11. Innovation Networks and Regional Venture Capital Companies in Germany – Experiences for Central and Eastern European Countries

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11.1 Introduction

Since the beginning of the 1990s, venture capital financing has gained significance as an instrument of innovation policy used by the Federal Government and the Federal States of Germany. As a parallel development, partly stimulated by government measures, the private venture capital market has shown itself to be very dynamic since 1997 (cf. Lessat *et al.* 1999; Leopold/Frommann 1998.). Following a period of stagnation with new investments of barely DM 1 billion annually, a total new business amount of approximately DM 3.8 billion was invested in 1998. According to the figures for the first six months of 1999 reported by the non-profit making German Venture Capital Association, another high growth rate of DM 4.5 to 6 billion is expected for 1999.

At present, young and small companies with a high potential for growth have no difficulties in finding a large number of venture capitalists to provide not only capital but also managerial support for establishing a business.

The financing situation is distinctly less favourable for the great number of technology firms which offer less chances for capital gain for investors, and nevertheless have high risks in financing and establishment. Besides private investors or other companies with limited requirements regarding the rate of return, only promotion-oriented or less profit-oriented venture capital companies come into consideration for these technology firms. In general, the business activity of both groups is limited to a specific region such as a German Federal State or, as is shown by the venture capital subsidiaries of savings banks, to the region of interest of their parent companies. In the following contribution, these will be called "regional venture capital companies".

Due to the fact that equity capital earnings do not cover the high costs of venture capital management, regional venture capital companies are not able to provide extensive assistance for the establishment of young companies from their own resources. It is therefore all the more important for them to be part of an innovation network in which they fulfil the financing function, whereas other networking partners are in charge of managerial assistance or consultation. Managerial support refers to the manifold tasks which are linked to the establishment of a new company or to the development of a small firm, such as the orientation of products and services towards market requirements, the establishment of productive staff, the development of reliable contacts with customers and suppliers, the opening-up of foreign markets, etc.

Regional venture capital companies play an important role on the German venture capital market. Among other projects, they also finance foundations and high-tech companies with a low growth potential, and in this way close an equity supply gap for those areas which are important on a national economic level but are too unattractive for private equity for reasons of profitability.

Such supply gaps also exist in the Central and Eastern European transition countries. It is true that every industrial or transition country should primarily aim at the financing of companies in general, as well as at innovation, through private (venture) capital; however, at the present stage of the re-structuring process in these countries, private venture capital companies, i.e. which are purely gainfully active, will not be able to fulfil this function in the medium term.[1] On the one hand, there are not many such capitalists with experience in providing capital for the whole field of possible reasons for financing. On the other hand, there is a lack of sufficient demand on both a level of quantity and in particular of quality, from companies with a high potential for profit and growth; these companies could represent profitable capital investment projects for private investors. Many companies still show a high level of market uncertainty; some of them still have outdated production units, poor quality standards and limited knowledge of international marketing. Consequently, they are less attractive for national and international venture capitalists.

Nevertheless, for companies in the re-structuring process as well as for newly founded technology companies, such financiers could be ideal partners who would be able to link capital provision to differentiated management support in order to compensate for internal deficits and to assist with (new) strategic orientation as well as the realisation of innovation strategies. However, promotion-oriented or less profit-oriented capitalists can only afford assistance in commercial and marketing

[1] Reference is made to the situation of the Czech venture capital market as an example; cf. Bross/Walter (1998).

questions where the regionally available innovation-supportive infrastructure – i.e. an innovation network – is integrated with it.

11.2 Transaction Costs and the Venture Capital Market

The venture capital market is an example of a market where transaction costs, which influence market participants' activities, play an important role. The following types of costs can be differentiated:

- *Information costs* are spent on the search for and evaluation of appropriate partners. This applies both to companies requiring capital, and to investors (venture capital companies).
- *Contractual costs* which result from the negotiation of investment conditions and the formulation of contracts.
- *Controlling costs* are not only generated through the control of reliability and contractual fidelity (mostly by investors), but also through management support, generally needed by the portfolio companies in order to reach investors' objectives linked to the capital supply ("value added").

The level of these transaction costs depends for example on the number of potential contracting partners, on the distribution of information about the contracted project, on the degree of uncertainty regarding the further development of technological, competitive, societal or legal framework conditions, on the frequency of transactions, and, finally, on the spatial distance between the contracting partners. The features of these determinants define the level of the "transactional barrier" between the capital supply side and the capital demand side.

