

Fritsch, Michael; Schilder, Dirk

Working Paper

Is venture capital a regional business? The role of syndication

Freiberger Arbeitspapiere, No. 2006/09

Provided in Cooperation with:

TU Bergakademie Freiberg, Faculty of Economics and Business Administration

Suggested Citation: Fritsch, Michael; Schilder, Dirk (2006) : Is venture capital a regional business? The role of syndication, Freiberger Arbeitspapiere, No. 2006/09, Technische Universität Bergakademie Freiberg, Fakultät für Wirtschaftswissenschaften, Freiberg

This Version is available at:

<https://hdl.handle.net/10419/27103>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

TECHNICAL UNIVERSITY BERGAKADEMIE FREIBERG
TECHNISCHE UNIVERSITÄT BERGAKADEMIE FREIBERG

FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION
FAKULTÄT FÜR WIRTSCHAFTSWISSENSCHAFTEN



Michael Fritsch
Dirk Schilder

Is Venture Capital a Regional Business?
The Role of Syndication

FREIBERG WORKING PAPERS
FREIBERGER ARBEITSPAPIERE

09
2006

The Faculty of Economics and Business Administration is an institution for teaching and research at the Technische Universität Bergakademie Freiberg (Saxony). For more detailed information about research and educational activities see our homepage in the World Wide Web (WWW): <http://www.wiwi.tu-freiberg.de/index.html>.

Addresses for correspondence:

Prof. Dr. Michael Fritsch†
Technical University of Freiberg
Faculty of Economics and Business Administration
Lessingstraße 45, D-09596 Freiberg (Germany)
Phone: ++49 / 3731 / 39 24 39
Fax: ++49 / 3731 / 39 36 90
E-mail: michael.fritsch@tu-freiberg.de

Dipl.-Volksw. Dirk Schilder
Technical University of Freiberg
Faculty of Economics and Business Administration
Lessingstraße 45, D-09596 Freiberg (Germany)
Phone: ++49 / 3731 / 39 36 78
Fax: ++49 / 3731 / 39 36 90
E-mail: dirk.schilder@tu-freiberg.de

† German Institute for Economic Research (DIW) Berlin, and Max-Planck Institute of Economics, Jena, Germany.

We gratefully acknowledge the financial support from the German Research Foundation. Research grant FR 979/7-1.

ISSN 0949-9970

The Freiberg Working Paper is a copyrighted publication. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, translating, or otherwise without prior permission of the publishers.

Coordinator: Prof. Dr. Michael Fritsch

All rights reserved.

Contents

Abstract / Zusammenfassung..... II

1. Introduction..... 1

2. The role of spatial influences for the regional supply of VC.....2

3. The database3

4. What influences the distance between VC firms and VC investments?.....6

5. The role of syndication for regional VC supply8

6. Are there white spots on the map of VC supply in Germany? 15

7. Conclusion and policy implications..... 18

References.....20

Abstract

We investigate whether the supply of Venture Capital (VC) in Germany is driven by spatial influences. The study is based on information from more than 300 VC investments made in Germany in the years 2004 and 2005. We find evidence that the geographical distance between a VC company and the portfolio firm is not an important factor for German VC investments. Syndication of investments helps to overcome the problem of distance to portfolio firms if one of the investors is located close to the investment. Altogether, we find no evidence for a severe regional equity gap for young and innovative companies in Germany.

JEL-classification: G24, O16, D21, M13, R12

Keywords: Venture Capital, regional equity gap, start-up financing, entrepreneurship.

Zusammenfassung

“Ist Venture Capital ein regionales Geschäft ? Die Rolle der Syndizierung”

Wir untersuchen, inwieweit das Angebot an Venture Capital (VC) in Deutschland räumlichen Einflüssen unterliegt. Die Studie basiert auf Informationen über mehr als 300 VC Investitionen, die während der Jahre 2004 und 2005 getätigt wurden. Unsere Analyse ergibt, dass die räumliche Entfernung zwischen einer VC Gesellschaft und einer Portfoliofirma für VC Investitionen in Deutschland unbedeutend ist. Syndizierung von Investitionen kann dann dazu beitragen, Probleme großer räumlicher Distanz zu bewältigen, wenn einer der Investoren seinen Standort in der Nähe der Portfoliofirma hat. Alles in allem finden wir keinen Beleg dafür, dass Beteiligungskapital für junge und innovative Unternehmen in bestimmten Regionen Deutschlands nicht in ausreichendem Maß verfügbar wäre.

JEL-Klassifikation: G24, O16, D21, M13, R12

Schlagworte: Venture Capital, regionale Finanzierungslücke, Gründungsfinanzierung, Entrepreneurship.

1. Introduction

Sufficient supply of capital is a crucial ingredient for prospering entrepreneurial activity in a region. Equity capital, especially Venture Capital (VC), plays a main role in this respect; particularly for young and innovative start-ups which are facing severe problems of accessing other means of financing. It is often assumed that regional disparities in the supply of equity capital exist that lead to an 'equity gap' in certain regions. This hypothesis is based on two assumptions. First, suppliers of VC are clustered in just a few locations. Second, spatial proximity between a VC investor and its portfolio firms is needed for the emergence and successful maintenance of a VC partnership. As a consequence, undersupply of sufficient equity for start-ups may occur in those regions where no or only few VC companies are located. It is the combination of regional clustering of VC firms *and* a need of spatial proximity for VC investment that may cause an equity gap working as an impediment for entrepreneurial activity in certain regions.

In this paper we analyze the importance of spatial proximity for the emergence of VC investments and the role of syndication for overcoming problems of geographical distance. Syndication means that "... two or more venture capital firms come together to take an equity stake in an investment" (Wright and Lockett, 2003, 2074). The results will help to judge if there are regional equity gaps for innovative start-ups in Germany. The remainder of the paper is organized as follows. Based on a short review of the relevant literature (section 2), we introduce the data (section 3) and discuss possible reasons for a regional lack of VC (section 4). The results of the empirical analyses on the importance of spatial proximity for a syndication of VC investments are presented in section 5. Section 6 provides an overview of the regional distribution of VC suppliers and VC investments in Germany. Finally, we summarize the results and discuss policy implications.

2. The role of spatial influences for the regional supply of VC

The role of regional proximity for the supply of equity for young and innovative start-ups has been intensely discussed in the literature.¹ It was found that the locations of VC companies are highly clustered in space in most countries. For the VC market in the USA, several studies show a high degree of spatial clustering of suppliers at the East and West Coast of the country (Sorensen and Stuart, 2001; Powell et al., 2002; Florida et al., 1991; Leinbach and Amrhein, 1987). The VC market in the UK, which is the largest in Europe, is also highly clustered around London and the southern part of the country (Mason and Harrison, 1999, 2002a; Martin, 1989; Martin et al., 2005). For VC markets in continental Europe, such as France and Germany, Martin et al., (2002) found a considerable degree of spatial clustering of suppliers although this concentration was not as pronounced as in the case of the USA or the UK.

Several studies investigated the role of spatial distance between VC supplier and investment, which might determine the regional supply of VC (see Fritsch and Schilder, 2006, for an overview). The more important the proximity between the investor and the financed firm, the more likely it is that regional disparities in the supply of VC occur given the clustering of the VC firms in just a few locations. If regional proximity is important for VC investments then VC companies are faced with spatial limitations with regard to their field of activity. The main rationale for regional proximity being important here are activities that the VC firms frequently perform in conjunction with the investment of capital. These activities which include consulting and monitoring of the respective firm can be rather time consuming and may, particularly, require direct personal interaction (Gompers, 1995; Lerner, 1995; Sapienza and Gupta, 1994; Petersen and Rajan, 2002). The transaction costs of the interaction are higher when the location of an investment is further away (Mason and Harrison, 2002a; Sorensen and Stuart, 2001). Therefore, spatial proximity between investor and investment may be needed to ensure sufficient management support and control for making

¹ See for example Florida et al., (1991), Fritsch and Schilder (2006), Gupta and Sapienza (1992), Martin et al., (2002; 2005), Mason and Harrison (2002a), Powell et al., (2002), Sorensen and Stuart (2001).

