant literature has provided functional explanations for the motives, focusing on the effects of the syndication rather than the purpose these effects

serve. Consequently, the functional and strategic antecedents are at least partly inseparable within the motives presented by the extant research. Therefore, rather than forcing the extant research into categories based on the two antecedents, we classify the motives on the basis of whether they are motivated by the performance and opportunities of the venture or of the VC firm (presented in Table II). Nevertheless, we posit that the functional and strategic antecedents are both prominent when discussing the motives on the level of ventures and VC firms, and, accordingly, we highlight the roles of the two antecedents within these categories. While it is possible to present such a preliminary analysis, there is need for further research in order to disentangle the consequences of antecedents and their relative importance in each case.

Venture-related Motivations

The extant literature presents two main categories for the syndication motivations related to the ventures: 1) the necessity dictated by the information and agency concerns and 2) needs related to the characteristics of the venture. First, regarding necessity, studies on contracting have suggested that syndication may solve concerns about asymmetric information and moral hazards between VCs and ventures. Syndication in the first round or a commitment to syndication in later rounds are seen as ensuring a credible commitment to both the continuation and abandonment of ventures (Admati & Pfleiderer 1994; Huang & Xu 2003; Fluck *et al.* 2009). Additionally, syndication mitigates concern about the theft of ideas by increasing the amount of reputation at stake (Bachmann & Schindele 2005). Furthermore, Hellman (2002) suggests that only through syndicating with an independent VC firm can a strategic investor mitigate concerns about conflicting interests and thereby gain exposure to ventures operating in competing fields.

The second venture-related set of motivations stems from the characteristics of the venture in question. Depending on the resources of the VC firm, it may need to: 1) resort to evaluations of other VCs to ensure a robust selection; 2) access the expertise and contacts of other VCs in order to augment its own resources to ensure sufficient contributions to the development of the venture, and 3) limit its exposure to the venture-specific financial risk by reducing its share of the required investments. Accordingly,

Table II Motivations to syndicate on VC firm, portfolio, and deal levels

The table presents a classification of the extant literature on VC syndication motives. * marks the contributions of emerging literature.

Level of analysis	
Firm level	Articles
Leveraging existing / compensating for lacking resources	Deal flow: <i>Bygrave (1987); Jungwirth et al.(2004); Manigart et al. (2006); Fritsch et al. (2006)*</i> Selection expertise & capabilities: <i>Jungwirth et al. (2004); Casamatta et al.(2007); Dimov et al. (2009)</i> Value-adding capabilities: <i>Jääskeläinen et al.(2006); Manigart et al., (2006); Dimov et al. (2007); De Clercq et al. (2008); Dimov et al. (2009)</i> Market-specific knowledge: <i>Maula et al. (2003)*; Meuleman et al. (2009)*</i> Financial resources: <i>Gerasymenko et al.(2008)*</i>
Managing perceptions of the VC firm	Reputation-building: <i>Lerner (1994); Baker (2000)*</i> Structural positioning: <i>Milanov et al. (2008)*</i>
Managing inter-organizational relationships	Relationship initiation / Reciprocity: <i>Hopp (2007)</i> Entry deterrence: <i>Hochberg et al. (2006)*</i>
Managing portfolio	Reducing risk of underperforming peers: <i>Lerner (1994); Lockett et al. (2001)</i> Diversification: <i>Lerner (1994); Lockett et al. (1999), Lockett et al. (2001); Manigart et al. (2006)</i>
Deal level	
Venture-related factors	Selection: <i>Brander et al.(2002); Cumming (2006a); Dimov et al. (2009); Cestone et al. (2007)*</i> Value added: <i>Brander et al. (2002); Manigart et al. (2006); Dimov et al. (2009)</i> Risk reduction: <i>Manigart et al. (2006)</i>
Necessity	Asymmetric information between VCs: <i>Admati et al. (1994); Lerner (1994); Fluck et al. (2009)*</i> Asymmetric information between VCs and ventures: <i>Hellman (2002); Huang et al. (2003); Schmidt (2003); Bachmann et al. (2005)*; Fluck et al. (2009)*</i>

empirical evidence shows that in investments where uncertainty is high and therefore the need for a second opinion and risk reduction is prominent, the use of syndication is more frequent. The younger the venture (Cumming 2006a), the earlier the stage (Dimov & Milanov 2009), and the larger the total size of the investment (Cumming 2006a; Fritsch & Schilder 2006), the more likely the venture is to be syndicated. Additionally, ventures in areas of high technology are more often syndicated (Cumming 2006a). Regarding the syndication motivated by value adding, De Clercq and Dimov (2004)

report that the more specialized a venture capitalist firm is in a specific industry, the less likely it is to syndicate the first round of investments. Meuleman and Wright (2009) also observe that the less experienced a VC firm is with respect to a specific, non-domestic target market, the more likely it is to syndicate its foreign investments.

In terms of the functional and strategic antecedents, the two set of venture-level motives appear more prominently functional than strategic ones. The syndication as necessity relates directly to the functional antecedent as from this perspective the syndication facilitates the mitigation of the inherent agency and information concerns related financial intermediation. In addition, in terms on enhancing the selection, value-added and risk reduction in individual investments, the motives can be interpreted to reflect functional antecedents as they serve to enhance the outcomes of individual investment and thus the functioning of the intermediation. However, it should be noted that the venture-specific motives can alternatively be seen to reflect the strategic antecedents, if syndication is used continuously to compensate for a lack of selection and value adding capabilities. In this case the motives are perhaps more accurately described to stem from strategic concerns on VC firm-level than on venture-level.

VC firm-related Motivations

On the VC firm level, the motivations stem from needs and opportunities that are not directly related to the specific characteristics of the venture in question. That is, venture capitalists use syndication as a part of their overall investment strategy and it serves as a means to enhance the performance and survival of the firm. The motivations addressed by the literature can be roughly classified into three broad categories, i.e., motivations related to: 1) resource leverage and acquisition; 2) the management of inter-organizational relationships, and 3) fund-level risk management. In the following, the attention is concentrated on the first two set of motives, as the fund-level risk management and diversification has been addressed above.

