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# **Regional Venture Capital Policy UK and Germany Compared**

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## VENTURE CAPITAL POLICY

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The views expressed in this report are entirely our own and do not necessarily reflect those of the AGF, KfW, DTI, or of individuals who were interviewed.

## Note

Three different currency units are used in this report, namely £, DM and €. Our study period covers Germany's joining the Euro currency zone. The UK remains outside the Eurozone. To aid comparison between the two countries, at several points we use Euros or give Euro equivalents. The latter have been calculated at average conversion rates (for 2001/2) of €1 = £0.66 and €1 = DM1.95.

## Executive summary

Over the past two decades considerable interest has focused on the importance of venture capital in funding new, especially innovative enterprises. Concern has been expressed that the scale and dynamism of the venture capital market in Europe has lagged far behind that in the United States, and debate has consequently highlighted the role that public policy can play in stimulating and supporting venture capital activity in European countries.

Views have differed over the aims of policy. Some see its role in fostering critical mass in major geographical clusters of venture capital, of the sort found in the US. Others believe the aim of policy should be to promote a more geographically dispersed pattern of venture capital in order to fill what are perceived to be regional gaps in the market.

This study examines these issues by comparing the venture capital market and its regional impact in the United Kingdom and in Germany. It uses information gained from an original survey of venture capital firms and from interviews with key policy actors in the two countries, as well as data from the two national venture capital associations. The UK and Germany afford interesting comparison: they not only differ in the size and maturity of their venture capital markets, but also in the extent and nature of their institutional set-ups and policy interventions.

The study finds that in both countries venture capital investment has been distinctly uneven geographically. In the UK a disproportionate share of venture capital investment (both general and high-technology) has gone into London and the South East and relatively little into northern and peripheral regions of the country. In Germany investment has been more evenly distributed, although Baden-Württemberg and Bayern have dominated investment in high-technology industry.

Our study reveals considerable evidence of venture capital gaps in both countries, especially in the lower levels of the market (seed, start-up and early-stage projects), but relatively little evidence of a perception of regional gaps by venture capital firms. However, the evidence does point to significant spatial proximity effects in the investment behaviour of venture capital firms, so that the regional incidence of investment shows a strong positive correlation with the geographical location of the venture capital firms themselves. In the UK this helps to explain the concentration of investment in London and the South East, where the vast bulk of venture capital companies are themselves located. In Germany venture capital firms are more evenly spread across the country, in six major urban centres. Nevertheless proximity effects are just as pronounced, and venture capital firms also tend to restrict much of their investment to their local region. In both countries regions without major clusters of venture capital firms tend to have disproportionately low rates of investment.

Venture capital policies have evolved in quite different ways, and with quite different regional impacts, in the two countries. In Germany the prevalence of public and semi-public actors and the dominance of public financial support – via the programmes of the Reconstruction Loan Corporation (*Kreditanstalt für Wiederaufbau*, KfW) and the

Technology Participation Company (*Technologie-Beteiligungsgesellschaft*, tbg) – virtually created a venture capital industry from scratch during the 1990s. The UK, by contrast, already had a large venture capital industry, so it was not until the late 1990s that central government decided to try to directly increase the supply of venture capital to small firms via the new Regional Venture Capital Funds (RVCFs). Its intervention has been on a much smaller scale than in Germany and aimed at demonstrating to the private sector the potential profitability of investment in the (small firm and start-up) ‘equity gap’.

Distinctive institutional environments and different aims have shaped the instruments and mechanisms used. German reliance on guarantees and on the supply of capital via refinancing loans and silent capital (co-)investment seems to stem from the traditional means of providing support to small and medium-sized enterprises (SMEs) through loans and guarantees. In the UK, in the case of the RVCFs, the adoption of a fund-of-funds approach run as limited partnerships with a 10-year limit, and the delegation of investment decisions to private managers, demonstrate a stronger market orientation within venture capital policy.

The development of regional venture capital policies has also involved significant interactions between central governments and local and regional authorities. German *Länder* governments initiated their own venture capital policies during the 1990s, and these regional initiatives have been designed to draw down the increasing amounts of national finance available. The precise form of these regional policies has varied significantly between different *Länder*, reflecting fiscal disparities, institutional relations between decision-makers and commitments to other complementary technology initiatives.

In most UK regions specialist ‘gap’ regional fund managers, often created by local and regional development agencies, have existed since the 1980s. Their ability to capture and manage private enterprise (particularly the Midland Enterprise funds) and European public funds suggested possible means of public intervention that could reconcile economic development goals with a market-conforming style of operation. Such schemes demonstrated the potential value of public–private partnerships in the regions. Recent central government policy has been designed with these models in mind and, indeed, is partly aimed at ensuring that such local partnerships prosper.

Recent UK policy is not as decentralised as in Germany. The RVCF model is clearly a central initiative delivered regionally, but it is essentially the same in each of the English regions. However, decentralisation is much less pronounced in Germany than one might expect. The national institutions of the KfW and tbg are key actors in national as well as regional venture capital policies because of the competition of various actors, including regional public policy initiatives, for their funds.

In Germany guarantees appear to have had a particularly strong impact in encouraging investments, and their extensive use clearly helped to leverage in a large amount of private investment. However, the recent ‘technology crash’ resulted in large guarantee pay-outs, and the costs have increased to such an extent that the guarantee programme is unlikely to continue in its present form. In the UK only ‘public co-investment in fund’ has had a noticeable motivational effect, which reflects the ‘fund-of-funds’ approach used by both the DTI and European agencies. The dominant, though not unanimous, view among the UK venture capital industry is that policy should demonstrate that commercial returns can be made from small firm funding and can then be withdrawn, leaving private-sector venture capital firms to take over the funding role.

Another key difference in policy mechanisms is the much more extensive use of 'project-by-project' co-investment in Germany. In the case of the English RVCF single private manager approach, the agency risk is probably higher in that the performance of each fund will depend primarily on the performance of each nominated manager. The RVCF fund managers are under pressure to demonstrate good returns and, simultaneously, to invest a sufficient number of small deals in target firms.

The German experience supports the view that public programmes can be important in stimulating and supporting the development of regional venture capital markets under certain conditions. A long-term perspective may well be needed in fields where commercial viability is not easily achieved (e.g. the seed stage). At the same time more reliance on, and delegation of responsibility to, private or public regional actors within 'fund-of-funds' approaches could help to reduce the bureaucratic problems associated with large public or quasi-public institutions.

This study also examines the regional outcomes of venture capital programmes by comparing the ratios between public venture capital support expenditure and stocks of firms across the regions. In the UK the size of the RVCFs shows no evidence of a systematic trend either towards 'market-strong' or 'market-weak' regions. Unequal regional outcomes have emerged as an unintended result of the variable experiences of fund creation. In Germany national venture capital policy does not have explicit aims in terms of the regional distribution of support. The influence of market demand is therefore mediated and either amplified or muted by the 'bottom-up' organisational capacity and initiative of regional actors. Proactive venture capital policies coupled with innovation and technology policies at the *Länder* level are able to capture and divert public venture capital money. With the exception of the Eastern programmes, rather than offsetting regional imbalance as might have been expected, the sizeable national public funds going into venture capital investment have tended to follow the market and to some extent have reinforced geographical differences.