VC investments profitable. In an attempt to assess the geographical field of activity for informal VC investors (private individuals), Masons and Harrison (2002b) identified a circumference within a two-hour travel time as the spatial limit. Zook (2002) arrives at a distance of a one-hour trip for formal VC companies in Silicon Valley. In contrast to these studies, Fritsch and Schilder (2006) presented evidence that regional proximity is not an important factor for VC investments in Germany.

3. The database

Our analysis is based on a data set containing details about German VC investments at the micro-level. The data are provided by *VC facts*, a company which collects information about VC investments in Germany. We use the data for the years 2004 and 2005 which comprise information about 134 and 179 VC investments, respectively. This equals nearly half of the early stage investments that are recorded by the German Private Equity and Venture Capital Association (2005). This sample appears representative for the overall VC investment in Germany during the time period under investigation. We have at least no indication of any bias. For the purpose of this paper, we focus on detailed information about the location of an investment, the number of investors involved and their location, the overall amount of money invested, and the age of the financed company. Based on the addresses of the VC firms and the investments, we are able to calculate the average traveling distances between an investor and a portfolio company. We also calculated the shortest traveling time by car using the internet-based route planner *map24.de*.

236 of the 313 VC investments in the sample are syndicated, i.e., there is more than one investor involved. Hence, we can identify 825 pairs of investors and the respective portfolio company. Due to some missing values, most of our analysis is based on 569 and 427 such pairs. The missing information mainly concerns the addresses of informal VC investors and of foreign investors. Consequently, these investors are not included in our analysis.

Table 1: Descriptive statistics

	Mean	Median	Minimum	Maximum	Standard deviation
Age of portfolio company (years)	4.86	4.00	0	36.00	3.84
Number of employees in portfolio company	36.90	28.00	2.00	481.00	34.55
Overall amount of capital invested (million €)	8.21	5.00	0.15	35.00	8.61
Number of investors per investment	4.22	3.00	1.00	12.00	2.66
Geographical distance to VC company (km)	247.22	167.90	0	828.61	236.89

Table 1 shows descriptive statistics for the main characteristics of the sample. All figures refer to the point in time when the investment is made. On average, the financed companies were almost five years old and had 37 employees. The average amount invested per financed company and per investment amounts to a little more than eight million Euros. Almost two thirds of the investments are syndicated. On average, the number of investors for the syndicated investments is about 4.2. There is a clear focus of investment in certain industries. More than 36 percent of the investments are in the biotechnology industry, followed by investments in software related businesses (14 percent). Around six percent of the financed start-ups are active in the communication business as well as in medical technologies.

Since our main interest is the analysis of the role of spatial proximity between VC investors and portfolio firms, we look closely at the distance between the two parties of a VC partnership. Table 2 shows the distribution of the spatial distance between the VC companies and their portfolio firms in kilometers as well as in terms of travel time. We find that only 40 percent of the investments are located within a distance of 100 kilometers and slightly more than 50 percent are within 200 kilometers. This means that almost half of the VC investments are

located more than 200 kilometers away. In most of these cases, this is more than a two-hour trip by car: what was assessed by Mason and Harrison (2002b) as the regional restriction for a VC investment. The average distance between a specific VC company and its investment is 247 kilometers. Looking at the shortest travel time between VC companies and portfolio firms, we find that only one third of the investments are within a circumference of a one-hour trip, which was the critical distance according to Zook (2002). The two-hour-rule covers less than 50 percent of the investments. The average travel time between the VC investor and the financed firm is approximately to two hours and 40 minutes.

Table 2: Distance and travel time between VC company and portfolio firm*

Number of investments within a certain distance:								
	<100km	100 - 200km	200- 300km	300- 400km	400- 500km	500- 600km	600- 700km	>700km
Number of investments	231	68	61	42	50	66	30	21
Percentage	40.60	11.95	10.72	7.38	8.79	11.60	5.27	3.69
Number of investment within a certain travel time:								
	< 1h	1-2hs	2-3hs	3-4hs	4-5hs	5-6hs	6-7hs	> 7hs
Number of investments	193	89	65	39	57	60	43	23
Percentage	33.92	15.64	11.42	6.85	10.02	10.54	7.56	4.04

*Number of observations: 569

The distribution of geographical distance and travel time between VC investors and their investments indicates that regional proximity is not as important for VC investments in Germany as is widely believed. Furthermore, it shows that regions that are located far away from the centers of VC suppliers might not face a regional disadvantage in attaining equity for young and innovative companies.

4. What influences the distance between VC firms and VC investments?

There are two characteristics of an investment which might influence the distance between a VC company and its portfolio firm: the age of the portfolio firm and the amount of capital that is invested. A young company which is in the early stage of its technical and organizational development and that does not generate considerable turnover or profit is likely to require more involvement by the VC firm than a company at a later stage (Gupta and Sapienza, 1992). This hypothesis is based on the assumption that a lack of business and management skills may, particularly, be a problem in young innovative companies, which are often run by engineers or natural scientists (Gupta and Sapienza, 1992). Furthermore, young and innovative companies are faced with high uncertainty with regard to the technical and the economic success of their project (Sapienza et al., 1996). Therefore, the monitoring and supervising activities by the VC supplier may be more time-consuming and may cause considerably higher transaction costs for the investments in earlier development stages of the portfolio firm versus in the case of an investment in a later stage. For these reasons, spatial proximity between the VC company and the portfolio firm is expected to be more important for early stage investments (Sorensen and Stuart, 2001).

The size of the investment may influence the necessity of consulting and monitoring and, therefore, the importance of regional proximity in two converse ways. First, the larger the investment the higher the expected profit is (Martin et al., 2005). Hence, VC companies will be willing to undertake more effort to ensure the success of a project for a large investment as compared to a smaller one. Moreover in the case of a large investment, the investor can more easily afford the higher transaction costs for monitoring and advising of a portfolio firm that is located far away. Therefore, regional proximity between VC suppliers and financed firms may be less important for larger investments. Second, larger investments reduce the ability of the VC company to spread the risk over several different investments (Robinson, 1987; Robbie et al., 1997). Due to the relatively high losses of a large investment that has failed, VC investors might want to undertake great effort for minimizing the risk of failure. This might raise the importance of spatial proximity as monitoring and advising is easier for

investments located nearby. Due to these contradicting effects, the direction of the relationship between size of an investment and the importance of spatial proximity is a priori unclear.

Table 3: Correlation coefficients of main variables regarding spatial proximity

	Age of portfolio company	Amount of capital invested	Geographical distance to investment	Travel time to investment
Age of portfolio company (years)	1.00			
Overall amount of capital invested (million €)	0.04	1.00		
Geographical distance to investment (km)	-0.03	0.15**	1.00	
Travel time to investment (hours)	-0.03	0.14**	0.99**	1.00

** Statistically significant at the 1%-level; * Statistically significant at the 5%-level;
Number of observations: 569

The correlation coefficients between the age of the financed firms at the time of the investment and the geographical distance between the VC company and the portfolio firm are not statistically significant (table 3). The same holds for the correlation between the age of investment and the travel time. This can partly be explained by the composition of the sample. Around 93.5 percent of the portfolio firms in our study were not older than ten years at the time when the investment was made. In an, admittedly, rather wide definition, this can still be regarded as young. Because nearly all of the investments are in an early stage of their development, they may have similar needs of monitoring, consulting, and, as a consequence, of spatial proximity. The amount of an investment is positively correlated with the distance between investor and investment (table 3). The larger the investment the greater the distance to the VC firm is.

5. The role of syndication for regional VC supply

One possibility for VC companies to overcome the problems of great geographical distance to an investment is syndication (Sorensen and Stuart, 2001). Fritsch and Schilder (2006) find strong evidence that syndication can, at least partly, be used as a substitute for regional proximity. If one of the syndication partners is located close to the investment, he can do most of the monitoring and consulting involved. The co-investors can then behave more or less passively (Gupta and Sapienza, 1992; Wright and Lockett, 2003). If this assumption is correct, syndicated investments can be located in greater geographical distances from the VC companies in comparison to investments which are only undertaken by a single investor. This hypothesis can even be extended by assuming that the probability for syndication of an investment will increase with the geographical distance between the financiers and the portfolio firm. We may, therefore, expect that investors which are located far away from an investment to search for syndication partners close to the portfolio firm to do most of the monitoring and consulting. Consequently, if syndication is used as a substitute for regional proximity, one of the investors should be located close to the investment. As a result, the shortest distance between the financed firm and one of the syndicated VC companies involved in the investment should be rather small. It may be even smaller than that of a non-syndicated investment with only a single VC investor.