As well as exit and failure costs, information, contracting and controlling costs reduce investors' capital gain. In order to cover the above-mentioned costs through capital gain and to make an attractive profit for their investors, those venture capital companies which are exclusively gainfully active have very high expectations regarding the profit potential for their investee companies (portfolio companies). Promotion-oriented venture capital companies have to *minimise* or *externalise* these costs: their chances of making a profit are limited because their task is to promote the economy. The same is true for the middle group of less profit-oriented venture capital companies, in particular the sector of savings banks.

The above-mentioned transaction costs have different levels of importance for the gainfully active and for the non-profit making capitalists: promotion-oriented venture capital companies mostly enter silent partnerships, which are repaid by the investee company after the contracted maturity date. Therefore, the costs of concluding the contract and exiting are distinctly below those of gainfully active venture capitalists. In the case of venture capital failures, most of the costs are generally covered by public promotional programmes or guarantees. Most of the transaction costs are accounted for by the procurement of information regarding the choice of appropriate portfolio companies, as well as for the controlling, information and consulting functions during the life span of a venture capital investment. Limited personnel capacities on both a level of quality and of quantity force promotion-oriented venture capitalists to externalise as many costs as possible for the selection and supervision of their investments. This is mostly assured by a (regional) supportive network.

Regarding profit-oriented venture capital companies, which primarily secure direct investments in their portfolio companies, the above-mentioned types of transaction costs (information, contracting, controlling, exit and failure costs) are distinctly higher than for the other types of venture capital companies, which mostly enter silent partnerships. The search for and selection of promising investment projects is more complex, the negotiation of investment conditions and the set of agreements are less standardised than in the case of silent partnerships; moreover, the different desinvestment types (e.g. trade sale, initial public offering) imply a considerable work-load for the investor. However, the most important cost burden generally results from the management support linked to the investment (in view of "value added") and from the coverage of failures from the portfolio stock.

11.3 The Role of Regional Venture Capital Companies in Germany

After many years of stagnation, the number of new venture capital companies in Germany has increased considerably: national investors have founded new venture capital companies as well as other capital investment companies, international companies have established German branches, individual Federal States have initiated innovation funds, and a multitude of savings banks have founded venture capital subsidiaries. This founding activity is also reflected in the precipitous rise in the number of members of the BVK[2] (Bundesverband deutscher Kapitalbeteiligungsgesellschaften - German Venture Capital Association e.V.), which shot up from 86 at the end of 1996 to 122 in October 1999. The actual increase in the number of active venture capital companies is probably even higher, due to the fact that only a small part of the total number of barely 70 venture capital companies of savings banks and their holding organisations are BVK members.

2 Source: The respective BVK almanacs.

During the past years, the financing instrument "venture capital" has distinctly gained importance in Germany for the financing of young and small technology companies. Approximately 35 %[3] of the DM 3.84 billion venture capital which was invested in companies in 1998 for the first time, went to high tech branches (DM 1.34 billion). In comparison with the preceding years, an obvious growth rate can be seen: in 1995, the quota was only 21.1 %, then 26.6 % in 1996, and only 25.4 % in 1997.

The German venture capital market is dominated by three groups of venture capital companies (cf. Figure 11-1):[4]

➊ Definitely profit-oriented venture capital companies which only invest in companies with a high potential for growth or profit (venture capital and corporate capital companies, venture capital companies of large and private banks, of insurance companies, etc.);

➋ companies (primarily Middle Class Venture Capital Companies[5] and funds launched by the Federal States for innovation financing), initiated by the individual Federal States, which are aimed at the promotion of the economy;

➌ venture capital companies established by institutes of the savings banks' organisation, people's banks, and rural credit co-operatives, etc. In spite of their orientation towards trade and industry, the investment of venture capital is part of their mission to support the regional economy.

The activity of clearly profit-oriented venture capital companies is not restricted to specific regions; instead, they invest on a nation-wide level or enter into commitments in several German Federal States. The major part of the newly invested venture capital volume per year accounts for them, and most of the members of the BVK belong to these.[6]

Since the beginning of the 1970s, promotion-oriented venture capital companies have represented an instrument of structural policy in order to strengthen the equity base of new and middle-class companies. They also played an important role at the beginning of the 1990s, when venture capital was included in the promotional pol-

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3 According to the distinction of different high tech sectors made by EVCA (EVCA 1999).