The main policy conclusions from the research are:

- UK actors appear to prefer temporary and commercially-based public intervention, aiming at a short-term demonstration effect. German venture capital players, by contrast, seem to be more willing to accept longer-term subsidies, justifying intervention in terms of beneficial spillovers from high-tech start-ups to the whole economy.
- In both countries most venture capital policies do not have explicit regional objectives and are best viewed as national interventions with a degree of regional administration and implementation.
- In both countries national policies have regionally differentiated outcomes. This is due to the way that these national policies are delivered through, intersect with, and are tapped by regionally based institutions and actors, and the fact that such local capabilities vary from region to region.
- Each country has policy lessons for the other. The German 'open-ended' policy model supports the view that public programmes can be important in stimulating the development of regional venture capital markets. At the same time, however, the UK regional 'fund-of-funds' approach is less bureaucratic and avoids the risk of large-scale public losses at times of severe market downturn.

# 1 Introduction: scope and aims

## 1.1 Venture capitalism in Europe

Over the past 25 years the United States have pioneered a new technological revolution based on large numbers of new small enterprises. The majority of these businesses in the US raise their initial finance from venture capitalists and other similar providers of 'risk money' (such as business angels and corporate venturing), rather than from banks. The European Union, meanwhile, has lagged behind in the growth of 'new economy' high-tech activity, and innovative small and medium-sized enterprises (SMEs) appear to find it more difficult to get started and grow in Europe than in the US (Gill *et al.*, 2000).

The European Commission has become increasingly concerned over what it sees as the need to remove and dismantle the institutional and market barriers that exist in European financial systems so as to promote the growth of large and vibrant venture capital funds, as well as suitable stock market exit routes by which successful businesses can be floated and additional liquidity raised (cf. European Commission, 1998; Wright *et al.*, 1999; Mason and Harrison, 1999; Leadbeater, 2000).

One of the key problems, as the European Commission sees it, is not only that European venture capitalism suffers from being too fragmented into national markets; it is also held back by a *lack of geographical clustering*.<sup>1</sup> Again the US experience is used as the exemplar. There, it is argued, the development of a large and successful venture capital market has been closely interwoven with the emergence and rapid growth of distinct spatial clusters of high-technology firms. The European Commission sees the absence of large, well-developed regional high-tech clusters as a key constraint on both the demand for and supply of venture capital in Europe (cf. Gill *et al.*, 2000).

Compared to the US, Europe has few geographic concentrations of high-tech clusters of SMEs, nor are the European clusters as deep or as integrated as in the US. Networking of SMEs also seems less easy in the EU than in the US. Yet the ability of companies to tap the best available competencies and resources through flexible co-operation patterns are key assets for innovation and competition. The lack of networking between European research and financial circles is particularly damaging. It accounts for a general lack of understanding and awareness of financial options, increases access times to finance and creates information asymmetries, which in turn raise costs (European Commission, 1998: 1).

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<sup>1</sup> Our focus here is on 'formal' venture capital, that is, risk equity provided by various types of financial institution established for, and specialising in, this type of activity. We exclude from our analysis what is termed 'informal' venture capital, that is, equity provided by so-called 'business angels' and other private individuals who invest in unquoted SMEs. Although the role of business angels is significant in the US, much less is known about this source of venture capital across Europe. According to the European Business Angels Network the number of active business angels in Europe is estimated at about 125,000, and the investment pool of available business angel finance is reckoned to be in the region of €8–10bn.

The argument is that regional high-tech clusters in Europe are not only few in number but lack critical mass and deal flow to generate the mutually reinforcing networking synergies between entrepreneurs, intermediaries and venture capitalists that are needed to give such clusters the strong growth dynamic found in US examples. The US has

'a melting pot of venture capitalists, researchers, technology experts, real estate merchants, lawyers, accountants, business schools, and universities – all of which have a stake in the entrepreneurial process. The result of this clustering and cross fertilization is a spur to innovation, entrepreneurship and the development and marketing of new ideas serviced by a fertile venture capital community. Again, apart from one or two exceptions, the European Union is lagging behind.'

(European Commission, 1998: 7)

However, such arguments tend to run counter to the other view, also found in policy circles, that rather than lacking spatial concentration European venture capitalism is already *too* geographically localised, being disproportionately located in and orientated to more dynamic and buoyant regions to the detriment of less prosperous areas which face a 'risk capital gap'. Hence, according to the Organisation for Economic Co-operation and Development (OECD), one of the ways governments can stimulate dynamic entrepreneurship is to

'encourage a more even regional distribution of venture capital activity. The difficulty which venture capitalists say they encounter in finding good investment propositions may be caused, in part, by geographical mismatches between the supply of, and demand for, venture capital which arises from the geographical concentration of venture capital funds and investment in certain regions.'

(OECD, 1996: 17)

This 'clustering versus dispersal' debate clearly raises several important issues for policy.

The OECD's advocacy of 'dispersal' is based on the argument that the relative lack of venture capital activity across the EU is in part due to 'regional equity gaps', by which it seems to mean gaps in the supply of venture capital in particular regions stemming from the over-concentration of venture capital firms and institutions in other regions. It implies that the problem is not one of lack of demand, but a spatial bias in the supply of such finance. Such an interpretation would suggest that policy initiatives to stimulate or support venture capital activity should explicitly favour those regions where such gaps exist in an effort to increase the supply of venture equity there.

The European Commission's position implies a quite different policy response. It suggests that policy should focus on strengthening existing clusters of venture capital investment, perhaps even at the expense of those other regions where such investment is low. The assumption here would appear to be either that there is unmet demand for venture capital in existing clusters and that increasing the supply of private equity in such areas will enable their growth potential to be realised; or that raising the supply of venture capital will itself stimulate further demand – a sort of Say's law effect. Such a policy would almost certainly carry the risk of militating against economically lagging regions.

This debate is intersected by another argument concerning the efficacy of public policy interventions of any kind in the venture capital market. For example, according to Mason and Harrison (1999), drawing on UK and US experience, previous attempts by national

and local governments to fill regional venture equity gaps have not on the whole proved very impressive. The effect, they suggest, has often been to reinforce existing spatial biases in the venture capital industry. On the other hand, Laughlin and Digirolamo (1994) and Lerner (1999, 2002) have argued that public programmes at the federal, state and city levels have played an important role in the US venture industry, not only providing funds but also filling information gaps and acting in a guarantee and certification capacity.

Our aim in this study is to examine some of these issues through a comparative analysis of the regional aspects and implications of venture capital policy developments in Germany and the UK.