Correlation coefficients show a statistically significant positive relationship between geographical distance to a portfolio company and the number of investors that are engaged in the investment (table 4). This indicates that VC companies tend to syndicate investments that are located far away. This interpretation is supported by the negative correlation between the number of investors involved and the minimum distance between one of the investors and the portfolio firm. The higher the number of investors, the greater the spatial proximity of one of the investors to investment is. On average, the minimal distance between the syndication partner, which is located closest to the investment and the portfolio firm, is 106 kilometers for syndicated investments. Investments with a single investor show an average distance of 182 kilometers. There is a pronounced positive correlation between the minimal distance within a

syndicated investment and the distance between an individual VC company and the portfolio firm. This seems to indicate that the further away the investment is located, the greater the distance of the closest investor to the portfolio firm is. However, this positive correlation is a statistical artifact that has no meaningful interpretation.²

Table 4: Correlation coefficients of variables regarding syndication and the distance between VC company and portfolio firm

		1	2	3	4	5
1	Number of investors	1.00				
2	Age of portfolio company (years)	0.04	1.00			
3	Overall amount of capital invested (million €)	0.66**	0.05	1.00		
4	Distance to specific investment (km)	0.15**	-0.03	0.15**	1.00	
5	Minimal distance to investment (km) ^a	-0.13**	-0.06*	-0.01	0.52**	1.00
6	Distance to investment: minimal distance to investment ^a	0.24**	0.04	0.17**	0.70**	-0.24**

^a Syndicated investments only, ** Statistically significant at the 1%-level; * Statistically significant at the 5%-level; Number of observations: 569

The difference between the geographical distance of a VC firm to an investment and the distance of the syndication partner that is located closest to the portfolio firm indicates the two distance-related benefits of syndication in one variable. The larger this difference is, thus, the more advantageous the syndication is if the partner located close by does the monitoring and consulting. If a VC firm is located closest to an investment as part of a syndicate, it has no distance related

² Since the distance of a VC firm to the investment cannot be smaller than the minimum distance, the observations all lie in the upper or lower part of a scatter plot of these two variables. Because of this type of distribution, a simple correlation coefficient must assume a positive value.

incentive for syndication. This is confirmed by the significantly positive correlation of this variable with the number of investors (table 4). The negative correlation of the difference to minimal distance within a syndicate and the minimal distance indicates that the search for syndication partner that are located close to the investment is more important for those investors which are located far away. The further a VC firm is located away from an investment, the larger the distance to the syndication partner that is located closest to the investment is.

The results of an independent samples t-test that compares the means of different variables of syndicated and non-syndicated investments (table 5) are in line with this interpretation. We find that syndicated investments are, on average, significantly larger in terms of the overall amount of capital invested. Furthermore, the distance of a VC company to a syndicated investment is greater than that of a single investment, whereas the minimal distance within a syndicate is smaller for syndicated VC investments. The results indicate that VC companies which are located far away from the portfolio firm tend to syndicate their investments with at least one of the syndication partners located close to the target firm. As a consequence, the minimal distance of a syndicated investment to a target firm is significantly smaller than for projects with a single investor. However, we do not find significant differences with regard to the age of the financed companies. This may be due to the structure of the sample that contains almost exclusively early stage investments.

Table 5: Independent samples t-test for comparing investments with a single investor and syndicated investments

		Mean	t for $H_0: \text{mean}(0) \neq \text{mean}(1)$	Number of observations
Age of portfolio company (years)	Single investor	4.23	-1.81	105
	Syndicated investments	4.95		711
Overall amount of capital invested (million €)	Single investor	1.74	-2.80**	53
	Syndicated investments	5.08		580
Distance to a specific investment (km)	Single investor	183.59	2.55*	77
	Syndicated investments	257.16		493
Minimal distance to investment (km)	Single investor	182.07	3.40**	77
	Syndicated investments	106.71		493

** Statistically significant at the 1%-level; * Statistically significant at the 5%-level

The interpretation of the correlation analysis and the t-tests is confirmed by multivariate negative binomial and logistic regressions (table 6 and 7). The three models of table 6 show the results of the logit estimations regarding the influence of the distance between a VC company and the portfolio firm on the probability of syndication. The dependent variable is the syndication-dummy, which assumes the value one if an investment is syndicated and the value zero if not. Due to some missing values of both variables, the estimations are only based on 426 observations. According to the estimates, the age of the portfolio company has no statistically significant effect on the syndication of an investment, whereas the probability of syndication rises with the amount of capital that is invested. The latter result can be explained by a higher need for risk sharing within larger investments. Furthermore, a single VC company may not have the amount of capital available that is required for a larger investment. The results for model I in

table 6 indicate that the distance between a VC company and a portfolio firm has no effect on the decision for syndication. However, when adding the minimal distance between one of the syndication partners and the investment (model II), the influence of the distance between investor and investment becomes significantly positive. Furthermore, the minimal distance between a VC company and the financed firm has a significantly negative influence on the probability of syndication. This indicates two effects: first, the geographical distance between a VC company and a portfolio firm has a significant impact on the decision to syndicate an investment. The greater the geographical distance to an investment, the higher the propensity to syndicate that investment is. Second, the decision to syndicate an investment is linked to the opportunity of having a syndication partner involved that is located close to the investment. The negative sign for the minimal distance implies that the probability of syndication is higher the closer one of the partners is located to the investment.

Table 6: The effect of spatial proximity on the probability of syndication (logit estimation)

	Probability of syndication		
	I	II	III
Age of portfolio company (years)	-0.014 (0.33)	-0.025 (0.58)	-0.015 (0.36)
Overall amount of capital invested (million €)	0.376** (4.19)	0.323** (3.70)	0.328** (3.76)
Geographical distance to investment (km)	0.001 (1.34)	0.027* (2.12)	
Minimal distance to investment (km)		-0.027* (2.19)	
Distance to investment: minimal distance to investment			0.025* (2.18)
Constant	0.769* (2.02)	0.802* (2.14)	0.552 (1.66)
Pseudo R-squared	0.164	0.294	0.286

** Statistically significant at the 1%-level; * Statistically significant at the 5%-level;
Number of observations: 427

The variable for the distance to investment minus minimal distance of a syndication partner is supposed to represent the two distance related effects. Including this variable in the analysis, we have to omit the two other distance related variables due to the threat of multicollinearity. The significantly positive coefficient for this variable confirms our interpretation. According to model III, the probability of syndication rises with the distance between the investor and the existence of a syndication partner located close to the investment. An increase of this geographical spread by one kilometer raises the odds of syndication by a factor of 1.03 (0.025 ex). As a comparison, each additional 1,000 Euros invested in a project raise the probability of syndication by a factor of 1.0004.

Table 7: The effect of spatial proximity on the number of syndication partners (negative binomial regression)

	Number of co-investors		
	I	II	III
Age of portfolio company (years)	0.0128 (1.47)	0.0094 (1.12)	0.0102 (1.19)
Overall amount of capital invested (Million €)	0.0442** (12.99)	0.0420** (12.89)	0.0415** (12.63)
Geographical distance to investment (km)	0.0002 (1.18)	0.0005** (3.84)	
Minimal distance to investment (km)		-0.0011** (5.52)	
Distance to investment: minimal distance to investment			0.0007** (4.84)
Constant	0.7851** (11.74)	0.8277** (12.75)	0.7516** (12.22)
Pseudo R-squared	0.077	0.093	0.088

** Statistically significant at the 1%-level; * Statistically significant at the 5%-level;
Number of observations: 427

The same results are achieved when the number of co-investors, which are syndicated in an investment, is taken as the dependent variable (table 7). The

negative binomial regression was applied here as estimation method because of the integer character of this variable. Like the probability of syndication, the number of co-investors rises with the invested amount and is not significantly affected by the age of the portfolio company. Furthermore, the number of co-investors tends to increase with growing geographical distance between an investor and the location of the respective investment. Again, the effect of the distance only becomes significant when the minimal distance between one of the investors and the financed company is accounted for in the model (model II). Similar to the logit regressions (table 6), the number of co-investor increases with the distance to the investment and decreases with the minimal distance of a syndication partner. This is confirmed by the statistically significant influence of the spread between the distance of a VC company to the portfolio firm and the minimal distance in a syndicated investment (model III).