First, the VC firm-specific motives stem from the needs and opportunities to leverage and compensate its main resources – partner, funds, and deal flow (Bygrave 1987). Syndication compensates for a lack of financial resources, thus offering a means to participate in larger deals than would be feasible alone; it extends the selection and

value-adding capabilities, and market-specific knowledge of partners; and it facilitates the acquisition of pre-screened deal flow through syndication invitations from other VC firms. As discussed above, while on the venture-level the acquisition of these resources may be seen to stem from the functional antecedent, on VC firm-level the resource motives are more strategic in nature, should the syndication be used to leverage or compensate the existing resources.

In contrast, the second category of VC firm level motives, the management of both the external perceptions of VC firms and inter-organizational relationships are indirect in terms of their contribution to the performance of investment targets and thus can be more easily characterized to stem from the strategic antecedent. VC firms have a documented tendency to window-dress, that is, to seek associations with events, such as successful exits, that enhance the external perceptions of the VC firm (Lerner 1994). Additionally, assessments of a VC firm derived from its associations with central or high-status syndication partners contribute to these external perceptions (Milanov & Shepherd 2008; Podolny 2001), which in turn has been observed to lead to enhanced performance (Bothner *et al.* 2008b). That is, syndication offers a means both to acquire a stake in a late-stage venture approaching an exit and to establish contacts with high-status partners. These enhance the perceptions of the VC firm's performance among LPs and prospective syndication partners, especially if the focal VC firm does not yet have presentable returns from its funds, which is often the case when the second fund is being raised.

Relative Importance of Motives

Which of the motivations, then, are the most relevant or dominant? On the basis of existing, mostly pair-wise comparisons of motives, it is hard to draw a coherent picture. Brander *et al.* (2002) conclude that value added is a more significant motive than selection, Bygrave (1987) suggests that deal flow dominates risk reduction, which, according to the results of De Clercq and Dimov (2004), shapes syndication more than knowledge-based motives, and finally, financial motivations are more important than resource-based motivations (Lockett & Wright 1999, 2001). When analyzing the relative importance of motivations with respect to the investment focus of VC firms, Manigart *et al.* (2006) found a clear hierarchy of motivations for later-stage investors,

where financial motives were followed by deal flow, value adding, and selection. Although for early-stage investors the value-adding motive was more significant, the results did not reflect as a clear hierarchy. Similarly, Lockett and Wright (2001) observed that resource and financial motives were more emphasized for early-stage than later-stage investors. When this is augmented with observations that the size of the VC firm increases the importance of deal flow motivation, specialization reduces the importance of selection motive (Manigart *et al.* 2006), and reputation and status affect the syndication negatively and positively, respectively, it is evident that the interactions between a firm's characteristics, needs, and opportunities can be expected to result in a rather complex picture.

3.2 CONCLUSIONS ON DECISION TO SYNDICATE

When assessed against the questions of how, why, and when syndication affects the performance, the current literature on motivations to syndicate shows at least three gaps. First, the research has been geared towards the identification and mostly pair-wise comparison of the motives for syndication. While this is helpful for charting the dimensions of the decision to syndicate, the focus on the effects sought from the syndication has excluded the drivers that enable, force, and motivate venture capitalists to syndicate. Therefore, there is a gap in the research when it comes to the relative importance of firm-level and venture-level motives. Stated in terms of antecedents, this translates into a question regarding to what extent syndication is driven by the functional and strategic pursuits of VC firms. As noted above, in some cases, the distinction is more clear-cut, e.g. when syndication is necessitated by agency concerns (functional) or when VCs aim to establish their reputation through seeking association with successful ventures in their later stages (strategic). In other cases, such as syndicating for the purpose of acquiring an additional assessment of the quality of a venture, syndication may be considered functional on the venture level, but strategic if used continuously to compensate for a lack of selection capabilities.

In answering this first question, we face the next two gaps. On one hand, as suggested by the research, the decision to syndicate appears highly contingent on both the characteristics of the VC firm and the contextual factors, such as the legal environment (Cumming *et al.* 2006), the liquidity of the exit market (Cumming *et al.* 2005), and the

intensity of the competition (Lockett & Wright 1999). Therefore, to answer the first question, we need to understand not only the individual motives but also the strategic positions of individual VC firms and how these positions affect both the availability of syndication and its effects on the performance of the VC. On the other hand, in order to address the evident contingencies, a VC firm's approach to syndication needs to be seen as a part of its overall strategy and positioning with respect to its resources and investment focus, as well as its social and reputational standing with respect to other VC firms. This perspective is not developed enough to provide an answer, thus presenting the third gap. In sum, 1) to understand the relative importance of firm- and venture-level motives, one needs also to consider 2) the contingencies, and to understand the contingencies further research is need to 3) understand the strategic positions of the VC with respect to syndication.

4 SYNDICATES: COMPOSITION AND DYNAMICS

Next, after addressing the question of *why* VCs syndicate their investments, we ask *how* it is done. A syndicate is the outcome of a decision to syndicate, and as such it is the vehicle through which VCs provide the venture with the financial, social and human resources that motivated the VCs to syndicate in the first place. It combines the interests of multiple investors and exists for a number of years before the venture is exited from, and therefore requires coordination and interaction between the venture and the VCs. Therefore, one could expect the scope and complexity of issues related to the syndicates to outweigh those related to the decision. However, as reported in Table I, it appears that the structuring, composition, and dynamics of syndicates have received only very limited attention, while the selection of syndication partners has drawn significantly more contributions. In the following we review these areas of research on syndicates.

4.1 STRUCTURE OF A SYNDICATE AND THE ROLES OF THE LEAD AND NON-LEAD INVESTORS

It should be noted that the discussion on the decision to syndicate and the research that it is based on are grounded in the perspective of a VC firm faced with a decision as to whether to syndicate an investment or invest in it alone. However, the successful creation of a syndicate requires there to be other VC firms that are willing to participate

in the syndicate. While the motives both for forming a syndicate and for joining it are largely similar, joining, and, specifically, joining as a non-lead investor has direct operational benefits that stem from the structure of the syndicates.