## 1.2 Comparing Germany and the UK

There are several reasons for choosing Germany and the United Kingdom for comparison:

1. Although the UK venture capital market is more mature and considerably larger than that in Germany – in 2001 the funds raised for investment in the UK amounted to €17.66bn compared to €6.11bn in Germany (European Venture Capital Association (EVCA), 2002) – funds in Germany have been much more directed at start-up and early-stage investment than has been the case in the UK (cf. Martin *et al.*, 2001). As a result there has been a recurring debate in the UK over what is perceived as an ‘equity gap’ at the small deal size, start-up and high-technology (or so-called ‘classic’) sectors of the venture capital market. In Germany, by contrast, although the initial motivation for state intervention in the venture capital market was for foundation, high-technology ventures, the complaint is now more one of a lack of equity capital for ‘old economy’ activities.
2. The nature of the industry in the two countries differs in significant and interesting ways. Perhaps most importantly, in Germany two quasi-public credit institutions employed historically to provide long-term financing to industry – the *Kreditanstalt für Wiederaufbau* (KfW, Reconstruction Loan Corporation) and *Deutsche Ausgleichsbank* (DtA, German Equalisation Bank) – have become active players in channelling public funds for venture capital investment. Until recently the only institution of a public nature that operated in the venture capital market in the UK was 3i (previously Investors in Industry), a body owned jointly by the Bank of England and the major clearing banks and which invested directly in venture equity until its privatisation in 1994. Then in 2000 the UK government launched a major new policy initiative: the Regional Venture Capital Funds (RVCFs), aimed at creating specific funds in the English Regional Development Agency (RDA) areas directed explicitly at the lower deal size end of the market. The aim behind these RVCFs is to commit state monies to leverage additional private funds to establish one-off regional ‘funds of funds’ under the control of a single fund manager. This approach thus differs from that found in Germany, as embodied by the KfW and DtA, which is essentially a continuous ‘open-ended’ system of support.
3. There are important differences between the two countries in the geographical organisation of the venture capital market. In the UK the venture capital industry, and the institutions associated with it, are highly concentrated in London.

In Germany the industry is more evenly spread across the regions, with no one single centre or region dominating in the same way that London and the South East do in the UK. How far and in what ways this difference in the spatial structure of the venture capital industry influences the regional distribution and nature of venture capital investments of the two countries is clearly an interesting question. Certainly, in terms of the location of the venture capital industry itself, the UK more closely resembles the EU cluster model, whereas Germany is more akin to the dispersed geographical pattern favoured by the OECD.

### **1.3 Aims and methods**

Against this background, this report has three main aims:

1. To examine the regional complexion of venture capital activity in the two countries over recent years, particularly in the context of spatial concentration versus dispersal
2. To identify and explain differences in 'regional' venture capital policy models between the two countries, and the impacts of those policies to date
3. To ascertain the scope for further policy development and learning from 'best practice'.

While the new RVCs in the UK have only just been established, so that assessment of their success and impact is not yet possible, it is nevertheless instructive to examine how they are intended to operate and what form they have begun to take. It is also useful to situate the UK initiative against the experience of Germany, where a different policy approach has been in existence for some time. Indeed, a key issue is whether and in what sense policies in the two countries are intended to be, and can be construed to be, 'regional'.

In seeking to address these questions, this report examines three types of data:

1. Published and unpublished information obtained from the British and German venture capital associations, from the KfW and DtA in Germany, and from a number of other national and regional institutions involved in venture capital policy in the two countries.
2. Information obtained from a purpose-designed postal questionnaire survey of UK and German venture capital companies.<sup>2</sup>
3. Data from semi-structured interviews with individuals in key national and regional institutions and bodies in the two countries; the interviews focused particularly on the issues of equity gaps, the case for regional policies and the experience and assessment of such initiatives.

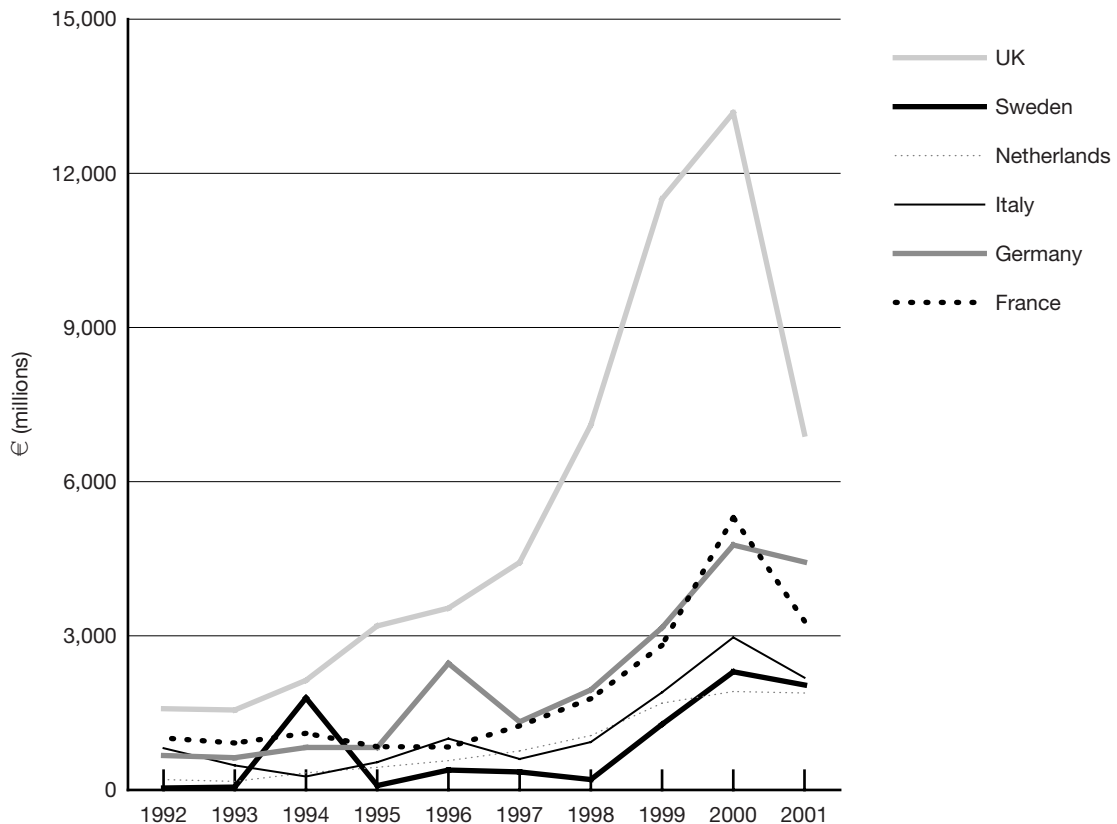
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<sup>2</sup> Questionnaires were sent out to all of the members of the British and German venture capital associations (British Venture Capital Association, BVCA, and Bundesverband für Kapitalbeteiligungsgesellschaften, BVK) respectively. Some 60 completed questionnaires were received from the UK and 107 from Germany, representing excellent response rates of 39 per cent and 49 per cent. The higher response rate for Germany was almost certainly due to the support we received from the KfW and BVK, both of which helped to promote our survey among German venture capital firms. Unfortunately the BCVA did not offer corresponding help to encourage the participation of the British venture capital community.

## 2 Regional venture capitalism in Germany and the UK

### 2.1 Recent trends and differences in the UK and German markets

The UK venture capital market is larger and more mature than that in Germany (Figure 2.1), and there are major differences in the stages and types of activities in which funds are invested (Table 2.1). The most striking difference is in the proportion of funds directed into management buy-outs/buy-ins (MBOs/MBIs) and leveraged buy-outs (LBOs). The venture capital market in the UK has repeatedly been criticised for the concentration of investment in MBOs: typically over 70 per cent has gone into this market segment (Table 2.1). This is in stark contrast to Germany, where MBOs have received only around 15 per cent of total investment. On the other hand the German market has been much more oriented to start-ups and expansions (around 75 per cent of invested funds in total, compared to around 25 per cent in the UK). In this sense Germany has been much closer to the 'classic' model of venture capitalism.