The results of our analysis show that syndication is used to overcome the problems involved with geographical distance between a VC investor and the investments. The probability of syndication rises with the distance of the VC company to the portfolio firm. At the same time, one of the investors participating in the syndication has to be located close to the investment. This indicates that the supply of VC in a region can be multiplied with the help of syndicated investments even if there are only a few VC companies present in that region. Thus, capital for young and innovative companies is available in a region without large VC clusters. However in a syndicated investment, one of the investors should be closely located to the portfolio company. Therefore, one may suspect that there is an equity gap in regions with no VC supplier. However, given the average minimum distance of 106 kilometers for the closest VC-investor within syndicated investments and 184 kilometers for investments with a single investor, the occurrence of such an equity gap in Germany may appear to be quite unlikely. One factor that determines the danger of a regional equity gap is the distribution of VC firms in space. This will be examined in the next section.

6. Are there white spots on the map of VC supply in Germany?

Figure 1 shows the regional distribution of VC companies in Germany. The black spots indicate the number of VC companies.³ The larger the spot signifies the greater number of VC companies located in a certain district. The flags represent the regional distribution of German Business Angels Networks.⁴ Although, these networks only represent a small fraction of the informal VC investors, they, nevertheless, indicate the regional distribution of a market segment that has significant effects. The circles mark a circumference of 150 kilometers around the main German VC centers. However, this circumference is even smaller than the average distance of 247 kilometers between a VC company and its portfolio firms in our data set; it indicates the average minimum distance within an investment. The 150 kilometers circumference lies between the average minimum distance of VC companies and their portfolio firms for syndicated investments and the average distance to non-syndicated investments (see chapter 5).

According to figure 1, most parts of the country lie within these circles. Mainly, a small area in the center of Germany seems to experience a gap or a white spot on the map. However, even in these regions some “stand-alone” VC firms exist (for example in Jena, Erfurt, and in Dresden) which may at least be used as an anchor for syndicated investments. As we have argued above (section 5), even large amounts of VC may be made available in such regions by syndication of an investment.

The assumption of good availability of VC in most German regions is confirmed by the spatial distribution of VC investments as contained in our data set (figure 2). The dark spots represent the total number of VC investments in a district in the years 2004 and 2005. The larger a spot indicates that more investments have been made in the region. Although, the distribution of VC investments corresponds to the distribution of VC firms (figure 1) there are some

³ Members of the German Private Equity and Venture Capital Association (*Bundesverband Deutscher Kapitalbeteiligungsgesellschaften*) in January 2006

⁴ Members of the German Business Angels Network association (*Business Angels Netzwerk Deutschland e.V.*)

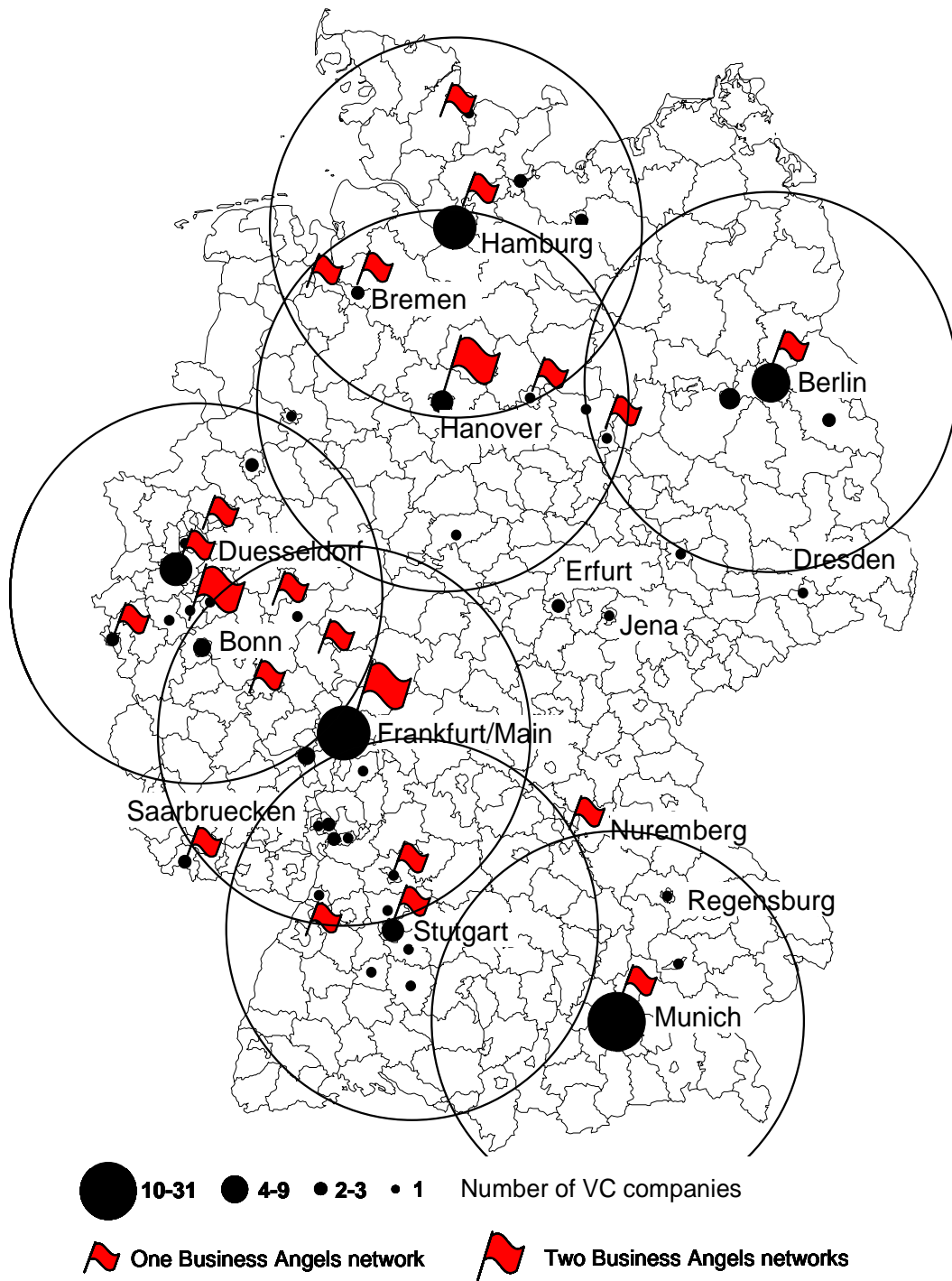


Figure 1: The regional distribution of VC companies and Business Angels networks in Germany