The management of a syndicated investment is typically the responsibility of a lead investor, who manages both the venture and the syndicate (Wright & Lockett 2003). The lead investor co-ordinates the syndicate and functions as an interface with the venture, typically drawing their motivation and authority from the largest equity share among investors. Consequently, the lead investor spends ten times more time on the management of a syndicated venture than the non-lead investors (Gorman & Sahlman 1989), is more often involved in the board, is more frequently in interaction with the venture, and is more hands-on with the monitoring (Wright & Lockett 2003). Consequently, the non-lead investors are required to commit fewer resources to the management of syndicated investments. This implies that non-lead investors are able to increase the size of their investment portfolio with a significantly reduced commitment of time, and thus VC firms are able to hold larger portfolios while still maintaining efficiency in managing these investments (Jääskeläinen *et al.* 2006).

In addition to operational benefits, joining a syndicated investment may lead to investments of better quality. The deal flow of venture capitalists stems from two sources: from entrepreneurs directly applying for funding and from other venture capitalists seeking investment partners to join their investments as syndication partners. Therefore, invitations to join a syndicated investment: 1) extend the opportunity set of the invited VC firm (Bygrave 1987); 2) reduce the workload required for screening investment proposals as they come pre-screened by the inviting venture capitalist, and 3) result in better decisions as a syndicate pools the expertise of multiple investors in the evaluation of the investment (Brander *et al.* 2002; Cumming 2006a; Casamatta & Haritchabalet 2007).

Consequently, while this has not been directly addressed by the research, the benefits of syndication to VC firms that join a syndicate permit the reasonable assumption that the creation of a syndicate is not restricted by the availability of syndication partners. However, more significant concerns relate to how VC firms forming syndicates are able to syndicate with the VC firms they prefer, and how VC firms joining syndicates are

able to generate opportunities for further syndication. These questions boil down to the issue of how VC firms select their syndication partners.

4.2 PARTNER SELECTION

The literature suggests two competing rationales for the selection of syndication partners. First, starting from the functional antecedent and from the objective of VC firms to generate the highest possible return on their investments, the key factor when selecting partners stems from the perceived contribution of prospective syndication partners to the development and eventual exit value of the investment target. Accordingly, lead investors' goal is to select those syndication partners for each deal that maximize the value of the specific venture by contributing most to the post-investment management of portfolio ventures through the complementarity of expertise and contacts (Lockett & Wright 2001; Manigart *et al.* 2006; Meuleman *et al.* 2008), and to the exit value of the investment by providing both certification for the value of the venture (Megginson & Weiss 1991) and an association with investment banks and investors (Pollock *et al.* 2004). However, the empirical evidence supporting a preference for the value-adding capabilities of syndication partners is scarce and indirect. While VC firms have been observed to prefer experienced and reputable partners (Lerner 1994; Lockett & Wright 1999; Meuleman *et al.* 2009; Hopp 2008), it is unclear to what extent this is due to a focus on expected contributions or to an attempt by the VC to reduce the uncertainty related to selection of partners (see e.g. Dimov & Milanov 2009). Additionally, as discussed in more detail below, the evidence of the performance effects of the syndicates is equally indirect and is subject to severe endogeneity concerns. Consequently, the extant research does not have evidence on the actual contributions of syndicate partners that could either support or refute the relevance of selecting partners on the basis of their contributions to ventures. Thus, there is a lack of research both on the VC's rationales concerning the selection of a syndication partner and on the contribution and marginal effects of additional VCs in the syndicate.

The second stream of research, corresponding to the strategic antecedent, is aligned with the general literature on the selection of alliance partners and focuses on the effects of existing dyadic and network ties among VC firms and the perceptions of the VC firm as

a partner. In line with the alliance literature (e.g. Gulati & Gargiulo 1999; Chung *et al.* 2000), the syndication literature suggests that from a set of potential syndication partners, lead investors prefer to work with VCs: 1) with whom they have a direct or indirect previous relationship, as this increases the perceived level of trust (Meuleman *et al.* 2009; Trapido 2007; Sorenson & Stuart 2008), 2) that are similar to the focal VC with respect to investment focus, experience, and success (Trapido 2007; Du 2008), and 3) that have a central or high-status position in the syndication network (Chung *et al.* 2000; Meuleman *et al.* 2009, 2008; Dimov & Milanov 2009). These preferences are motivated by both the uncertainty related to new partners and the benefits derived from associations with respected VCs. On the one hand, a prior relationship, shared partners, and similarity facilitate trust and information acquisition and the assessment of the prospective partners. On the other hand, it has been argued that centrality and status⁴ increase desirability through two complementary mechanisms. First, a central position can be taken as an indicator of the intrinsic quality of a VC, thus implying that central or high-status VC firms are able to contribute more to their ventures (Podolny 2001; Dimov & Milanov 2009). Second, status has a function as a quality signal specifically because the true capabilities of VC firms are opaque to outside evaluators (Podolny 1993). As status is partly inferred from references and partners (Podolny & Phillips 1996; Stuart *et al.* 1999; Shipilov & Li 2008), the association with high-status VC firms contributes to the status of focal firms, which in turn then contributes to the perceptions of others regarding their capabilities.

The selection of syndication partners on the basis of prior connections and network position is partly complementary and partly in competition with the contribution-based motive. On one hand, while lead investors might aim to select partners with the highest potential contribution to the value of the venture, the selection criteria for partners for a given venture are likely to yield multiple VCs with compatible profiles, and thus, within this set, the preference for a familiar, reputable, and high-status partner leads to the selection of the actual partners. On the other hand, given the benefits of high-status associations, it is plausible that depending on the circumstances the preference for acquiring associations with desirable partners will dominate the decisions regarding

⁴ It should be noted that methodologically the concept of network centrality and social status are either identical or closely related as the status is often operationalized through a centrality measure, typically Bonacich's eigenvector centrality (Bonacich 1987). The difference between the two depends on the theoretical reasoning in specific cases.

whether to syndicate and with whom to syndicate (see Ferrary (2003) on the initiation of co-operation and the role of a syndication invitation as a gift)⁵.