**Figure 2.1**  
**The top six national venture capital markets in Europe (€ millions)**

Source: BVCA, BVK, EVCA

**Table 2.1**  
**Venture capital investment by stage, UK and Germany**

Investment by financing stage (%)	United Kingdom				Germany			
	1998	1999	2000	2001	1998	1999	2000	2001
Early stage	8	6	11	9	25	33	36	26
Expansion	22	19	33	34	50	53	48	37
MBO/MBI/LBO	70	69	56	57	25	14	16	37
Total	100	100	100	100	100	100	100	100

Source: BVCA, BVK

Note: Expansion includes replacement, turnaround and bridge (rescue) finance.

## 2.2 The regional anatomy of UK and German venture capitalism

Analysing and comparing the regional distribution of venture capital investment in the two countries is not straightforward. For one thing the data are not unproblematic.<sup>3</sup> For another, differences in size of regional economies need to be taken into account when comparing the distribution of venture capital investment across regions. The issue is how best to measure the 'size' of a regional economy. Two possible indicators suggest themselves: regional GDP and the stock of firms or enterprises in a region. Neither is ideal, but the second is perhaps preferable, since it gives a more direct indication of the potential demand for venture capital.

On this basis the simplest way of adjusting for the size of a region's economy is to calculate regional location quotients.<sup>4</sup> A location quotient of more than unity indicates that a region has received a higher share of venture capital investment than would be expected on the basis of its share of firms – and vice versa for a location quotient of less than unity. This gives an indication of whether and to what extent venture capital activity (investment) is disproportionately concentrated in particular regions.

<sup>3</sup> These relate to the activity of the registered members of the respective national venture capital associations (154 in the UK and 218 in Germany) but in each case cover the vast majority of formal venture capital. The data provided by the BVCA are far more detailed than those produced by the BVK: the former give regional breakdowns by stage and sector, while the latter do not. This presents a problem. For this reason we also utilised data on German venture capital activity provided by the KfW; although these data refer only to those investments guaranteed by the KfW and do not have the same coverage structure as the membership of the BVK, they do offer useful estimates of the breakdown of regional venture capital investments by stage and sector for the German *Länder*.

<sup>4</sup> The location quotient (LQ) for the *i*-th region is defined as that region's share of national venture capital investment ( $I_i/I_N$ ) divided by the region's share of the national stock of firms ( $F_i/F_N$ ):

$$LQ_i = [(I_i/I_N)/(F_i/F_N)] = [(I_i/F_i)/(I_N/F_N)]$$

**Table 2.2**  
**Regional distribution of venture capital investment (by stage), United Kingdom, 1998–2001**

Region	Amount (%)				Location quotient			
	Total	Early stage	Expansions	MBO/ MBI	Total	Early stage	Expansions	MBO/ MBI
London	29.5	31.8	24.0	31.2	2.02	2.07	1.56	2.03
South East	19.0	22.8	16.0	20.0	1.17	1.37	0.99	1.20
South East and London	48.5	54.6	40.0	51.2	1.51	1.71	1.25	1.60
Eastern	6.8	11.5	6.0	6.7	0.70	1.18	0.62	0.63
South West	3.8	4.0	3.2	4.5	0.41	0.44	0.35	0.50
East Midlands	8.2	3.2	8.3	9.0	1.09	0.46	1.21	1.31
West Midlands	8.2	4.0	7.4	9.0	0.90	0.48	0.90	1.00
Yorkshire/Humberside	4.5	3.3	4.5	4.5	0.61	0.47	0.64	0.64
North West/Merseyside	10.1	7.3	17.5	7.3	0.83	0.75	1.80	0.75
North East	1.3	1.0	1.6	1.5	0.54	0.40	0.64	0.60
Wales	1.3	0.7	2.0	1.5	0.18	0.10	0.28	0.21
Scotland	7.8	9.0	9.5	4.0	1.02	1.24	1.25	0.55
Northern Ireland	0.5	1.3	0.5	0.3	0.15	0.39	0.02	0.09
<b>Total</b>	<b>100</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>

Source: BVCA (2002)

Notes: Location quotient (LQ) defined in text. Values greater than unity indicate a relative concentration of venture capital investment in the regions concerned. Percentages may not sum precisely to 100 due to rounding.

Tables 2.2 and 2.3 show regional location quotients relating to each region's shares of national venture capital investment over the period 1998–2001, divided by the region's share of the respective national stock of businesses registered for VAT in the UK and *Umsatzsteuer* (UST, turnover tax) in Germany in 2001.<sup>5</sup> In the UK three regions – London, the South East and the North West – account for nearly 60 per cent of the total amount invested over the period 1998–2001 (see Table 2.2). No other region attracted as much as 10 per cent of the total, and the shares of London and the South East alone accounted for nearly half of all capital investment in the UK during this period.<sup>6</sup>

Given the market size and dynamism of the London and South East regions, the dominance of this area of the country in terms of absolute venture capital investment is perhaps not surprising. However, these areas also contain large proportions of the nation's firms, so that the demand for venture capital may be expected to be greater. Yet,

<sup>5</sup> That is, the firms liable for a UST-prepayment. Note that, for simplicity, we refer to VAT registration only in the remainder of this report to encompass VAT-registered businesses in the UK and UST-registered businesses in Germany.

<sup>6</sup> In the late 1980s London and the South East accounted for some 60 per cent of venture capital investment (Martin, 1989). Although their share has since fallen, these two regions nevertheless continue to dominate the market (cf. Mason and Harrison, 2002).

**Table 2.3**  
**Regional distribution of venture capital investment (by stage), Germany,**  
**1998–2001 (BVK) and 1999–2001 (KfW)**