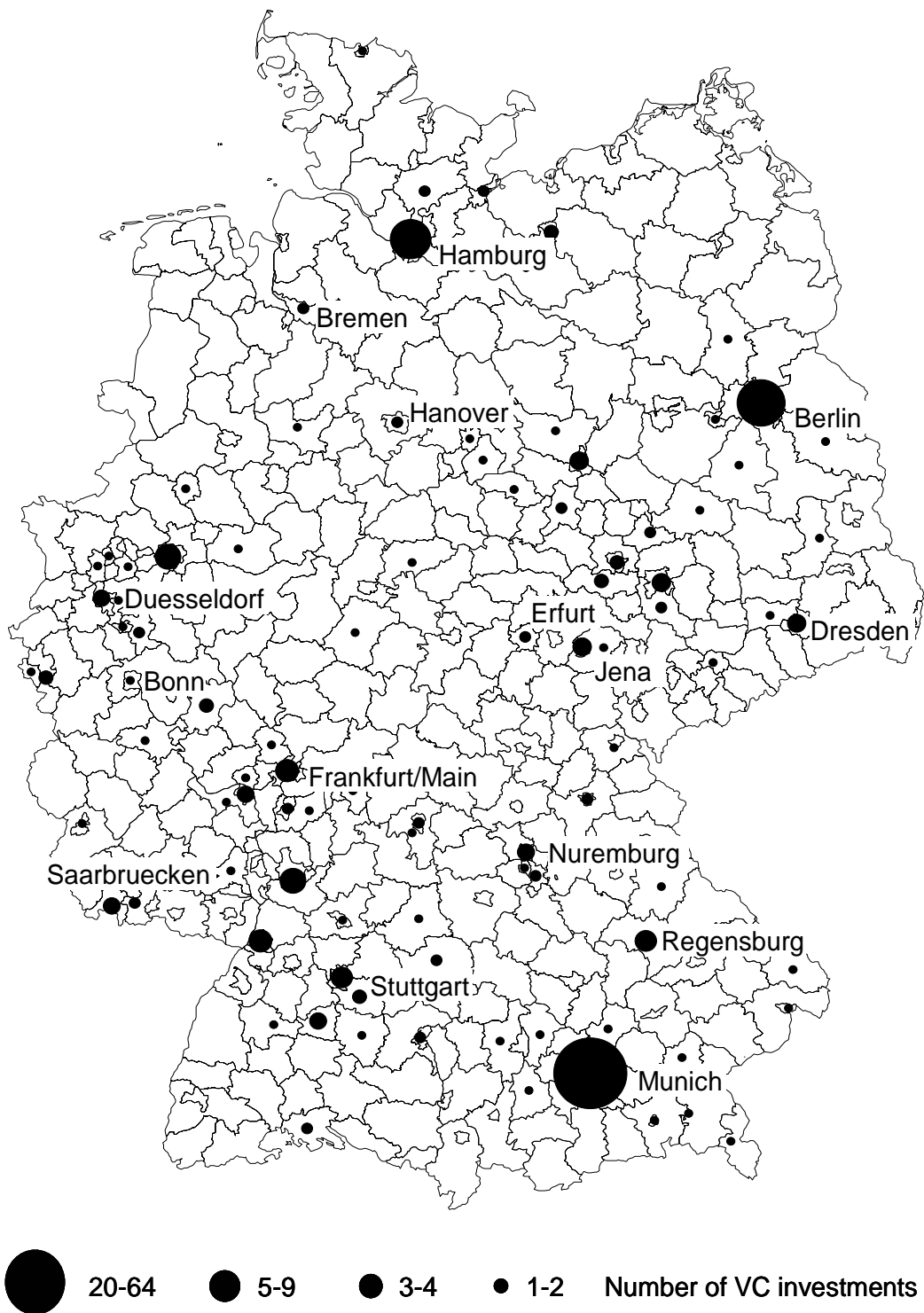


Figure 2: The regional distribution of VC investments in Germany⁵

⁵ VC facts, yearbook 2004 and 2005

differences. Figure 2 indicates that those regions, which seem to be disadvantaged by the location of VC companies, are at least not completely ignored by VC investment. This is particularly true for some parts of Eastern Germany, such as the areas around Jena and Dresden. In contrast, almost no VC investment are made in the region in the center of Germany between Duesseldorf, Frankfurt, Erfurt, and Hanover which are in close proximity to a large number of VC companies.

Altogether, we see no strong indication for a severe regional undersupply of VC which might hamper the entrepreneurial and innovative activity in a region. In fact, VC is available all over the country and regional disparities in VC investment are obviously caused by determinants other than the lacking presence of VC suppliers.

7. Conclusion and policy implications

We have investigated the role of spatial influences on the regional dimension of VC supply in Germany. In line with an earlier study (Fritsch and Schilder, 2006), we show that regional proximity between a VC company and a portfolio firm is not important for German VC investments. Based on a data set that contains more than 300 VC investments made in Germany in the years 2004 and 2005 we find evidence that the regional supply of VC is not mainly determined by location. The average distance between investor and investment is about 250 kilometers, and nearly 50 percent of the investments are made in locations more than 200 kilometers away from the financier. Expressed in terms of average travel time by car, less than 50 percent of the investments are made within a two-hour trip.

We can show that the syndication of VC investments is used to overcome the problems attached to investments that are located far away. The greater the geographical distance between investor and investment and, at the same time, the more closely a syndication partner is located to the portfolio firm, the more likely the syndication of an investment is. We find the same results for the number of co-investors participating in a syndicated investment.

The results of our analysis clearly show that there is no severe regional equity gap for young and innovative start-ups in Germany for at least three

reasons. First, regional proximity is not an important factor for VC investments in Germany. Second, syndication may help to overcome the problems of an investment in a distant location. Third, within a range of 150 kilometers around the core VC centers in Germany, almost every region is covered. The regions that are not within this circumference have at least some isolated VC companies which may act as a syndication partner for other investors located in more distant places. Moreover, the region with nearly no VC investment in the center of Germany is well accessible for a large number of VC firms. Altogether, our results indicate that the supply of VC in Germany is not a main obstacle for a sufficient entrepreneurial and innovative activity. Therefore, the promotion of the VC market will not be a solution to problem of lacking entrepreneurship and innovation in some regions. Other types of policy are required to attack such types of deficits.

References

- Florida, Richard L., Donald F. Smith and Elizabeth Sechoka (1991): Regional patterns of venture capital investment, in: Green, Milford (ed.), *Venture Capital: International Comparisons*, London and New York: Routledge 1991, 102-133.
- Fritsch, Michael and Dirk Schilder (2006): Does Venture Capital Investment Really Require Spatial Proximity? An Empirical Investigation, Technical University Bergakademie Freiberg, Faculty of Economics and Business Administration, Working Paper 07/2006.
- German Private Equity and Venture Capital Association (2005): Statistics, <http://www.bvk-ev.de>.
- Gompers Paul A. (1995): Optimal Investment, Monitoring, and the Staging of Venture Capital, *The Journal of Finance*, 6, 1461-1489.
- Gupta, Anil K. and Harry J. Sapienza (1992): Determinants of Venture Capital Firms' Preferences Regarding the Industry Diversity and Geographic Scope of their Investments, *Journal of Business Venturing*, 7, 347-362.
- Leinbach, Thomas R. and Carl Amrhein (1987) A Geography of the Venture Capital Industry in the U.S., *Professional Geographer*, 39(2), 146-158.
- Lerner, Joshua (1995): Venture Capitalists and the Oversight of Private Firms, *Journal of Finance*, 50, 301-318.
- Martin, Ron (1989): The Growth and Geographical Anatomy of Venture Capitalism in the United Kingdom, *Regional Studies*, 23, 389-403.
- Martin, Ron, Peter Sunley, Dave Turner (2002): Taking Risks in Regions: the Geographical Anatomy of Europe's Emerging Venture Capital Market, *Journal of Economic Geography*, 2, 121-150.
- Martin, Ron, Christian Berndt, Britta Klagge, Peter Sunley (2005): Spatial Proximity Effects and Regional Equity Gaps in the Venture Capital Market: Evidence from Germany and the United Kingdom, *Environment and Planning A*, 37, 1207-1231.
- Mason, Colin M and Richard T. Harrison (1999): Financing Entrepreneurship: Venture Capital and Regional Development, in: Martin, Ron (ed.), *Money and the Space Economy*, Chichester: Wiley, 157-183.
- Mason, Colin M and Richard T. Harrison (2002a): The Geography of Venture Capital Investments in the UK, *Transactions of the Institute of British Geographers*, 27, 427-451.
- Mason, Colin M and Richard T. Harrison (2002b): The Barriers to investment in the informal venture capital sector, *Entrepreneurship and Regional Development*, 14, 271-287.
- Petersen, Mitchell A. and Raghuram G. Rajan (2002): Does Distance Still Matter? The Information Revolution in Small Business Lending, *Journal of Finance*, 57, 2533-2570.