Irrespective of whether VC firms favor deal-specific contributions or relationship-specific contributions, the motives for partner selection create a link to the decision to syndicate as a VC firm's ability to attract both partners to its out-syndicated deals and invitations to syndicate in are contingent on its characteristics as a syndication partner. Dimov and Milanov (2009) observed that VC firms with a strong social standing are more likely to syndicate ventures that are novel with respect to their existing experience, while firms with a strong reputation were less likely to syndicate. This suggests that syndication decisions are affected both by the need to syndicate and by the opportunities to attract syndication partners.

4.3 DYNAMICS OF SYNDICATES

Apart from the structuring of syndicates and partner selection, the research has paid only limited attention to syndicates and dynamics within them, and only individual studies exist on the topic. While the composition of a syndicate has an empirical association with involvement in ventures (Elango *et al.* 1995; Kaplan & Stromberg 2004; Bottazzi *et al.* 2008; De Clercq *et al.* 2008), governance (Kaplan & Stromberg 2003), performance (Birmingham *et al.* 2003; Dimov & De Clercq 2006; Giot & Schwienbacher 2007; Guler 2007), and venture internationalization (Mäkelä & Maula 2005), the main interest of most of these studies has been elsewhere, and syndicate composition or its size have received only secondary attention or functioned as an alternative hypothesis to be checked.

A single stronger thread of research has focused on the effects of syndicates during the termination of investments. Birmingham *et al.* (2003) and Guler (2007), addressing the escalation of commitment to ventures, that is, the failure to terminate low-quality ventures, observed that the size of a syndicate negatively affected its capability to terminate bad investments. Dimov and De Clercq (2006) measured the effect on

⁵ Another rationale presented in the emerging literature for basing decisions on partner identity rather than deal-specific needs is based on the reciprocity of invitations. Depending on the approach, this is motivated either by the balance of power and dependence (Piskorski 2004), or the balance of value-adding contributions (Mäkelä 2004).

portfolio level, and found that the larger the average syndicate in which a VC firm is involved, the greater the failure rate of the portfolio.

A recent study by Kotha (2008) observed a similar negative group process when examining the effect of investment shares on venture performance. The lack of a syndicate member with a larger stake leads to a decreased likelihood of a successful exit, suggesting that involvement and contributions to the development suffer from free-riding if there is no clear lead investor. In a related study in the context of cross-border syndicates, Mäkelä and Maula (2006) suggest that the distance and embeddedness of investors affect how committed they are to syndicates and how they react to changes in venture performance.

4.4 CONCLUSIONS ON SYNDICATES

In terms of our guiding questions on performance effects – how, why, and when – one could expect that the responsibility to answer the ‘why’ question relies almost exclusively on the literature on syndicates. The syndicate is the essential entity of syndication and it can be argued that all the contributions of the VCs to ventures flow through and originate from syndicates. However, despite the centrality of the syndicate, there is a significant gap and very little research on the topics that could help us to answer the question of through which specific mechanisms syndication affects performance. While the decisions to syndicate and the motives based on the suggested effects of syndication imply the existence of such mechanisms that affect the performance of both venture and VC firms, the evidence is indirect. Additionally, while partner selection appears to be based on similar mechanisms, this evidence is equally implied and indirect.

The second set of research gaps related to syndicates derives from partner selection. First, if the issues of partner selection are central to the formation of syndicates, then, as suggested by Dimov and Milanov (2009), the desirability of a VC as a syndication partner affects its opportunities to syndicate. The question of how these opportunities combine with needs, and how they affect the ways in which VCs use syndication as a part of their overall strategy, points towards a gap in the research. Additionally, if the partner selection is consequential, and the opportunities with respect to attracting a

desirable partner are a relevant question, then it implies that as a part of their syndication strategy, VC firms should also manage their partnership portfolios. The questions of whether this is relevant and whether VCs engage in partner portfolio management have not received attention.

5 EFFECTS OF SYNDICATION ON PERFORMANCE

As it appears that both the decision to syndicate and the composition of syndicates are strongly motivated by their effects on performance, how, then, do these aspects affect the performance of ventures, funds, and VC firms? As the majority of the motivations for syndication closely match the mechanisms through which it can affect the value of ventures, it is only to be expected that such a connection exists. Indeed, the extant evidence on the effects of syndication points in the direction of syndication being associated with enhanced performance on the venture level. However, its effects on the performance of funds and VC firms can be considered inconclusive at best. To illustrate the sources for both the existence and the lack of performance effect, we summarize the proposed mechanism for enhanced performance on the level of ventures, funds, and VC firms, and assess the extant evidence. Table III presents the existing research on performance categorized according to the three levels of analysis.

Venture-level Effects

On the venture level, the research on the motivation and performance effects of syndication suggests two primary mechanisms through which syndication may affect the performance of ventures, the post-investment management and the exit process. First, as suggested above in the discussion on the venture-level motives for syndication, syndication is likely to enhance the performance of individual investments as a result of the pooling of at least partially unique resources and the contributions of the VC firms participating in a syndicate. Second, in addition to the resources directly committed to the venture and mediated through the contacts of the VC firms, the existence of an investor group contributes to perceptions of the venture, both in terms of its legitimacy and credibility. On one hand, the affiliations of a venture with prominent organizations function as symbols of legitimacy (Higgins & Gulati 2003), contributing to the social

Table III Effects of syndication on performance and outcomes of ventures, funds, and firms