Region ( <i>Bundesland</i> )	Amount (%)					Location quotient				
	BVK total	KfW total <sup>1</sup>	Early stage	Expansions	MBO/MBI	BVK total	KfW total <sup>1</sup>	Early stage	Expansions	MBO/MBI
Baden-Württemberg	13.3	13.8	11.7	15.0	36.3	1.05	1.10	0.82	1.07	2.59
Bayern	21.1	24.5	22.6	27.7	0.9	1.21	1.46	1.30	1.59	0.02
Southern Germany	34.4	38.3	34.3	42.7	37.2	1.09	1.26	1.10	1.36	1.18
Berlin	9.7	13.6	15.2	12.1	8.6	2.55	3.68	3.98	3.17	2.25
Brandenburg	2.2	2.6	2.3	3.0	4.0	0.83	1.01	0.86	1.12	1.50
Bremen	0.6	0.7	1.3	0.1	0.0	0.81	0.89	0.94	1.75	0.00
Hamburg	5.0	5.9	7.5	4.4	1.5	1.89	1.87	2.34	1.37	0.46
Hessen	10.5	4.9	4.8	5.2	0.0	1.34	0.62	0.72	0.79	0.00
Mecklenburg-Vorpommern	0.7	3.7	4.5	2.9	0.0	0.40	2.18	2.58	1.66	0.00
Niedersachsen	4.4	2.8	3.0	2.7	1.9	0.51	0.33	0.34	0.31	0.22
Nordrhein-Westfalen	20.3	8.9	10.6	7.5	0.0	0.84	0.34	0.49	0.35	0.00
Rheinland-Pfalz	2.7	1.4	1.0	1.5	7.2	0.52	0.62	0.27	0.20	1.41
Saarland	0.9	0.4	0.5	0.2	0.0	0.25	0.34	0.42	0.17	0.00
Sachsen	3.6	9.1	6.5	11.1	28.4	0.78	2.18	1.39	2.38	6.08
Sachsen-Anhalt	1.2	3.2	5.4	0.7	0.0	0.52	1.46	2.34	0.30	0.00
Schleswig-Holstein	1.9	2.0	1.6	2.2	11.3	0.55	0.57	0.46	0.64	3.27
Thüringen	1.8	2.4	1.7	3.5	0.0	0.71	0.98	0.67	1.38	0.00
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>

Source: BVK, KfW

Notes: Location quotient (LQ) defined in text. Values greater than unity indicate a relative concentration of venture capital investment in the regions concerned. Percentages may not sum precisely to 100 due to rounding.

<sup>1</sup> Totals for KfW include 'Other' category of investment.

even allowing for this, these two regions emerge with LQs well above unity, especially so in the case of investments in early-stage ventures – what is often viewed as 'classic venture capital' – and in MBO/MBI activity. The only other regions in addition to London and the South East to have LQs greater than unity are the East Midlands and Scotland, although these are both well below the relative concentration found in the London/South East area. Northern Ireland and Wales have particularly low LQs.

Table 2.3 shows the corresponding picture for Germany. According to BVK data for 1998–2001, five regions stand out as the main centres (with shares that closely approach or exceed 10 per cent) of venture capital investment in Germany: Baden-Württemberg, Bayern, Berlin, Hessen and Nordrhein-Westfalen. Taken together these account for nearly 75 per cent of total national venture capital investment. As in the UK, the dominance of

the southern part of the country is also evident, with Baden Württemberg and Bayern attracting over 34 per cent between them.

When regional differences in the stock of firms are taken into account, five regions emerge with location quotients greater than unity, namely Baden Württemberg, Bayern, Berlin, Hamburg and Hessen. The KfW data indicate no less than eight regions with location quotients greater than unity for total investment: Baden Württemberg, Bayern, Berlin, Brandenburg, Hamburg, Mecklenburg-Vorpommern, Sachsen and Sachsen-Anhalt. The difference between the regional pattern of total investment based on KfW data and on BVK data may reflect particular differences in the sectoral, stage and regional focus of KfW's involvement in venture capital investment compared to the market as a whole. Almost all of KfW's equity schemes deliberately allow for positive treatment (in varying degrees) of the *neue Bundesländer* (the former East German *Länder*) such as Mecklenburg-Vorpommern, Sachsen and Sachsen-Anhalt, though not by operating any negative bias towards West German regions. This explains at least part of the differences in the relative regional distributions of venture capital investments as indicated by BVK data and KfW data.

Two key points nevertheless seem clear:

1. In the UK venture capital investment is much more spatially concentrated (in the London/South East region) than in Germany (where other significant regional concentrations exist outside of the two southern *Länder* of Bayern and Baden Württemberg).
2. The range of regional disparities in investment (as measured in terms of LQs) is nevertheless quite similar in the two countries.

In both nations, therefore, the growth of venture capitalism has been far from uniform geographically.

### **2.2.1 High-tech venture capital and the regions**

In the UK there has been a recurring concern that venture capital investment has tended to avoid innovative and high-tech activities, and to prefer less risky sectors, such as consumer goods and services. However, since the early 1990s the volume of investment in high-tech companies has increased tenfold, so that by 2001 almost 40 per cent of new venture capital investment was accounted for by the high-tech sector (BVCA, 2002). In Germany, from slow beginnings in the early 1990s, the proportion of investment going into high-tech activities has also increased substantially, in part as a result of a deliberate effort by the German government to stimulate private equity going into high-tech ventures.

Unfortunately regional data on high-tech investments do not exist for either the UK or Germany. But broad sectoral breakdowns do show the regional distribution of investments in information technology (Tables 2.4 and 2.5), one of the most rapidly growing high-tech sectors during the second half of the 1990s. In the UK, London and the South East together account for 50 per cent of venture capital investments in information technology. This accords closely with what is known to be a distinct south-eastern bias in the 'knowledge economy'. The southern area of Germany also seems to be the main geographical focus of venture capital investment in information technology, with Baden-Württemberg and Bayern together attracting 40 per cent of the national total. Two other

**Table 2.4**  
**Regional distribution of venture capital investment (by sector), United Kingdom, 1998–2001**

Region	Sector (%)				
	Resources, basic industries, general industrials	Consumer goods	Services	Utilities and financials	Information technology
London	5	31	31	13	22
South East	34	11	30	36	28
South East and London	39	42	61	49	50
Eastern	1	16	12	3	6
South West	9	2	3	0	6
East Midlands	25	5	2	1	9
West Midlands	17	2	5	6	3
Yorkshire/Humberside	3	2	2	0	3
North West/Merseyside	2	7	6	13	10
North East	0	1	1	0	2
Wales	0	21	8	12	2
Scotland	4	1	0	16	8
Northern Ireland	0	1	0	0	1
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: BVCA, 2002

centres are also evident, namely Berlin and Nordrhein-Westfalen (and possibly two additional, but smaller centres, Sachsen and Hessen). In both the UK and Germany the regional distribution of venture-backed high-tech development thus correlates closely with the geography of venture capital investment more generally.

## 2.3 Spatial proximity in the venture capital market

To what extent are these regional patterns of investment a reflection of supply and demand? Venture capital firms, so the argument goes, depend crucially on access to personal networks and face-to-face contacts:

'Venture capitalists solve the corporate governance and monitoring problem through extensive initial due diligence about start-up companies' businesses. Furthermore they maintain a close relationship by frequently visiting and talking to company management. The venture capitalists also sit on the boards of directors. In some instances, they even perform some key corporate functions for the firm, such as running the corporate finance department and working with suppliers and customers.'