- Powell Walter W., Kenneth W.Koput, Bowie James I. and Laurel Smith-Doerrs (2002): The Spatial Clustering of Science and Capital: Accounting for Biotech Firm-Venture Capital Relationships, *Regional Studies*, 36(3), 291-205.
- Robbie, Ken, Mike Wright and Brian Chiplin (1997): The Monitoring of Venture Capital Firms, *Entrepreneurship: Theory and Practice*, 21, 9-28.
- Robinson, Richard B. (1987): Emerging strategies in the venture capital industry, *Journal of Business Venturing*, 2, 53-77.
- Sapienza, Harry J. (1992): When Do Venture Capitalists Add Value, *Journal of Business Venturing*, 7, 9-27.
- Sapienza, Harry J. and Anil K. Gupta (1994): Impact of Agency Risks and Task Uncertainty on Venture Capitalis – CEO Interaction, *Academy of Management Journal*, 37 (6), 1618-1632.
- Sapienza, Harry J, Sophie Manigart and Wim Vermeir (1996): Venture Capitalist Governance and Value Added in Four Countries, *Journal of Business Venturing*, 11, 439-469.
- Sorensen, Olav and Toby E Stuart (2001): Syndication Networks and the Spatial Distribution of Venture Capital Investments, *American Journal of Sociology*, 106, 1546-1588.
- VC facts (2004): Yearbook 2004, Gaggenau.
- VC facts (2005): Yearbook 2005, Gaggenau.
- Wright, Mike and Andy Lockett (2003): The Structure and Management of Alliances: Syndication in the Venture Capital Industry, *Journal of Management Studies*, 40, 2073-2102.
- Zook, Matthew (2002): Grounded capital: Venture financing and the geography of the internet industry, 1994-2000, *Journal of Economic Geography*, 2, 151-177.

**List of Working Papers of the Faculty of Economics and Business Administration,
Technische Universität Bergakademie Freiberg.**

2000

- 00/1 Michael Nippa, Kerstin Petzold, Ökonomische Erklärungs- und Gestaltungsbeiträge des Realoptionen-Ansatzes, Januar.
- 00/2 Dieter Jacob, Aktuelle baubetriebliche Themen – Sommer 1999, Januar.
- 00/3 Egon P. Franck, Gegen die Mythen der Hochschulreformdiskussion – Wie Selektionsorientierung, Nonprofit-Verfassungen und klassische Professorenbeschäftigungsverhältnisse im amerikanischen Hochschulwesen zusammenpassen, erscheint in: *Zeitschrift für Betriebswirtschaft (ZfB)*, 70. (2000).
- 00/4 Jan Körnert, Unternehmensgeschichtliche Aspekte der Krisen des Bankhauses Barings 1890 und 1995, in: *Zeitschrift für Unternehmensgeschichte*, München, 45 (2000), 205 – 224.
- 00/5 Egon P. Franck, Jens Christian Müller, Die Fußball-Aktie: Zwischen strukturellen Problemen und First-Mover-Vorteilen, *Die Bank*, Heft 3/2000, 152 – 157.
- 00/6 Obeng Mireku, Culture and the South African Constitution: An Overview, Februar.
- 00/7 Gerhard Ring, Stephan Oliver Pfaff, CombiCar: Rechtliche Voraussetzungen und rechtliche Ausgestaltung eines entsprechenden Angebots für private und gewerbliche Nutzer, Februar.
- 00/8 Michael Nippa, Kerstin Petzold, Jamina Bartusch, Neugestaltung von Entgeltsystemen, Besondere Fragestellungen von Unternehmen in den Neuen Bundesländern – Ein Beitrag für die Praxis, Februar.
- 00/9 Dieter Welz, Non-Disclosure and Wrongful Birth , Avenues of Liability in Medical Malpractice Law, März.
- 00/10 Jan Körnert, Karl Lohmann, Zinsstrukturbasierte Margenkalkulation, Anwendungen in der Marktzinsmethode und bei der Analyse von Investitionsprojekten, März.
- 00/11 Michael Fritsch, Christian Schwirten, R&D cooperation between public research institutions - magnitude, motives and spatial dimension, in: Ludwig Schätzl und Javier Revilla Diez (eds.), *Technological Change and Regional Development in Europe*, Heidelberg/New York 2002: Physica, 199 – 210.
- 00/12 Diana Grosse, Eine Diskussion der Mitbestimmungsgesetze unter den Aspekten der Effizienz und der Gerechtigkeit, März.
- 00/13 Michael Fritsch, Interregional differences in R&D activities – an empirical investigation, in: *European Planning Studies*, 8 (2000), 409 – 427.
- 00/14 Egon Franck, Christian Opitz, Anreizsysteme für Professoren in den USA und in Deutschland – Konsequenzen für Reputationsbewirtschaftung, Talentallokation und die Aussagekraft akademischer Signale, in: *Zeitschrift Führung + Organisation (zfo)*, 69 (2000), 234 – 240.
- 00/15 Egon Franck, Torsten Pudack, Die Ökonomie der Zertifizierung von Managemententscheidungen durch Unternehmensberatungen, April.
- 00/16 Carola Jungwirth, Inkompatible, aber dennoch verzahnte Märkte: Lichtblicke im angespannten Verhältnis von Organisationswissenschaft und Praxis, Mai.
- 00/17 Horst Brezinski, Der Stand der wirtschaftlichen Transformation zehn Jahre nach der Wende, in: Georg Brunner (Hrsg.), *Politische und ökonomische Transformation in Osteuropa*, 3. Aufl., Berlin 2000, 153 – 180.
- 00/18 Jan Körnert, Die Maximalbelastungstheorie Stützens als Beitrag zur einzelwirtschaftlichen Analyse von Dominoeffekten im Bankensystem, in: Eberhart Ketzler, Stefan Prigge u. Hartmut Schmidt (Hrsg.), *Wolfgang Stützel – Moderne Konzepte für Finanzmärkte, Beschäftigung und Wirtschaftsverfassung*, Verlag J. C. B. Mohr (Paul Siebeck), Tübingen 2001, 81 – 103.
- 00/19 Cornelia Wolf, Probleme unterschiedlicher Organisationskulturen in organisationalen Subsystemen als mögliche Ursache des Konflikts zwischen Ingenieuren und Marketingexperten, Juli.
- 00/20 Egon Franck, Christian Opitz, Internet-Start-ups – Ein neuer Wettbewerber unter den „Filteranlagen“ für Humankapital, erscheint in: *Zeitschrift für Betriebswirtschaft (ZfB)*, 70 (2001).

