1 Introduction

1.1 Problem and Aims of Analysis

While venture capital (VC) is of paramount importance for the development of young high potential companies, and thus also economic growth, the supply of venture capital is highly concentrated in only a few clusters in many countries. In consequence, it is essential to understand the role of spatial proximity between venture capitalists and new ventures in VC financing relationships. However, especially for continental European countries, there is still a huge lack of knowledge in this regard. Hence, this thesis aims to contribute to fill this research gap.

Economies around the globe are characterized by a constant structural change. This change is driven by the human desire for innovation, progress and the resulting economic wealth. History shows that structural changes led to severe economical and societal upheavals and that employment and prosperity primarily emerged in those regions that were able to contribute to the structural change with their innovative capacity. Regions that were not able to participate in this process of structural change fell back dramatically.[1] Hence, a competition of regions emerges.

Research shows that innovations and economic growth are mainly driven by young, small and medium sized companies.[2] However, due to their young age and small size these companies usually do not have the necessary resources to unfold their full potential. Furthermore, innovation is inevitably associated with high levels of uncertainty. The early stage of development, the high uncertainty, and missing collaterals usually prevent the access to traditional forms of financing like debt capital or public capital markets. In consequence, venture capital is often the only alternative to fund young, innovative, high potential companies.[3]

Besides this necessity for venture capital many studies show that venture capital backed companies also outperform in many dimensions like innovation and patenting activity, employment growth, operational performance, or post-IPO performance. This is mainly due to the fact that most venture capitalists do not only provide financial resources but also offer a wide

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[1] Cf. Grossman/Helpman (1993), pp. 1-14; Porter (2000), pp. 19-21. Examples for economic development driven by innovations are the development of the automobile industry in Germany in the 19th and 20th century and the development of the information technology industry in the United States (cf. Flick (2001), p. 50; Castells (1991), pp. 33-125). In contrast, the German Ruhrgebiet is an example for a region that lags behind economically due to an insufficient participation in structural changes (cf. Faust (1999), pp. 11-13). These developments are also in line with Schumpeter's concept of creative destruction (cf. Schumpeter (1942), p. 83).

[2] Cf. Schumpeter (1942), p. 106; Mellewigt/Witt (2002), p. 81; Audretsch (2002), pp. 14-35.

[3] Cf. Gifford (1997), p. 459; Söderblom/Wiklund (2006), p. 12.

range of management and business support.[4] In addition to these direct effects, venture capital also has a positive indirect effect on economic renewal through spill-over effects of the R&D activities in the financed ventures.[5] As a result, venture capital is an important factor for regional economic development and federal governments, states, and municipalities have an increased interest in promoting the availability of venture capital in their regions.[6]

At the same time, the supply of venture capital is highly clustered in many countries. In the United States (US) venture capitalists concentrate in the Silicon Valley as well as Boston and New York, in the United Kingdom (UK) the venture capital industry is clustered in London, and in Germany the majority of venture capitalists locate in Munich, Frankfurt, Berlin, Hamburg, and Düsseldorf.[7] Furthermore, there are indications that spatial proximity between venture capitalists and their portfolio companies is of high relevance and that venture capitalists only have a limited spatial reach. As mentioned above, venture capitalists typically invest into young, innovative, and often technology oriented new ventures for which informational asymmetries are severe.[8] High uncertainties and permanent changes of the business environment require constant monitoring and a lack of experience of the entrepreneurial team calls for frequent support by the venture capitalist.[9] These facts may require regular interactions between venture capitalists and (potential) portfolio companies and are just some reasons for the prospective relevance of spatial proximity.[10] This argumentation is underlined by some, mainly US venture capitalists that state that they would only invest within a certain distance, while the stated maximum travel time from their office varies between 20 minutes and two hours.[11] But also German companies state that the regional presence of an equity investor is very important.[12] These two facts, a clustered venture capital supply and the importance of spatial proximity between venture capitalists and their (potential) portfolio companies, may lead to the existence of equity gaps or at least disadvantages to receive venture capital funding

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4 Cf. Brav/Gompers (1997), pp. 1818-1820; Hellmann/Puri (2000), pp. 975-980; Kortum/Lerner (2000), pp. 691-692; Bottazzi/Da Rin/Hellmann (2008), pp. 503-507; Puri/Zarutskie (2009), pp. 27-28.