(Jeng and Wells, 1997: 8)

**Table 2.5**  
**Regional distribution of venture capital investment (by sector), Germany,**  
**1998–2001**

Region	Sector (%)				
	Consumer goods	Services	Utilities and financials	Information technology	Other
Baden-Württemberg	15	11	3	12	16
Bayern	7	22	56	28	16
Southern Germany	22	33	59	40	32
Berlin	14	12	7	15	11
Brandenburg	6	4	1	3	2
Bremen	0	1	0	1	0
Hamburg	1	10	0	5	2
Hessen	1	4	0	8	4
Mecklenburg-Vorpommern	6	3	2	3	5
Niedersachsen	1	4	2	2	4
Nordrhein-Westfalen	9	16	13	10	7
Rheinland-Pfalz	3	1	0	1	2
Saarland	0	0	0	1	0
Sachsen	23	7	0	7	14
Sachsen-Anhalt	4	1	2	1	7
Schleswig-Holstein	2	2	12	2	2
Thüringen	8	2	2	1	8
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: KfW

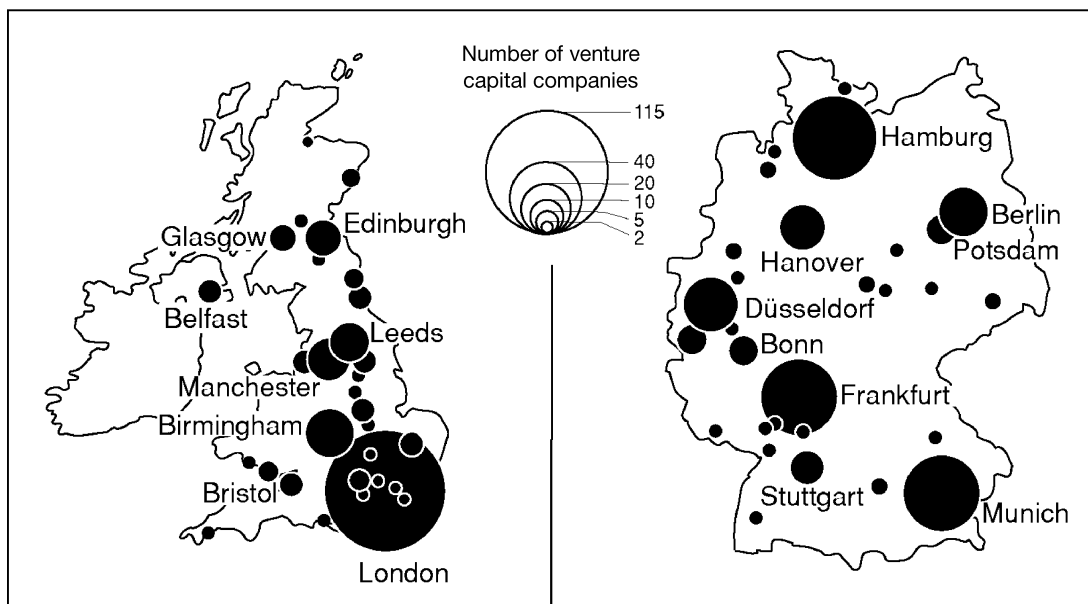
This close relationship and reliance on personal visits to evaluate potential clients, and to monitor and supervise investee companies, suggests that venture capital firms will tend to have a limited geographical range of activity. Thus – because of the distance decay effect of information flow about investment opportunities, and the desire to minimise risk by close involvement with client firms so as to secure the expected return from investments as well as to be close to other related financial institutions – we would expect the geography of investment to be closely correlated with the location of venture capital firms themselves.

At the same time venture capitalism both depends on and itself attracts a host of related specialist functions, from lawyers to accountants, to patent specialists, to management consultants and other business services. The combination of the ‘proximity effect’ between the venture capital companies and their investee firms on the one hand, and the agglomeration of related business service activities around the venture capital companies and their investee firms on the other, is widely thought to generate highly positive synergies and externalities of localisation, and therefore to be a major factor behind the development and success of geographical clusters, especially of innovative high-tech activity.

### 2.3.1 The geographical clustering of investment around major venture capital centres

Many venture capital companies are linked to, or are offshoots from, other financial institutions, such as banks and investment houses. Added to this, venture capital firms draw staff from other financial institutions and tap into the circuits of information and expertise that exist within them. In short, it is by no means coincidental that some of the main geographical concentrations of venture capital firms are found in major national and provincial financial centres. These major financial centres often also contain stock exchanges, and the concentration of venture capital firms near to stock exchanges no doubt facilitates the ease and effectiveness of exit from venture capital investments via initial public offerings (IPOs).

In the UK some 75 per cent (114 out of 151) of the private equity firms that are members of the BVCA are located in Greater London (see Figure 2.2). By comparison, other provincial centres – such as Birmingham, Bristol, Manchester, Leeds, Cambridge, Edinburgh and Glasgow – have relatively small numbers of offices.



**Figure 2.2**  
**Location of venture capital firms in the United Kingdom and Germany, 2002**

Source: BVCA, BVK

Note: Only locations with two or more firms shown

An important issue is whether this spatial concentration of venture capital firms influences the spatial distribution of investment. Our surveys of venture capital firms suggest that it does. Proximity to investee companies was stated to be more important than proximity to existing or potential investors, other venture capital firms, research institutions or large urban agglomerations more generally (Table 2.6). Evidence from the survey also suggests that venture capital firms do not spread their investments across regions but tend to focus primarily on clients in their own regions. Thus, some 60 per cent

**Table 2.6**  
**The importance of geographical proximity in venture capital investment**

<b>Geographical proximity to</b>	<b>UK</b>	<b>Germany</b>
Other venture capital firms	3.82	3.37
Other financial service companies	3.78	3.52
Your investee companies	2.30	2.16
Existing and potential investors	3.85	3.16
Research institutions	4.22	3.53
Larger agglomeration area	3.68	3.82

*Source:* Authors' survey

*Note:* Mean scores: 1 = very important; 6 = not important

of firms have investments in London, and 55 per cent in the South East. By contrast, over 80 per cent of venture capital firms have no investments in Wales, the North East, Yorkshire/Humberside, Scotland and Northern Ireland. Given the overwhelming concentration of venture capital companies in London and the South East, this implies that a spatial proximity effect is indeed at work.

In the case of Germany, the locational geography of venture capital companies is much more dispersed (Figure 2.2). No one city or region dominates the industry in the same way that London and the South East do in the UK. Rather, there are six significant urban clusters of venture capital firms, namely Hamburg (28 firms), Berlin (17), Munich (39), Frankfurt (28), Düsseldorf (17) and Hanover (10). Even taken together these six cities account for a smaller proportion of the total of German venture capital firms (55 per cent) than London does of those in the UK. These same cities have significant banking sectors and also contain six of the country's eight stock markets (the other two being in Bremen and Stuttgart).

Notwithstanding this dispersed geography of venture capital firms in Germany, our survey results indicate that in Germany, as in the UK, spatial proximity to investee companies is of importance in shaping the geography of investment (Table 2.6). In addition, KfW data on the regional distribution of investments made by venture capital firms in each of the six main centres provide some interesting insights into the spatial proximity issue.<sup>7</sup> Two main features stand out (Table 2.7):

1. There is a clear preference by venture capital firms to favour their immediate surrounding region in their investment decisions, especially by firms in Munich, Hanover and Berlin: 68 per cent of investment made by firms located or headquartered in Munich is directed to the surrounding Bayern region; 53 per cent of investment made by Hanover-based firms goes to Niedersachsen; and 46 per cent of that by firms in Berlin ends up in Brandenburg. Although the degree of spatial

<sup>7</sup> Since the Saarland region accounts for less than 2 per cent of total venture capital investment in Germany, its omission from Table 2.7 has an insignificant influence.