- 00/21 Egon Franck, Jens Christian Müller, Zur Fernsehvermarktung von Sportligen: Ökonomische Überlegungen am Beispiel der Fußball-Bundesliga, erscheint in: Arnold Hermanns und Florian Riedmüller (Hrsg.), *Management-Handbuch Sportmarketing*, München 2001.
- 00/22 Michael Nippa, Kerstin Petzold, Gestaltungsansätze zur Optimierung der Mitarbeiter-Bindung in der IT-Industrie - eine differenzierende betriebswirtschaftliche Betrachtung -, September.
- 00/23 Egon Franck, Antje Musil, Qualitätsmanagement für ärztliche Dienstleistungen – Vom Fremd- zum Selbstmonitoring, September.
- 00/24 David B. Audretsch, Michael Fritsch, Growth Regimes over Time and Space, *Regional Studies*, 36 (2002), 113 – 124.
- 00/25 Michael Fritsch, Grit Franke, Innovation, Regional Knowledge Spillovers and R&D Cooperation, *Research Policy*, 33 (2004), 245-255.
- 00/26 Dieter Slaby, Kalkulation von Verrechnungspreisen und Betriebsmittelmieten für mobile Technik als Grundlage innerbetrieblicher Leistungs- und Kostenrechnung im Bergbau und in der Bauindustrie, Oktober.
- 00/27 Egon Franck, Warum gibt es Stars? – Drei Erklärungsansätze und ihre Anwendung auf verschiedene Segmente des Unterhaltungsmarktes, *Wirtschaftsdienst – Zeitschrift für Wirtschaftspolitik*, 81 (2001), 59 – 64.
- 00/28 Dieter Jacob, Christop Winter, Aktuelle baubetriebliche Themen – Winter 1999/2000, Oktober.
- 00/29 Michael Nippa, Stefan Dirlich, Global Markets for Resources and Energy – The 1999 Perspective - , Oktober.
- 00/30 Birgit Plewka, Management mobiler Gerätetechnik im Bergbau: Gestaltung von Zeitfondsgliederung und Ableitung von Kennziffern der Auslastung und Verfügbarkeit, Oktober.
- 00/31 Michael Nippa, Jan Hachenberger, Ein informationsökonomisch fundierter Überblick über den Einfluss des Internets auf den Schutz Intellektuellen Eigentums, Oktober.
- 00/32 Egon Franck, The Other Side of the League Organization – Efficiency-Aspects of Basic Organizational Structures in American Pro Team Sports, Oktober.
- 00/33 Jan Körnert, Cornelia Wolf, Branding on the Internet, Umbrella-Brand and Multiple-Brand Strategies of Internet Banks in Britain and Germany, erschienen in Deutsch: *Die Bank*, o. Jg. (2000), 744 – 747.
- 00/34 Andreas Knabe, Karl Lohmann, Ursula Walther, Kryptographie – ein Beispiel für die Anwendung mathematischer Grundlagenforschung in den Wirtschaftswissenschaften, November.
- 00/35 Gunther Wobser, Internetbasierte Kooperation bei der Produktentwicklung, Dezember.
- 00/36 Margit Enke, Anja Geigenmüller, Aktuelle Tendenzen in der Werbung, Dezember.
- 2001**
- 01/1 Michael Nippa, Strategic Decision Making: Nothing Else Than Mere Decision Making? Januar.
- 01/2 Michael Fritsch, Measuring the Quality of Regional Innovation Systems – A Knowledge Production Function Approach, *International Regional Science Review*, 25 (2002), 86-101.
- 01/3 Bruno Schönfelder, Two Lectures on the Legacy of Hayek and the Economics of Transition, Januar.
- 01/4 Michael Fritsch, R&D-Cooperation and the Efficiency of Regional Innovation Activities, *Cambridge Journal of Economics*, 28 (2004), 829-846.
- 01/5 Jana Eberlein, Ursula Walther, Änderungen der Ausschüttungspolitik von Aktiengesellschaften im Lichte der Unternehmenssteuerreform, *Betriebswirtschaftliche Forschung und Praxis*, 53 (2001), 464 - 475.
- 01/6 Egon Franck, Christian Opitz, Karriereverläufe von Topmanagern in den USA, Frankreich und Deutschland – Elitenbildung und die Filterleistung von Hochschulsystemen, *Schmalenbachs Zeitschrift für betriebswirtschaftliche Forschung (zfbf)*, (2002).
- 01/7 Margit Enke, Anja Geigenmüller, Entwicklungstendenzen deutscher Unternehmensberatungen, März.

- 01/8 Jan Körnert, The Barings Crises of 1890 and 1995: Causes, Courses, Consequences and the Danger of Domino Effects, *Journal of International Financial Markets, Institutions & Money*, 13 (2003), 187 – 209.
- 01/9 Michael Nippa, David Finegold, Deriving Economic Policies Using the High-Technology Ecosystems Approach: A Study of the Biotech Sector in the United States and Germany, April.
- 01/10 Michael Nippa, Kerstin Petzold, Functions and roles of management consulting firms – an integrative theoretical framework, April.
- 01/11 Horst Brezinski, Zum Zusammenhang zwischen Transformation und Einkommensverteilung, Mai.
- 01/12 Michael Fritsch, Reinhold Grotz, Udo Brixy, Michael Niese, Anne Otto, Gründungen in Deutschland: Datenquellen, Niveau und räumlich-sektorale Struktur, in: Jürgen Schmude und Robert Leiner (Hrsg.), *Unternehmensgründungen - Interdisziplinäre Beiträge zum Entrepreneurship Research*, Heidelberg 2002: Physica, 1 – 31.
- 01/13 Jan Körnert, Oliver Gaschler, Die Bankenkrise in Nordeuropa zu Beginn der 1990er Jahre - Eine Sequenz aus Deregulierung, Krise und Staatseingriff in Norwegen, Schweden und Finnland, *Kredit und Kapital*, 35 (2002), 280 – 314.
- 01/14 Bruno Schönfelder, The Underworld Revisited: Looting in Transition Countries, Juli.
- 01/15 Gert Ziener, Die Erdölwirtschaft Russlands: Gegenwärtiger Zustand und Zukunftsaussichten, September.
- 01/16 Margit Enke, Michael J. Schäfer, Die Bedeutung der Determinante Zeit in Kaufentscheidungsprozessen, September.
- 01/17 Horst Brezinski, 10 Years of German Unification – Success or Failure? September.
- 01/18 Diana Grosse, Stand und Entwicklungschancen des Innovationspotentials in Sachsen in 2000/2001, September.
- 2002**
- 02/1 Jan Körnert, Cornelia Wolf, Das Ombudsmannverfahren des Bundesverbandes deutscher Banken im Lichte von Kundenzufriedenheit und Kundenbindung, in: *Bank und Markt*, 31 (2002), Heft 6, 19 – 22.
- 02/2 Michael Nippa, The Economic Reality of the New Economy – A Fairytale by Illusionists and Opportunists, Januar.
- 02/3 Michael B. Hinner, Tessa Rülke, Intercultural Communication in Business Ventures Illustrated by Two Case Studies, Januar.
- 02/4 Michael Fritsch, Does R&D-Cooperation Behavior Differ between Regions? *Industry and Innovation*, 10 (2003), 25-39.
- 02/5 Michael Fritsch, How and Why does the Efficiency of Regional Innovation Systems Differ? in: Johannes Bröcker, Dirk Dohse and Rüdiger Soltwedel (eds.), *Innovation Clusters and Interregional Competition*, Berlin 2003: Springer, 79-96.
- 02/6 Horst Brezinski, Peter Seidelmann, Unternehmen und regionale Entwicklung im ostdeutschen Transformationsprozess: Erkenntnisse aus einer Fallstudie, März.
- 02/7 Diana Grosse, Ansätze zur Lösung von Arbeitskonflikten – das philosophisch und psychologisch fundierte Konzept von Mary Parker Follett, Juni.
- 02/8 Ursula Walther, Das Äquivalenzprinzip der Finanzmathematik, Juli.
- 02/9 Bastian Heinecke, Involvement of Small and Medium Sized Enterprises in the Private Realisation of Public Buildings, Juli.
- 02/10 Fabiana Rossaro, Der Kreditwucher in Italien – Eine ökonomische Analyse der rechtlichen Handhabung, September.
- 02/11 Michael Fritsch, Oliver Falck, New Firm Formation by Industry over Space and Time: A Multi-Level Analysis, Oktober.
- 02/12 Ursula Walther, Strategische Asset Allokation aus Sicht des privaten Kapitalanlegers, September.

02/13 Michael B. Hinner, Communication Science: An Integral Part of Business and Business Studies? Dezember.

2003

03/1 Bruno Schönfelder, Death or Survival. Post Communist Bankruptcy Law in Action. A Survey, Januar.

03/2 Christine Pieper, Kai Handel, Auf der Suche nach der nationalen Innovationskultur Deutschlands – die Etablierung der Verfahrenstechnik in der BRD/DDR seit 1950, März.

03/3 Michael Fritsch, Do Regional Systems of Innovation Matter? in: Kurt Huebner (ed.): *The New Economy in Transatlantic Perspective - Spaces of Innovation*, Abingdon 2005: Routledge, 187-203.

03/4 Michael Fritsch, Zum Zusammenhang zwischen Gründungen und Wirtschaftsentwicklung, in Michael Fritsch und Reinhold Grotz (Hrsg.), *Empirische Analysen des Gründungsgeschehens in Deutschland*, Heidelberg 2004: Physica 199-211.

03/5 Tessa Rülke, Erfolg auf dem amerikanischen Markt

03/6 Michael Fritsch, Von der innovationsorientierten Regionalförderung zur regionalisierten Innovationspolitik, in: Michael Fritsch (Hrsg.): *Marktdynamik und Innovation – Zum Gedenken an Hans-Jürgen Ewers*, Berlin 2004: Duncker & Humblot, 105-127.

03/7 Isabel Opitz, Michael B. Hinner (Editor), Good Internal Communication Increases Productivity, Juli.

03/8 Margit Enke, Martin Reimann, Kulturell bedingtes Investorenverhalten – Ausgewählte Probleme des Kommunikations- und Informationsprozesses der Investor Relations, September.