5 Cf. Jaffe (1986), p. 998; Audretsch/Feldman (1996), p. 639.

6 Cf. Sunley et al. (2005), pp. 259-262; Niefert et al. (2006), pp. 28-29.

7 Cf. Florida/Kenney (1988), p. 36; Mason/Harrison (1992), pp. 362-362; Sorenson/Stuart (2001), pp. 1570-1571; Mason/Harrison (2002), pp. 438-444; Powell et al. (2002), pp. 297-299; Martin et al. (2005), pp. 1215-1219; Butler/Goktan (2008), p. 33; Tian (2009), pp. 7-8. For the distribution of German venture capitalists see section 2.2.2.

8 See also Gompers/Lerner (2004), pp. 157-158.

9 Cf. Gorman/Sahlman (1989), pp. 234-237.

10 See e.g. Sorenson/Stuart (2001), pp. 1553-1555.

11 Cf. Zook, 2002, p. 163; Martin et al. (2005), p. 1213; The New York Times (2006).

12 Cf. Achleitner/Schraml/Tappeiner (2008), p. 35. This study analyzes German family firms. Nevertheless, it is likely that the respective result also applies to young, high potential companies.

in certain regions.[13] A first indication for the existence of such equity gaps is that venture capital investments also show regional imbalances and are mainly clustered in the same geographical regions as venture capitalists are.[14]

In contrast to the arguments above, German venture capitalists often state that the scarcity of promising investment opportunities prohibits being selective on a regional level and that they would invest everywhere.[15] Furthermore, we are living in a globalized world and especially financing relationships internationalize more and more.[16] Internet and modern telecommunication facilitate nearly costless communication over long distances and a dense network of flight connections is available at affordable prices. These facts oppose the potential importance of spatial proximity.

In consequence, there is a strong dissent regarding the importance of spatial proximity for venture capital financing. However, the existence of equity gaps would have important implications for entrepreneurial teams and public policy. First, entrepreneurial teams that wish to grow their new ventures could have an incentive to relocate their new ventures to one of the venture capital clusters. Second, municipalities that are located far off the existing venture capital clusters would need to focus on the establishment of venture capitalists in their regions in order to foster the development of young, innovative companies and thus to prevent to be left behind in economic development in the long run.[17]

The importance of spatial proximity between venture capitalists and new ventures for VC financing relationships would also have significant implications for venture capitalists in regard to their portfolio strategies and location decisions. Venture capitalists frequently specialize their operations in regard to dimensions like industries, investment stages, and/or regions.[18] These specialization strategies offer several benefits like improved deal selection and management support but also come at the cost of a reduced portfolio diversification.[19] However, if spatial proximity turns out to be an important factor for the emergence of successful VC financing relationships, it may pay-off for venture capitalists to increase the specialization of their operations on surrounding regions.[20] However, venture capitalists also depend on a strong deal flow in order to be able to be selective and to pick the most promising investment

[13] Cf. Martin et al. (2005), pp. 1213-1214.

[14] See section 2.2.2.

[15] Cf. Fritsch/Schilder (2008), pp. 2127-2129.

[16] Cf. Lothian (2002), pp. 722-723; Aizenman/Kendall (2008), pp. 5-9; Tykvová/Schertler (2008), p. 1.

[17] See e.g. Zook (2002), p. 165; Martin et al. (2005), p. 1227.

[18] Cf. Sahlman (1990), p. 489; Lossen (2007), pp. 57-61; Han (2009), pp. 15-17.

[19] Cf. Gompers et al. (2009), pp. 818-821.

[20] Cf. Christensen (2007), pp. 821-822.

opportunities.[21] In consequence, the growth of a venture capitalist or the specialization in certain industries or investment stages usually requires the expansion of the geographic scope in order to sustain a sufficient deal flow.[22] Hence, it may be necessary for venture capitalists to open branch offices in their more distant target areas if spatial proximity turns out to be an important factor.