**Table 2.7**  
**Regional distribution of investments by firms located in the six main centres of the German venture capital market, 1998–2000 (%)**

<b>Region</b>	<b>Munich</b>	<b>Frankfurt</b>	<b>Düsseldorf</b>	<b>Hanover</b>	<b>Hamburg</b>	<b>Berlin</b>
Baden-Württemberg	1.9	8.9	0.0	10.1	5.0	2.0
Bayern	<b>68.3</b>	16.7	25.5	15.6	29.1	10.8
Berlin	2.5	4.1	0.0	0.0	4.8	7.6
Brandenburg	2.2	13.0	17.9	6.4	6.2	<b>45.7</b>
Bremen	0.0	0.3	0.0	2.2	3.0	0.0
Hamburg	1.5	7.8	9.6	1.0	<b>31.0</b>	4.4
Hessen	3.0	<b>20.0</b>	0.0	0.0	1.9	3.1
Mecklenburg-Vorpommern	0.2	1.8	0.1	2.6	2.0	5.3
Niedersachsen	1.3	1.0	0.0	<b>53.3</b>	1.0	1.1
Nordrhein-Westfalen	15.9	13.7	<b>32.7</b>	4.1	9.8	7.0
Rheinland-Pfalz	0.0	1.0	0.0	0.5	1.0	0.1
Saarland	–	–	–	–	–	–
Sachsen	2.1	4.2	4.4	0.0	3.3	4.8
Sachsen-Anhalt	0.8	4.6	8.7	0.0	0.0	3.0
Schleswig-Holstein	0.2	0.6	0.0	4.3	2.1	1.6
Thüringen	0.0	0.5	0.0	1.0	0.0	2.0
<b>Total (excludes Saarland)</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: KfW

Notes: Data do not include investments in Saarland. Percentages may not sum precisely to 100 due to rounding.

bias is less pronounced in the other centres – Frankfurt, Düsseldorf and Hamburg – the surrounding region still attracts the largest share of investments made by firms based in these cities. Figures in bold show the regional location of each of the six centres.

- It seems that after their own proximate region, venture capital firms in the five cities other than Munich tend to favour Bayern as a secondary location for investment. Thus 29 per cent of investment by Hamburg-based venture capital firms has gone to Bayern in recent years – almost as much as that destined for the Hamburg region itself, and in strong preference to its regional neighbours of Niedersachsen and Schleswig-Holstein. Similarly, over a quarter of the investments made by Düsseldorf firms has gone into Bayern.

An implication of these patterns is that, in general, the German *Länder* are crucially dependent on local venture capital firms for investment funds. Table 2.8 shows the proportion of investments in each region originating from firms based or headquartered in that region. In nearly two thirds of the *Länder* more than half of investments are financed by indigenous venture capital firms. In Niedersachsen and Rheinland-Pfalz the proportion is more than 75 per cent. Only three regions – Saarland, Bremen and

**Table 2.8**  
**Proportion of regional investment originating from venture capital firms based or headquartered in that region, Germany, 1998–2001**

<b>Region</b>	<b>Proportion of investment originating from within the region</b>
Baden-Württemberg	63.7
Bayern	58.7
Berlin	44.4
Brandenburg	41.5
Bremen	25.2
Hamburg	52.7
Hessen	64.5
Mecklenburg-Vorpommern	56.3
Niedersachsen	76.4
Nordrhein-Westfalen	32.0
Rheinland-Pfalz	79.8
Saarland	16.4
Sachsen	59.2
Sachsen-Anhalt	59.6
Schleswig-Holstein	65.6
Thüringen	44.7

Source: Based on data supplied by KfW

Nordrhein-Westfalen – are overwhelmingly dependent on external sources of venture capital investment funds.

Whether these spatial proximity effects reflect a strong distance decay in information – about investment opportunities (about actual or potential demand for risk capital) on the part of venture capital firms, and about potential sources of investment funds (supplies of risk capital) on the part of those seeking finance – or the desire by venture capital companies for close regular contact with their investee firms, the result is a process that can produce marked regional differences in venture capital activity. In the UK the overwhelming clustering of venture capital firms in and around the financial centre of London reinforces the marked concentration of investment in the south-eastern area of the country relative to other regions. In Germany, while venture capital firms are distributed more evenly between six primary cities, there would nevertheless also appear to be significant localisation of investment around these main clusters.

This raises the question whether the spatial proximity effect implies the existence of ‘regional venture equity gaps’ in areas and regions that do not have their own well-developed clusters of venture capital firms, and which are not within easy access of such clusters in neighbouring regions.

## 2.4 Venture capital gaps and the regions

The concept of a ‘funding gap’ is by no means straightforward (cf. Cressy, 2002). So controversial is the notion, and so diverse the definitions, that different authors often arrive at quite opposite conclusions. The empirical measurement of funding gaps is equally problematic and contentious: even if a definition can be agreed on, it may not be possible to translate that definition into precise empirical terms.

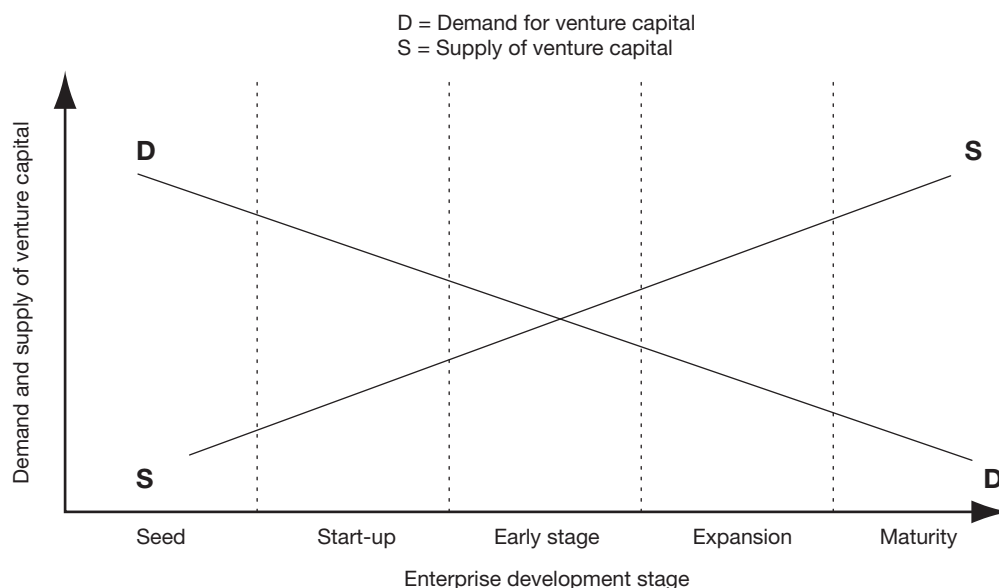
### 2.4.1 The concept of an equity gap

A common assumption in the discussion of equity gaps is the idea that in some specific market segments – whether particular deal sizes, types of firm, stage of firm development, economic sectors or specific regions – the quantity of capital supplied is for one reason or another insufficient relative to the demand. For example, in the UK context, Cruickshank argues:

‘There is clearly a mismatch between the needs of firms requesting small scale equity investments and the supply of these investments. Venture capital deals tend to be too large and business angel finance is underdeveloped. This gives rise to the long recognized market failure known as the equity gap.’