Unit of analysis	Syndication measure	Study	Performance measure	Effect	Sample	Data source
Level: Venture						
Syndication, binary measure		Brander et al. (2002)	IRR	Positive	584 exits of Canadian VC investments 1992-1/1998	Macdonald & Associates
		Cumming et al. (2004)*	IRR	Positive	5038 investments from 39 countries 1971-2003	CEPRES
		Fleming (2004)	IRR	Negative	129 Australian VC investments 1992-2002	Survey
		Baker (2000) *	IPO / acquisition exit	Positive	8894 US ventures with first round in 1967-1996	VentureXpert
Syndicate size		Brander et al (2002)	IRR	Positive	584 exits of Canadian VC investments 1992-1/1998	Macdonald & Associates
		Hege et al. (2008) *	IRR	Positive in EU, not US	233 (US) & 146 (EU-15) early-stage investments 1997-2003	VentureXpert
		Giot et al. (2007)	Time to exit	Positive	22042 ventures 1980-2003 Q2	VentureXpert
		De Clercq (2008)	Exit type	Positive (moderate evidence)	Exits of 5001 US first-round VC investments of 200 VCs, 1962-02	VentureXpert
		Guler (2007)	Risk of success (IPO/ acquisition)	No effect	1862 ventures founded 1989-1993	
Syndicate composition	Prior experience with partners	De Clercq (2008)	Exit type	Positive	Outcomes of 5001 US first-round VC investments of 200 VCs, 1962-2002,	VentureXpert
	Partner knowledge endowment	De Clercq (2008)	Exit type	Positive, moderated by prior experience with partner		
	Partner heterogeneity	Du (2008) *	IPO / acquisition exit	Positive	1881 ventures with first-round syndication 1995-2005	VentureXpert
	Type of partner	Mason et al. (2002)	IRR	No effect	128 exits of UK business angels	Survey; CMBOR
	Lead with larger share	Kotha (2008) *	IPO / acquisition exit	Positive	14857 US ventures 1962-2006	VentureXpert
Network	Network centrality	Hochberg et al. (2007)	Time to exit	Positive	13716 ventures with first round 3469 US VC funds 1980-1999	VentureXpert
		Hochberg et al. (2007)	Survival of venture	Positive	13716 ventures with first round 3469 US VC funds 1980-1999	
	Network contacts	Walske et al. (2007)	IPO	Positive	116 US ventures with last financing round in 1996	VentureXpert
		Jääskeläinen et al. (2009) *	Risk of exit	Positive	4559 European ventures 1990-2002	VentureXpert

Level: Fund						
Syndication	Frequency	Gerasymenko et al. (2008) *	Profitability index (fund) IRR	Positive no effect	1104 funds established 1980-1997	VentureXpert
		Jääskeläinen et al. (2008) *	IRR	no effect	244 US VCs established 1986-1996	Private equity intelligence
Syndicate	Size	Gerasymenko et al. (2008) *	Profitability index (fund)	no effect	1104 funds established 1980-1997	VentureXpert
	Lead with larger share	Kotha (2008) *	Exit ratio	Positive	2293 US funds 1962-2006	VentureXpert
Network	Centrality	Hochberg et al. (2007)	Exit rate of a fund	Positive	13716 ventures with first round 3469 US VC funds 1980-1999	VentureXpert
		Abell et al. (2007)	Exit rate of a fund	Positive	621 UK & European funds 1995-2005	VentureXpert
Level: Firm						
Syndication	Use of syndication	Hill et al. (2009)	Perceptions of financial performance	Positive	95 CVCs, data collected 2001-2003	Survey
	Syndication frequency	Jääskeläinen et al. (2006)	Number of IPOs	no direct effect; positively moderates the effects of portfolio size	94 US VC firms, 1986-2000	VentureXpert
	Syndicate size	Dimov et al. (2006)	Failure rate	Positive	200 US VCs 1990-2001	VentureXpert
Network	Network embeddedness	Echols et al. (2005)	Number of successful IPOs	no direct effect; positively moderates the effects of niche	80 independent US VCs 1995-1996	VentureXpert
	Status	Bothner et al. (2008b)*	Growth of funds	Positive	US VC firms, 1981-2004	VentureXpert
	Status volatility	Bothner et al. (2008a)*	Growth in number of investment targets	Negative	US VC firms; 1979-2003	VentureXpert

* Working paper ^aIPOs with aftermarket's first-year return exceeding market index. ^bSyndicated second round, binary measure

standing of the firm (Stuart *et al.*, 1999). The association with multiple VCs provides an increased number of references and affiliations on which the potential partners of the venture can base their evaluations. This contributes to the performance of the venture by increasing its value through providing access to additional opportunities, resources, and partners (Stuart *et al.* 1999). On the other hand, the syndicates provide certification for the quality and correctness of the pricing during the exit process, thus reducing the discount resulting from asymmetric information and enhancing the returns on the investment. While the presence of a single VC already serves as a signal for the quality of the venture, the amount of reputational capital at stake is increased for a syndicate (Megginson & Weiss 1991).

The evidence from the venture-level examinations of the performance effects demonstrates that syndication has mainly positive effects on the performance of ventures. Studies examining the use of syndication (Baker 2000; Brander *et al.* 2002; Cumming & Walz 2004), the size of the syndicate (Brander *et al.* 2002; Hege *et al.* 2008; Giot & Schwienbacher 2007; Guler 2007; De Clercq & Dimov 2008), and the composition of the syndicate (De Clercq & Dimov 2008; Du 2008) have found them to be generally positively associated with both the returns generated by the investment targets and the time to and probability of a successful exit. However, one should be cautious when weighting the evidence for the benefits. On one hand, the evidence on performance effects is largely based on the type of exit and the time to exit. While the arguments for value-adding and certification are plausible, the possibility of reversed causality appears equally plausible. That is, successful ventures grow large, thus requiring financing from larger syndicates both to provide sufficient financial resources and to control risks and exposure. On the other hand, the published evidence from investment returns is based on studies with contradicting results. Fleming (2004) found that in Australian investments, syndication was associated with reduced performance, while Brander *et al.* (2002) report a positive relationship. While emerging research (Cumming & Walz 2004; Hege *et al.* 2008) provides supporting evidence for a positive effect on the return on investment, the question regarding to what extent the results are affected by reversed causality remains unaddressed.