03/9 Dieter Jacob, Christoph Winter, Constanze Stuhr, PPP bei Schulbauten – Leitfaden Wirtschaftlichkeitsvergleich, Oktober.

03/10 Ulrike Pohl, Das Studium Generale an der Technischen Universität Bergakademie Freiberg im Vergleich zu Hochschulen anderer Bundesländer (Niedersachsen, Mecklenburg-Vorpommern) – Ergebnisse einer vergleichenden Studie, November.

2004

04/1 Michael Fritsch, Pamela Mueller, The Effects of New Firm Formation on Regional Development over Time, *Regional Studies*, 38 (2004), 961-975.

04/2 Michael B. Hinner, Mirjam Dreisörner, Antje Felich, Manja Otto, Business and Intercultural Communication Issues – Three Contributions to Various Aspects of Business Communication, Januar.

04/3 Michael Fritsch, Andreas Stephan, Measuring Performance Heterogeneity within Groups – A Two-Dimensional Approach, Januar.

04/4 Michael Fritsch, Udo Brixy, Oliver Falck, The Effect of Industry, Region and Time on New Business Survival – A Multi-Dimensional Analysis, Januar.

04/5 Michael Fritsch, Antje Weyh, How Large are the Direct Employment Effects of New Businesses? – An Empirical Investigation, März.

04/6 Michael Fritsch, Pamela Mueller, Regional Growth Regimes Revisited – The Case of West Germany, in: Michael Dowling, Jürgen Schmude and Dodo von Knyphausen-Aufsess (eds.): *Advances in Interdisciplinary European Entrepreneurship Research Vol. II*, Münster 2005: LIT, 251-273.

04/7 Dieter Jacob, Constanze Stuhr, Aktuelle baubetriebliche Themen – 2002/2003, Mai.

04/8 Michael Fritsch, Technologietransfer durch Unternehmensgründungen – Was man tun und realistischlicherweise erwarten kann, in: Michael Fritsch and Knut Koschatzky (eds.): *Den Wandel gestalten – Perspektiven des Technologietransfers im deutschen Innovationssystem*, Stuttgart 2005: Fraunhofer IRB Verlag, 21-33.

04/9 Michael Fritsch, Entrepreneurship, Entry and Performance of New Businesses – Compared in two Growth Regimes: East and West Germany, in: *Journal of Evolutionary Economics*, 14 (2004), 525-542.

- 04/10 Michael Fritsch, Pamela Mueller, Antje Weyh, Direct and Indirect Effects of New Business Formation on Regional Employment, Juli.
- 04/11 Jan Körnert, Fabiana Rossaro, Der Eigenkapitalbeitrag in der Marktzinsmethode, in: *Bank-Archiv* (ÖBA), Springer-Verlag, Berlin u. a., ISSN 1015-1516. Jg. 53 (2005), Heft 4, 269-275.
- 04/12 Michael Fritsch, Andreas Stephan, The Distribution and Heterogeneity of Technical Efficiency within Industries – An Empirical Assessment, August.
- 04/13 Michael Fritsch, Andreas Stephan, What Causes Cross-industry Differences of Technical Efficiency? – An Empirical Investigation, November.
- 04/14 Petra Rünger, Ursula Walther, Die Behandlung der operationellen Risiken nach Basel II - ein Anreiz zur Verbesserung des Risikomanagements? Dezember.

2005

- 05/1 Michael Fritsch, Pamela Mueller, The Persistence of Regional New Business Formation-Activity over Time – Assessing the Potential of Policy Promotion Programs, Januar.
- 05/2 Dieter Jacob, Tilo Uhlig, Constanze Stuhr, Bewertung der Immobilien von Akutkrankenhäusern der Regelversorgung unter Beachtung des neuen DRG-orientierten Vergütungssystems für stationäre Leistungen, Januar.
- 05/3 Alexander Eickelpasch, Michael Fritsch, Contests for Cooperation – A New Approach in German Innovation Policy, April.
- 05/4 Fabiana Rossaro, Jan Körnert, Bernd Nolte, Entwicklung und Perspektiven der Genossenschaftsbanken Italiens, in: *Bank-Archiv* (ÖBA), Springer-Verlag, Berlin u. a., ISSN 1015-1516, Jg. 53 (2005), Heft 7, 466-472.
- 05/5 Pamela Mueller, Entrepreneurship in the Region: Breeding Ground for Nascent Entrepreneurs? Mai.
- 05/6 Margit Enke, Larissa Greschuchna, Aufbau von Vertrauen in Dienstleistungsinteraktionen durch Instrumente der Kommunikationspolitik – dargestellt am Beispiel der Beratung kleiner und mittlerer Unternehmen, Mai.
- 05/7 Bruno Schönfelder, The Puzzling Underuse of Arbitration in Post-Communism – A Law and Economics Analysis. Juni.
- 05/8 Andreas Knabe, Ursula Walther, Zur Unterscheidung von Eigenkapital und Fremdkapital – Überlegungen zu alternativen Klassifikationsansätzen der Außenfinanzierung, Juli.
- 05/9 Andreas Ehrhardt, Michael Nippa, Far better than nothing at all - Towards a contingency-based evaluation of management consulting services, Juli
- 05/10 Loet Leydesdorff, Michael Fritsch, Measuring the Knowledge Base of Regional Innovation Systems in Germany in terms of a Triple Helix Dynamics, Juli.
- 05/11 Margit Enke, Steffi Poznanski, Kundenintegration bei Finanzdienstleistungen, Juli.
- 05/12 Olga Minuk, Fabiana Rossaro, Ursula Walther, Zur Reform der Einlagensicherung in Weißrussland - Kritische Analyse und Vergleich mit dem Deutschen Einlagensicherungssystem, August.
- 05/13 Brit Arnold, Larissa Greschuchna, Hochschulen als Dienstleistungsmarken – Besonderheiten beim Aufbau einer Markenidentität, August.
- 05/14 Bruno Schönfelder, The Impact of the War 1991 – 1995 on the Croatian Economy – A Contribution to the Analysis of War Economies, August.
- 05/15 Michael Fritsch, Viktor Slavtchev, The Role of Regional Knowledge Sources for Innovation – An Empirical Assessment, August.
- 05/16 Pamela Mueller, Exploiting Entrepreneurial Opportunities: The Impact of Entrepreneurship on Economic Growth, August.
- 05/17 Pamela Mueller, Exploring the Knowledge Filter: How Entrepreneurship and University-Industry Relations Drive Economic Growth, September.

- 05/18 Marc Rodt, Klaus Schäfer, Absicherung von Strompreisisiken mit Futures: Theorie und Empirie, September.
- 05/19 Klaus Schäfer, Johannes Pohn-Weidinger, Exposures and Exposure Hedging in Exchange Rate Risk Management, September.
- 2006**
- 06/1 Michael Nippa, Jens Grigoleit, Corporate Governance ohne Vertrauen? Ökonomische Konsequenzen der Agency-Theorie, Januar.
- 06/2 Tobias Henning, Pamela Mueller, Michael Niese, Das Gründungsgeschehen in Dresden, Rostock und Karlsruhe: Eine Betrachtung des regionalen Gründungspotenzials, Januar.
- 06/3 Dorothea Schäfer, Dirk Schilder, Informed Capital in a Hostile Environment – The Case of Relational Investors in Germany, Januar.
- 06/4 Oleg Badunenko, Michael Fritsch, Andreas Stephan, Allocative Efficiency Measurement Revisited – Do We Really Need Input Prices? Januar.
- 06/5 Diana Grosse, Robert Ullmann, Enrico Weyh, Die Führung innovativer Teams unter Berücksichtigung rechtlicher und psychologischer Aspekte, März.
- 06/6 Silvia Rogler, Vergleichbarkeit von Gesamt- und Umsatzkostenverfahren – Auswirkungen auf die Jahresabschlussanalyse, März.
- 06/7 Michael Fritsch, Dirk Schilder, Does Venture Capital Investment Really Require Spatial Proximity? An Empirical Investigation, März.
- 06/8 Michael Fritsch, Viktor Slavtchev, Measuring the Efficiency of Regional Innovation Systems – An Empirical Assessment, März.