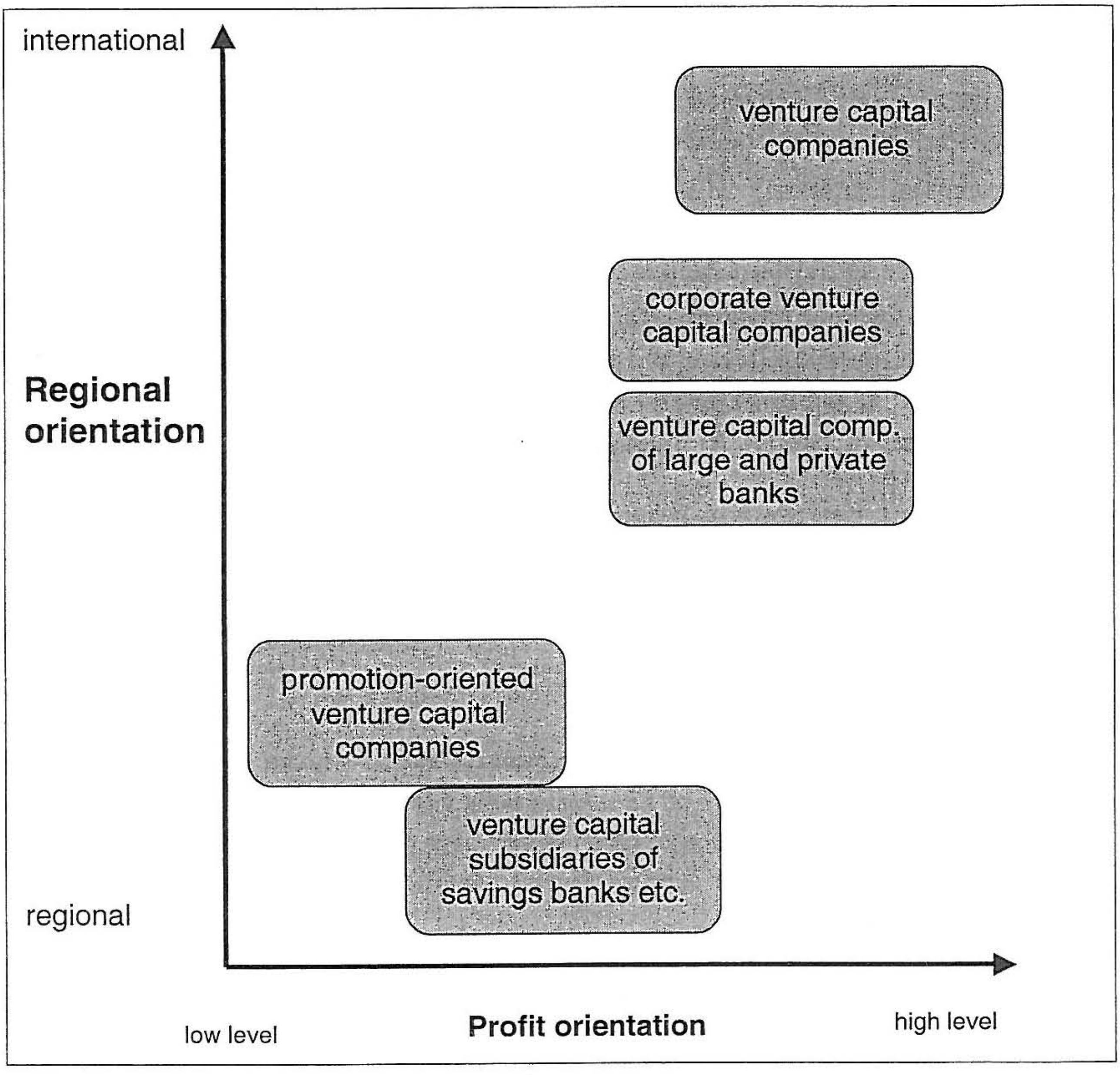
4 A detailed illustration of the individual groups of venture capital companies is found in Lessat *et al.* (1999: 119ff.).

5 "Mittelständische Beteiligungsgesellschaften (MB)" (Middle Class Venture Capital Companies) as a self-help institution of the economy, are restricted to specific Federal States. Their objective is to supply equity for as many of SMEs as possible in their region of interest, in order to strengthen regional economic power and the level of qualified jobs offered. Due to the limited level of their own resources, they primarily have to fall back on public promotional offers.