Given the severe consequences of equity gaps for entrepreneurial teams and the regional economic development as well as the implications for venture capitalists it is important to fully understand: whether spatial proximity between venture capitalists and new ventures has an influence on VC financing relationships or not; how large this influence is; why the potential influence is in place and for which types of new ventures, venture capitalists, and investment rounds the impact of spatial proximity is especially severe.

Existing literature on the role of spatial proximity in venture capital financing mainly focuses on the US and only very little is known for continental European countries.[23] However, institutional theory and existing empirical evidence shows that there are large differences in entrepreneurial finance across countries and that country specific venture capital research is indispensable.[24] In addition, North American countries differ strongly in their spatial structure compared to continental European countries, which are spatially much more concentrated and have denser infrastructures. Hence, also the mean distance between venture capitalists and their investments differs substantially and the impact of distance on VC financing is likely to be different across countries.[25] Next to the necessity of country specific research, to the best knowledge of the author, no holistic theoretical framework regarding the impact of spatial proximity between venture capitalists and new ventures on the likelihood to successfully pass the different phases of the VC investment process exists so far. Furthermore, empirical evidence regarding the impact of spatial proximity on the likelihood of investment and for which types of new ventures, venture capitalists, and investment rounds spatial proximity is particularly important is very scarce and offers contradicting results.[26] In consequence, the contribution of this thesis to the existing literature is twofold. First, a holistic theoretical framework

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[21] Cf. Lockett/Wright (2001), p. 378.

[22] Another reason which may require the expansion of a venture capitalist's target area is an increasing amount of assets under management and thus the need for a higher number of investments in order to invest the fund capital.

[23] See section 2.3 for a detailed overview of relevant literature.

[24] Regarding institutional theory see e.g. Busenitz/Gomez/Spencer (2000), pp. 995-996; Bruton/Fried/Manigart (2005), pp. 740-741. Regarding empirical evidence see e.g. Sapienza/Manigart/Vermeir (1996), pp. 456-462; Zacharakis (2007), pp. 699-705. See also section 2.3 for a detailed discussion.

[25] Cf. Bruton/Fried/Manigart (2005), p. 753; Fritsch/Schilder (2008), pp. 2127-2129.

[26] Cf. Sorenson/Stuart (2001), pp. 1571-1577; Cf. Engel (2003a), pp. 136-138; Fritsch/Schilder (2008), pp. 2127-2129.

will be developed that sheds light on the relationship between the spatial proximity of different types of venture capitalists and new ventures and the likelihood of a VC financing relationship throughout the investment process.

Second, based on the elaborated theoretical framework, the following two research questions will be answered both theoretically and empirically for German new ventures:

1 What kind of relationship exists between certain characteristics of ventures, venture capitalists and/or financing rounds and the observed spatial proximity between venture capitalists and new ventures?

2 What kind of impact has spatial proximity between different types of venture capitalists and new ventures on the likelihood of a specific venture capital financing to occur?

Hence, research question one requires an analysis of the observed patterns in spatial proximity between venture capitalists and their German investees in order to reveal, which types of new ventures, venture capitalists, and investment rounds are found to be closer to each other compared to others. One reason for these observed patterns in spatial proximity may be the likelihood of investment which is likely to depend on the distance between both parties. However, various other factors like Germany's spatial structure, the spatial distribution of venture capitalists, the spatial distribution of industry agglomerations, demographic issues, or the relocation of certain new ventures close to potential venture capitalists may also have an impact. Consequently, research question two asks more specifically to investigate the causal relationship between the spatial proximity of both parties and the likelihood of a VC investment.

Moreover, in order to set boundaries on the scope of this thesis it is important to mention that this work is mainly concerned with spatial aspects of venture capital financing within one country, particularly Germany. The internationalization of venture capital involves other aspects and a separate stream of literature exists.[27]

I would also like to note that usually the masculine gender is used within this thesis for convenience only. However, whenever the masculine gender is used, both men and women are meant equally.

1.2 Research Methodology

The research aims and questions, which were stated in section 1.1, are of high practical relevance for entrepreneurs, venture capitalists and policy makers. In consequence, this thesis also discusses practical implications and recommendations next to the theoretical and empiri-

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[27] For a thorough overview see Wright/Pruthi/Lockett (2005), pp. 147-150.