VC firm-level Effects

As argued above, venture capital funds are the main product offered to the customers of VC management firms, that is, to institutional investors. As such, they are the primary vehicles through which a VC firm's ability to generate returns for its investors is assessed, and through which VC firms can demonstrate how they are positioned with respect to other VCs in terms of abilities to generate returns. The VC firm's performance in terms of fund returns then translates into its ability to attract investors to new funds and thus to continue its operations, which effectively is the ultimate measure of a VC firm's performance. Therefore, the questions of interest are how the venture-level benefits from syndication aggregate to the fund level and how they lead to performance and survival differences among VCs.

In principle, the fund- and firm-level mechanisms enhancing the performance are based on the joint effort in selecting and managing investments. This leverages the financial and personnel resources of individual VCs, creating an opportunity for both VC firm-level resource acquisition strategies and fund-level diversification. First, in terms of resources, syndication allows VC firms to access the expertise, funds, and deal flow of their partners (Bygrave 1987; Lockett & Wright 2001; De Clercq & Dimov 2004), thus increasing the amount of resources available for the operations of VC firms (De Clercq & Dimov 2004; Manigart *et al.* 2006) and compensating for those skills or connections the VC firm lacks (Casamatta & Haritchabalet 2007; Dimov *et al.* 2007). This can be expected to enhance the quality of both the deal flow and the consequent investment decisions (Bygrave 1987; Lerner 1994; Lockett & Wright 2001; Brander *et al.* 2002; Manigart *et al.* 2006) as well as the VC's capabilities and the efficiency with which the portfolio is managed (Jääskeläinen *et al.* 2006; Seppä & Jääskeläinen 2006). Second, regarding diversification, syndication provides a mechanism to share the workload and reduce the commitment of resources in individual investments, making it possible for VCs to invest in a larger number of targets (Cumming 2006b; Jääskeläinen *et al.* 2006). Thus, syndication provides VCs, especially those with smaller funds, with the means to invest in deals that would otherwise require prohibitive levels of commitment (Manigart *et al.* 2006). It also offers a means to lower the risk of the portfolio, both by reducing

the exposure in individual deals and by providing for some, although not perfect, diversification (Wilson 1968; Lockett & Wright 2001).

Studies addressing the question of how these two mechanisms contribute to the performance of individual funds are nearly non-existent⁶. Two unpublished reports examining the effects of syndication on fund returns find that the frequency of syndication, i.e. the ratio of syndicated ventures to all the investments of the fund, appears to have a positive effect on the profitability index but no effect on the IRR funds (Gerasymenko & Gottschalg 2008; Jääskeläinen *et al.* 2008). The firm-level performance effects have been assessed through investment outcomes in terms of perceptions of performance (Hill *et al.* 2009), the number and share of successful exits produced (Echols & Tsai 2005; Jääskeläinen *et al.* 2006; Hochberg *et al.* 2007), and the growth of the VC firms with respect to funds and investment targets (Bothner *et al.* 2008a; Bothner *et al.* 2008b). The studies on firm-level performance imply two concerns for drawing conclusions regarding the effects of syndication on performance. First, as with the venture-level effects, the VC's association with outcomes that can be categorized as successful for the venture do not imply that investments made in those ventures are successful in terms of returns generated for the VC fund. This is well illustrated by the study of Dimov and De Clercq (2006), who observe a positive association with the average syndicate size and the failure rate of portfolio companies. As this result does not lead to the conclusion that syndication erodes performance but rather that syndicates terminate investment faster, thus potentially restricting losses, equally, the evidence of positive outcomes does not imply increased performance. The measures used in the extant research treat both the entry rounds and the terms of investments as a black box, implying that we simply do not know what VC firms get for their money, and how the returns are divided among investors. Second, as suggested by the studies focusing on the contacts and network positions of VCs (Echols & Tsai 2005; Hochberg *et al.* 2007; Jääskeläinen & Maula 2009), syndicate and partner portfolio composition (De Clercq & Dimov 2008), and the internal conditions of a VC, such as portfolio size (Jääskeläinen *et al.* 2006), the benefits of syndication appear to be contingent on the external and internal conditions that VC firms face.

⁶ Venture capitalists have been very secretive regarding the actual returns on investments, and the data on returns have only recently become available for researchers. However, depending on the source, the data are far from exhaustive (e.g. Private equity intelligence) or only selectively available to researchers (e.g. Venture Economics).

Therefore, the question is about when, with whom, and through which strategies venture capitalists can benefit from syndication. That is, as the use of syndication is pervasive, the mere indicator of whether a venture is syndicated or not or whether a VC firm uses syndication or not does not amount to a source of difference between VC firms and funds in terms of performance. It appears that the benefits of syndication are derived from the syndication strategy, not from the use of syndication itself.

Conclusion on Performance

While previous research has paid considerable attention to the motivation for syndication, the question of how the financial returns of VC funds are affected by syndication has remained largely unanswered. While these studies generally point towards enhanced performance on the venture level, they have assumed considerable homogeneity among VCs regarding the syndication. This approach has ignored the effects of syndicate roles and the round of entry on how VCs benefit from individual investments. In short, most of the studies that rely on the performance of target companies fail to consider what price the investors paid when investing and what price they receive when exiting the investment. The research on performance effects has not yet converged with the approaches of research addressing the contingencies affecting syndication behavior (e.g. Bygrave 1987; Lerner 1994; Lockett & Wright 2001; Manigart *et al.* 2006).

Consequently, current research faces two gaps. First, while indirect evidence exists, there is a lack of direct evidence on the effects of syndication on the overall financial performance of VCs. Second, while the earlier studies are informative on the aspects of syndication behavior, they do not answer how different VCs might benefit differently from the syndication of their investments.