6 Only one third of the venture capitalists organised in the Association of German Venture Capital Companies BVK are restricted to a specific region or an individual Federal State (cf. illustration of the BVK members in the web).

icy of the Federation and of the States as a new instrument of innovation promotion for young and small technology companies. If one takes as a basis the number of investments instead of the investment volume, a considerable part of investments account for such promotion-oriented investors: according to an estimate, a little less than two thirds of the total of about 3,800 business investments held on the German market at the end of 1998 account for such promotion-oriented investors.[7]

Figure 11-1: Regional orientation and profit orientation of investors on the German venture capital market



Innovation financing only plays a minor role which cannot be exactly quantified due to a lack of statistical data. The economic structure of the respective regions is

7 Estimate based on the number of investee companies indicated by the BVK members, in proportion to the number of investments. It is taken into account herewith that the number of investments includes both initial and follow-up investments.

reflected by the composition of investee companies according to branches. During the past years, promotion-oriented venture capital companies have shown a higher degree of involvement in innovation financing of young and small enterprises. The non-financial support of their portfolio companies is generally restricted to financial and commercial questions; because of their role as silent partners, and due to the large number of investee companies and their personnel capacity, only limited support can be provided.

Most Federal States have initiated special promotion-oriented innovation venture capital companies in the past years,[8] these are supposed to enter into silent partnerships with young and small companies and to provide more extensive consultation than middle class venture capital companies do. In fact, the latter are limited regarding support in marketing and sales, or assistance with international product marketing. The establishment of innovation venture capital companies was aimed at closing the technology financing gap for those companies where the growth potential is too limited for profit-oriented venture capitalists, but whose capital requirements, risk structure and need of support surpasses the abilities of middle-class venture capital companies.

Venture capital companies of institutes from the savings banks' organisation, people's banks and rural credit co-operatives, etc., invest in growing small and medium-sized and partly young companies, and generally provide limited management support (primarily regarding commercial and financial questions). They mostly enter silent partnerships and sometimes also direct investments; their primary interest is to make a profit through current repayments. Due to their regional limitation they have distinctly lower expectations regarding the growth potential of the companies needing financing, and their services include a wider range of funding opportunities since otherwise the potential of appropriate companies from the region would be too limited.

It is true that there are more venture capital companies from savings banks than promotion-oriented venture capital companies; however, their funding volume and their regions of interest are limited. Consequently, they participate in distinctly less companies than promotion-oriented venture capital companies. Older companies mostly have 15 to 25 portfolio companies.[9]

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8 E.g. Bayern Kapital Risikokapitalbeteiligungs GmbH – Bavarian Capital Venture Capital Company Ltd.

9 In comparison, the number of investees companies of Middle Class Venture Capital Companies (MBG) by the end of 1998 was respectively: MBG Baden-Württemberg (982), MBG Saxony (194), MBMV Mittelständische Beteiligungsgesellschaft Mecklenburg-Vorpommern (90), BayBG Bayerische Beteiligungsgesellschaft/ Bavarian MBG (465).

Due to the sharp increase in the number of new profit-oriented venture capital companies, corporate capital companies and venture capital companies of large and private banks as well as of insurance companies, etc., all of which are active on a supra-regional or even international level, the relative importance of regional venture capital companies in Germany is presently being reduced. Even though promotion-oriented venture capital companies are subject to considerable restrictions (cf. Kulicke 1998: 18ff.), they still play an important role:

- They facilitate the start-up financing until the company has reached a state of development which makes them attractive for other investors.
- They act as co-financiers in large-scale projects which a sole investor would not be able to finance alone.
- Where founders have the option of covering part of their funding requirements through a silent partnership, their need to integrate a direct partner and to cede company shares is reduced.
- Limited venture capital repayments reduce the financing costs and thus increase the profit of shareholders, including that of gainfully active venture capitalists; consequently, the company becomes more attractive to them.

However, they are part of a (public) supportive network, which they make use of in order to assist their portfolio companies.

11.4 Integration of Regional Venture Capital Companies into Innovation Networks

Regional venture capital companies are elements of different networks which overlap to some extent. According to their functions, these are:

- a network for the identification and evaluation of potential investee companies (portfolio companies),
- a network to secure global financing (start-up financing, follow-on financing); (in this case it is a financing network rather than an innovation network), and
- a network for assisting the portfolio company during the operating time of the investment.

The partners acting within these networks are mostly financial institutions, public consultation and promotion agencies, private consultants (management consultants, tax advisors, qualified auditors), other venture capital companies, universities, and non-university research institutions.

For regional venture capital companies, integration into a network aimed at the support of young and small (technology) firms firstly offers the advantage of limiting expenditure for customer contacts. Secondly, if they manage to inform their network partners about their offer of risk-carrying capital and about their conditions of investment, if they take advantage of events, of information brochures, of the public relation activities of these partners for the presentation of their own venture capital policy and for their own publicity campaign, then they have the chance to become known as capital providers within their target group.

The importance of a network for the identification of appropriate portfolio companies is not only shown by the amount of the annual deal flow (the annual number of requests addressed to venture capital companies by companies in need of capital), but also by its quality. A good indicator of the deal flow quality is the investment rate (the rate of investments concluded of the total number of financing enquiries). A survey of 33 venture capital investors acting in the early stage financing of technology companies (Wupperfeld 1996) showed that German MBGs reach an investment rate of little less than 40 % on average. This was considerably higher than the rate realised by the profit-oriented venture capital companies acting on a supra-regional level (in general well below 10 %).

The reason for the higher quality of capital inquirers is not only a higher degree of acceptance and public image of MBGs at potential portfolio companies, but also the chance they offer to fall back on efficient regional networks. Within these networks, a pre-selection of potential portfolio companies is primarily carried out by financial institutions. The pre-selection includes a review of the chances of realisation and of the credit worthiness of the company in need of capital. Synergy effects such as reduced costs for information and review occur for venture capitalists, due to the fact that the criteria of financial institutes regarding the granting of credits are the same as those promotion-oriented venture capital companies or venture capital companies of savings banks, people's banks, or rural co-operatives have for their silent partnerships.

Due to the co-operation with credit institutions, only the detailed analysis for the evaluation and selection of promising companies has to be carried out by the MBGs themselves, whereas the rough analysis as the first part of the two-stage venture capital examination is done by the (potential) lender. Savings banks co-operate in a similarly close way with their venture capital subsidiaries. In this way, regional venture capital companies are able to externalise part of their transaction costs.

However, neither credit institutions nor regional venture capital companies are able to evaluate the technology and marketing aspects of innovative projects of young and small technology companies. Therefore, both lenders and equity investors involve external institutions such as technical experts and consultants, to different degrees, and on either an informal or on a contractual basis. In this way, the MBG of Baden-Württemberg draws on expert opinions of the Steinbeis Foundation in order to evaluate innovation-bound venture capital investments to be funded by promotional programmes of the Federal State; the Steinbeis foundation has a compact network of transfer centres, which are essentially represented at the technical colleges of Baden-Württemberg.

Regarding regional venture capital companies' assistance of portfolio companies, not many empirical studies exist (e.g. Wupperfeld 1996; Lompe *et al.* 1998). It is emphasised in both descriptions by venture capitalists and reports on founders' experience that in the past, assistance was mostly limited to the rights linked to silent partnership, which are: information, control, and the right to decide. Regional venture capital companies essentially have an observation and controlling function;[10] in certain cases they arrange for contacts. Only few of them offer more intensive management support and therefore refer to the regionally existing innovation network (such as the S-UBG AG, venture capital company of the economic region of Aachen). Most regional venture capital companies cannot provide extensive management support but are active partners within a network of innovation-supportive institutions. Their relationships with young and small technology companies are generally reduced to their financing function and the observation of rights and obligations emerging from the respective form of capital supply. Consultation and support of portfolio companies are provided by other partners within the innovation network, with whom they co-operate on an informal basis.

Recently, regional venture capital companies have been involved in innovation networks to a higher degree. This is partly due to the competitions launched by the Federal Ministry of Education and Research (BMBF), "BioRegio"[11] and "EXIST - University-based start-ups",[12] which stimulate and encourage the establishment of regional innovation networks.[13] A reinforcement of such networks is also aspired to on a Federal States level, for example by the GO! programme in North-Rhine-Westphalia. In most of these regions, regional venture capital companies are among

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[10] Regarding the different functions of venture capital companies, please refer to Wupperfeld (1996) or Kulicke/Wupperfeld (1996).

[11] On a nation-wide level, the three model regions of the BioRegio competition are: the BioRegion triangle between the Rhine and Neckar rivers around Heidelberg/Mannheim, the BioRegion of Munich, and the BioRegion Rheinland (surroundings of Köln, Jülich, Aachen). A special vote was attributed to the BioRegion of Jena.