6 SYNTHESIS AND DIRECTIONS FOR FURTHER RESEARCH

6.1 WHAT WE KNOW AND DO NOT KNOW

When assessing the extant research, the review of the literature provides a picture of syndication that emphasizes the role of motivations for syndication and partners. The current research provides only partial answers to the questions of how, why, and under

what circumstances syndication influences performance. The gaps we identified within each of the three segments of literature with respect to this defining question point in the same direction. First, with respect to the decision to syndicate, there is a lack of research regarding the relative importance of motives. We consider this to be due to both a lack of understanding of the firm- and context-specific contingencies and the underdeveloped strategic approach towards syndication, which has resulted in a venture-specific focus, neglecting the strategic concerns of VCs. Second, in relation to syndicates, there is a lack of research regarding the actual mechanism through which syndication affects performance. Taken together with the gap related to the relative importance of firm- and venture-level motivations, we have difficulties in assessing whether it matters who VCs include in syndicates as co-investors. Consequently, this also makes it hard to assess whether the gap regarding the management of relationships and partner portfolios is a significant one, as we do not know the relative importance of strategic factors and the effects of syndicate partners on performance. Finally, reflecting the above gaps, we do not know if syndication affects firm-level performance, whether it should, and, if it should, then when.

It appears that what is known and what we need to know can be roughly divided with respect to the two antecedents of syndication. The existing research has focused strongly on decisions as to when to syndicate and whom to syndicate with. Focusing on the needs of the ventures, the research has identified, compared, and validated multiple motives for syndication. Additionally, the venture-level effects of syndication and syndicates provide strong, although not unproblematic, evidence for the benefits of syndication. Therefore, it is safe to conclude that from the perspectives of ventures and financial intermediation, the research provides reasonable answers to the question of how, why, and when.

The main gaps that were identified point almost exclusively toward the role of VC-level factors and the strategic antecedent. To understand whether this aspect matters, how much, and how it shapes the actions of VC firms with respect to syndication, the identified gaps point towards three main directions for further research in terms of providing answers to the guiding questions of how, why, and when. First, we suggest that research would benefit from addressing syndication as a part of its overall strategy,

and especially considering the role of resources. Second, more research is needed with respect to the performance effects. Finally, we propose that research is needed on how the aspects of syndication combine on the level of the industry and how it affects the LPs.

6.2 SYNDICATION AND VC FIRM RESOURCE STRATEGY

Recent literature focusing on the strategic dimensions of venture capital firms has begun to investigate the connections between venture capitalists' resource endowments and their actions and performance. In this sphere studies have reported that venture capitalists select their niche position (Echols & Tsai 2005) and investment focus (Dimov & De Clercq 2006), as well as choosing their level of involvement in portfolio companies (Gifford 1997; Jääskeläinen *et al.* 2006; De Clercq *et al.* 2008), on the basis of their endowments in human and social resources. Given the role of syndication in leveraging and compensating VC firms' resources for value adding, selection, and deal flow, it can be expected that the extent to which a VC firm uses syndication will be connected to its resource endowment.

We expect such a connection to be present in the extent to which VC firms use syndication to leverage their own resources. As syndication allows VC firms to manage a larger portfolio than without syndication, syndication effectively creates a mechanism for leverage. While co-operation with other venture capitalists should affect the efficiency and effectiveness of a VC firm positively, the use of these external resources and reliance on them also makes an organization dependent on the continuity and recurrence of the co-operation (Pfeffer & Salancik 1978). Depending on the market, on average 30-40% of the investments of venture capitalists are made following syndication invitations from other venture capitalists (Jääskeläinen *et al.* 2006; Manigart *et al.* 2006). Whether the extensive use of syndication increases the risks of a VC firm or affects its performance negatively is an interesting topic for further research.

In addition to the direct effects of resource leverage, the benefits of syndication and the mechanisms of partner selection suggest that finding new syndication partners and managing relationships with existing ones is a relevant concern for VC firms. The literature on alliances has recently directed increasing attention to the management of

partner portfolios as a part of a firm's overall strategy (Hoffmann 2007). For example, issues such as the exploration and exploitation of syndication partners (Lavie & Rosenkopf 2006), the diversity of partners (Goerzen & Beamish 2005), and the effects of repeated co-operation (Goerzen 2007) also appear directly relevant within the context of VC firms. In essence, the key question here is how the leveraging of VC firms' resources through syndication affects the management of these inter-organizational relationships that provide the access to additional resources in the first place.

Furthermore, the opportunities for resource leverage and the need to manage the partner portfolio are likely to be contingent on the characteristics of the VC firm as a syndication partner, as suggested by Dimov and Milanov (2009). The consideration of reputation and status draws attention to the effects of a VC firm's structural standing on its opportunities to pursue specific syndication strategies. A VC firm's ability to leverage operations with the resources of its partners, i.e. with network resources (Lavie & Rosenkopf 2006), is contingent on its ability to attract invitations to syndicate, that is, to syndicate in. Whether these and other strategic concerns dominate venture-specific motives with respect to decisions on whether to syndicate and with whom is a subject for further research.

6.3 SYNDICATION AND PERFORMANCE

The fact that the extant research presents no consistent evidence for the fund-level performance effects of syndication presents two opportunities for further research. First, further research is required to either confirm or refute the existing results based on emerging research that, in fact, there is no statistical relationship between syndication and performance. This requires development in terms of identifying the mechanisms through which syndication might affect performance. Given that the current evidence comes mainly from US venture capital markets, where approximately 80% of investments are syndicated, it is not surprising that whether syndication is used or not is not a sufficient factor to create performance differences among funds. Thus, a more interesting question is whether some VC firms are better positioned to reap the venture-level performance benefits of syndication (Lavie 2007). Studies examining the performance effects of VC firms' network positions suggest that centrally positioned VC firms may enjoy structural benefits that contribute to their performance (Hochberg

et al. 2007; Bothner *et al.* 2008b). Accordingly, the fruitful question regarding the effects of syndication on performance appears to be by whom and how syndication is used. The second approach to examining the performance effects would be to address the survival of VC firms. Success in securing further funds presents an observable criterion for their success, and has been used in venture capital research, though not in syndication-related studies (e.g. Kaplan & Schoar 2005).

On the venture level, interesting avenues for research are the marginal contribution of syndicate members to the performance of the ventures and the resource complementarity of syndicate members. As observed in the discussion of the effects of syndicate and its composition above, we currently do not know why certain VCs are invited to join syndicates and what their contribution to the performance of those syndicates is. While complementary assets have been found to form one of the dominant drivers for the motivations and benefits of inter-organizational relationships in general (e.g. Eisenhardt & Schoonhoven 1996, Stuart 2000), the syndication literature has directed only limited attention to the resources complementarity of syndicate partners. So far, aspects such as experience and specialized expertise have received modest attention (e.g. De Clercq & Dimov 2004, Du 2008), but interplay of the complementary resource of syndicate partners lacks contributions. Therefore, more research is needed in terms of what different types of investors bring to syndicates, how these complementary assets interact, and what are their effects to the investments.

6.4 WHAT'S IN IT FOR LPS?

The question of to what extent syndication is driven by the maximization of fund value or the VC firm's attempt to secure further financing has direct implications for the interests of LPs. From the perspective of financial theory, the VC fund structure solves the agency issues at the cost of yielding a second-best solution, implying that the structure itself is a source of costs. Thus, VC firms placing survival before fund performance can be seen merely as a form of these costs, a side-effect of solving the agency problem. Therefore, VCs' attempts to establish their reputation, grandstand, buy into networks, and diversify reduce the venture-level benefits of syndication. What the relative magnitude of these costs is represents a question for further research.

From a practical perspective, one of the key questions is whose and what risks the diversification of a portfolio reduces. As argued above, diversification effectively serves the needs of the VC firm to reduce its risk of producing inferior returns. On one hand, syndication enables VC firms to leverage their funds by lowering their financial commitment to individual ventures and thus increasing their portfolio size and diversification. On the other hand, syndication makes the portfolios of individual VC firms more similar, thus reducing the risk of deviating from the returns produced by the competing VC firms. What the benefits and effects on the portfolios of limited partners are depends on the investment policy of specific LPs. While, to our knowledge, there are no studies addressing the effects of syndication on LPs, two questions appear readily relevant to the topic. First, to what extent do LPs benefit from diversification? This is likely to depend on the size of the LP's VC fund portfolio. For LPs with a limited portfolio size, diversification on the fund level may be beneficial, while for LPs with multiple fund investments, the size of their own portfolio diversifies the fund-specific risks. Additionally, fund of funds, i.e. specialized middle-men raising funds for LPs and investing them in VC funds, provide diversification for institutions with small venture capital programs. Second, for LPs with a limited geographical focus relative to their investment volume, syndication may even reduce the diversification of their portfolio. If the VC firms managing the funds in which an LP has a stake syndicate heavily, it reduces the diversity of ventures that form the basis for return generation. While not necessarily a concern for commercial investors in the US or other larger VC markets, for policy-oriented LPs or LPs with smaller home markets, this might be a source of concern.

7 CONCLUSIONS

In this paper, we set out to review and synthesize the extant research on venture capital syndication. The shape of the review has been influenced by our view that while the function of syndication is carved by venture capitalists' role as financial intermediaries, the use and outcomes of syndication are affected by the strategic concerns of venture capitalists striving for performance and survival. From these functional and strategic perspectives, we sought the answer to the question of how well we understand how, why, and under what circumstances syndication affects performance.

This approach leads to multiple areas for further research. First, we find that while conventional wisdom on the benefits of syndication as a means to enhance the performance of the targets has received both attention and support from the research, the implications of this performance enhancement for VC firms is based on evidence that is both indirect and scant. The main avenues for further contributions with respect to performance implications are based both on methodological approaches that could counter the evident but non-addressed endogeneity concerns and on the theoretical concerns on bargaining and the appropriation of rents from syndicates.

Second, we observe that the formation and structure of syndicates have received attention mainly from the perspective of partner selection. This suggests two main areas of contribution for further research syndicates. On one hand, the significance of partner selection suggests that both the decision to syndicate out and to syndicate in are conditioned by VC firms' characteristics as syndication partners. On the other hand, these characteristics are likely to be influential on the benefits derived from the syndication, thus implying that one source of performance difference is rooted in the VC firm's ability to form and extract rents from syndicates. Taken together, the gaps in the research related to syndication and its performance effects highlight the need to view syndication as part of VC firms' overall strategy.

The results of this review also contribute to the more generic research on inter-organizational relationships. In addition to attracting research interest in its own right, syndication has served as an empirical context for examining the dynamics of inter-organizational relationships and their effects. The syndication of venture capital investments has provided a rich empirical setting for an increasing number of studies seeking to contribute to the literature on inter-organizational relationships. The availability of extensive databases⁷ documenting investment targets and investors has facilitated the testing of theoretical arguments from the domains of finance (e.g. Hochberg *et al.* 2006, Hochberg *et al.* 2007, Jääskeläinen *et al.* 2009), strategy (e.g. Echols & Tsai 2005, Keil *et al.* Forthcoming, Maula *et al.* 2003, Fund *et al.* 2008), and sociology (e.g. Podolny 2001, Castilla *et al.* 2000, Kogut *et al.* 2007, Milanov *et al.*

⁷ The development of syndication literature has been largely facilitated by Thomson Financial's Venture Economics database (also referred to as VentureXpert, depending on the interface used), that offered the primary data source for approximately 55-60% of the studies focusing on syndication. Another significant data source is the CMBOR database, focusing especially on UK buy-outs.

2008). While offering data on inter-organizational relationships, the specifics of VC syndication imply limits to the generalization of the results. Venture capitalists are small professional service firms in financial intermediation, and as such they use horizontal alliances to access resources with a scale and frequency that is untypical in most other industries. The results of this review facilitate the further use of syndication as an empirical context by providing an accessible description of the motives, contingencies, and outcomes of syndication.

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