[12] The programme "EXIST" supports initiatives in five model regions: "bizeps" – initiative for the support of foundations of the Bergisch-Märkische region of Wuppertal/Hagen, "dresden exists" in the region of Dresden, "GET UP" – generation of technology-oriented innovative foundings with high potential in the technology triangle between Ilmenau, Jena, and Schmalkalden, "KEIM" – Founding impulses for the extended technology region around Karlsruhe, as well as "PUSH!" A network of partners for university start-ups in the region of Stuttgart.

[13] Many regions participated in these two competitions; some of the concepts were even realised without (national) funding.

the principal network partners due to their ability to close the gap in the supply of risk-carrying capital, which distinctly profit-oriented venture capitalists (venture capital companies) do not provide for less growth-promising young and small (technology) companies.

However, despite the involvement of their network partners, active management support by regional venture capital companies is limited. They can only *offer* consultation, but have no means of direct influence of the portfolio company's management, in contrast to venture capital companies which participate directly in companies; moreover, they do not have the qualitative capacity of support concerning strategic issues such as the establishment and development of a (world-wide) sales organisation, the initiation of strategic alliances with important sales partners, or the acquisition of venture capital up to several millions, initial public offering, and so on.

In fact, the quality of support for portfolio companies, which is nevertheless possible, strongly depends on the quality of innovation network partners and their readiness for co-operation. However, due to the fact that network co-operation takes place on an informal level, it is difficult to evaluate the chances for the realisation of innovation networks in Germany which are aimed at the *consultation of regional venture capital companies' investees.*

11.5 Conclusions from German Experience which Is Relevant for Transition Countries

Although the establishment of innovation networks in Central and Eastern European transition countries is one of the main objectives of their respective innovation and technology policies, concrete measures for the support of network activities are characterised by the traditional political and legal framework conditions which still exist.[14] Three partial networks are important for (regional) venture capital companies:

- network relationships forming an interface between financing and scientific partners,
- network relationships between capital providers for innovation financing, and
- network links to public and private consultation agencies, promotional institutions, etc.

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[14] Among others, refer to: Walter/Bross (1997: 267ff.), and the illustration of the situation in Central and Eastern Europe shown there.

Regarding the establishment and development of regional innovation networks, regional venture capital companies can fulfil different functions, from active efforts to extend and deepen the network to the passive behaviour of a sporadic user of established network relationships.

Especially in technology, the establishment of an (informal) network of relationships with other venture capitalists and investors, research and consultation institutions, industrial companies, etc., is most important for venture capital companies, whether they are oriented towards trade and industry or towards promotion. This importance is not only due to easy access to interesting investment objects and the distribution of basic information for the selection of portfolio companies, but also to the possibility of efficient and appropriate support of the portfolio company's business activity. Co-operation with external partners can save considerable costs for every venture capital company, since their own personnel capacities are relieved. The establishment of a network aimed at the support of their investee companies would be of importance especially for promotion-oriented and less profit-oriented venture capital companies, all the more so since they should have easier access to other publicly run infra-structural institutions for entrepreneurial and innovative support than profit-oriented venture capital companies.

On the one hand, a regional venture capital company must make use of all options in order to minimise expenditure for the selection of appropriate portfolio companies; on the other hand, sufficient demand for their venture capital supply must be ensured. For promotion-oriented venture capital companies this should imply that the credit sector not only fulfils a pre-selection function but also contributes to the opening up of markets by arranging contacts between appropriate companies and venture capital companies. Founders' and technology centres, promotional investors, or consultation agencies are other institutions which are able to fulfil this function. Moreover, German experience shows that tax consultants and qualified auditors should be thoroughly informed about the financing offer of these venture capital companies.

Regional venture capital companies with these criteria are able to take charge of the equity financing of less growth-promising new foundations and of re-structured SMEs. Although each one of these corporate entities only has limited significance from a global economic or regional perspective, they nevertheless represent a considerable share. Regional venture capital companies also fulfil important functions in the cases of risk-carrying new foundations and re-structured SMEs:

- during the foundation stage or the first phase of re-structuring they ensure start-up financing until the company has reached a state of development which makes them attractive for private investors, and/or
- they play the role of co-investors; in this way the number of capitalists is increased, and the risk of the individual financier is reduced.

However, regional promotion-oriented venture capital companies only have limited possibilities to provide efficient management support, which is particularly important for companies with significant growth potential. Regarding this small group of young and small (technology) companies, and from a global economic point of view, close co-operation with venture capital companies would make sense; due to their competence and network of contacts, these could provide the "value-added" which would help the growth potential to become a real success on the market.

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