(Cruickshank, 2000: 8)

The existence of such a gap between the demand for and supply of venture equity can be illustrated graphically (Figure 2.3). The demand for risk capital is higher at the initial stages of an enterprise (seed and start-up phases), where access to both bank finance and normal capital markets tends to be limited and costly (primarily because of the high risk



**Figure 2.3**  
**Model of the venture capital gap**

Source: Based on Aernoudt (2003)

associated with such projects and because of information gaps).<sup>8</sup> Demand for venture capital declines as the company grows, as access to normal capital markets becomes easier and there are greater opportunities for using retained profits to fund expansion and growth.

Ironically, the supply of venture capital tends to follow the reverse pattern. In the seed and start-up phases suppliers of venture capital display the least interest because of high costs, high risk and uncertain returns (Aernoudt, 2003). In the expansion and maturity stages of an enterprise, where venture capitalists become more interested in investing in the company, external finance of this sort becomes less appealing (except perhaps in assisting MBOs and MBIs). In this way seed and start-up investment can encounter significant problems in finding venture capital, since they face in effect a seller's market (demand exceeds supply). Conversely, venture capitalists prefer the expansion and later stages of company development, where they may face a buyer's market (supply exceeds demand). The overall result is that a gap may emerge at the lower end, at the seed capital/start-up and very early stages levels, even though there is a plentiful total supply of funds for investment.

Regional differences in venture capital investment intensity could thus arise because of geographical variations in economic structures, in particular the rate of small firm start-ups and the relative significance of risky innovative and high-tech enterprise. In other words, nationwide equity gaps (mismatches between demand and supply) may vary in incidence from one region to another because regions differ in their economic structures. It might then be argued that there would be few grounds for regionally differentiated or discriminatory venture capital policies, since there are no regionally based mismatches or market failures, simply structurally based differences in the incidence of national equity gaps across regions. However, even in this situation there may well be a convincing case for 'regionally administered' national venture capital policies to close funding gaps, since national gaps may be best addressed by policies that are 'delivered' locally. This notion is evident in the UK government's discussion of the case for setting up the new Regional Venture Capital Funds (RVCFs):

'The Government proposed that the RVCFs should be situated physically close to where investments are being made, in order that they can become embedded in the local business community. Regional delivery offers the opportunity to vary the levels of support according to the differing regional conditions. This level of flexibility should make the funds equally attractive to private investors in all areas.

(DTI, 1999a: 8)

In this sense the UK's new RVCFs may be viewed not as a form of regional policy as such, but as a regional means of delivering a national venture capital policy.<sup>9</sup>

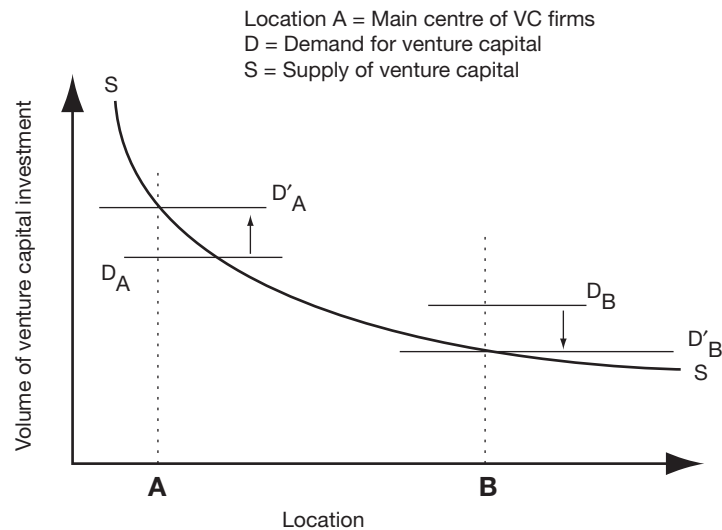
Yet the discussion earlier in this chapter suggests that there may well be a specifically regional dimension to equity gaps: that in both the UK and Germany regional differences

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<sup>8</sup> For a discussion of information asymmetries within venture capital markets more generally, see Harding (2002).

<sup>9</sup> This was the impression conveyed to us during our interviews with the Small Business section of the DTI, which has been responsible for drawing up and implementing the RVCF initiative.

## VENTURE CAPITAL POLICY



**Figure 2.4**  
**Spatial proximity effects and regional equity gaps in the venture capital market**

in venture capital investment the operation of explicit spatial proximity and related clustering effects lead to underfunding in some regions relative to others.

This argument can be illustrated graphically (Figure 2.4). Assume a major spatial cluster of venture capital firms exists at location A (this might be London, or Munich). Also assume, first, that the demand for venture capital is higher at A than at locations such as B (shown as  $D_A$  and  $D_B$  respectively). Following the arguments and evidence presented earlier, the venture capital supply curve is likely to slope downwards with increasing distance from A, as agency costs, transactions costs, information asymmetries and risk aversion all increase with increasing distance from location A. The result is that venture capital investment may well be demand-constrained in location (region) A, but supply-constrained in location (region) B.

However, as Mason and Harrison (1992) point out, demand side and supply side aspects of venture activity interact. For example, the clustering of venture capital firms at A may itself tend to raise demand there (a sort of Say's law effect), as experience and knowledge of the local venture capital market spreads through local business and information networks to encourage additional entrepreneurial activity to seek private equity. Conversely, at location B the absence of a thriving and locally embedded venture capital market on the one hand, and a reluctance of venture capital firms based at A to seek out and fund projects located in and around B on the other, may itself actually dampen demand at B. In other words, an induced regional 'demand gap' opens up as a result of the regional 'supply gap' (as reflected by the respective local demand schedules  $D_A$  and  $D_B$ ). In this way the regional distribution of venture capital investment may appear (that is, be perceived) to be in 'equilibrium', with no apparent gaps, even though the volume of investment in particular regions is below that which would emerge in a perfectly competitive market.

### 2.4.2 Perception of gaps in both countries

Detecting equity gaps and quantifying their magnitude is far from straightforward. Indeed, Mason and Harrison (2003) argue that in the case of the UK the equity gap simply does not exist. Ultimately the very notion of ‘equity gaps’ is about perceptions on the part of venture capital firms and entrepreneurs, and perceptions may be shaped by non-market factors as well as by market forces. This may be especially so in the case of ‘regional gaps’, because venture capitalists tend to think much more in terms of deal size, deal stage or sector opportunities rather than recognising or admitting to regional biases or discrimination in investment behaviour.

Our survey results tend to support this (Table 2.9). Over two thirds of respondents in both countries thought gaps of one sort or another do indeed exist. The most frequently cited types of gaps were those associated with stage of investment and deal size. Sector gaps were perceived to be less of a problem and regional gaps the least significant of all. Given the evidence found for the spatial proximity effects in investment behaviour discussed earlier, this is not to say that regional equity gaps do not exist, nor that the regional

**Table 2.9**  
**Firm responses on the undersupply of equity and the existence of equity gaps in particular market segments**

	<b>Germany (%)</b>	<b>UK (%)</b>
Venture capital is undersupplied in some market segments	68.2	70.6
Two most cited regional gaps:	Brandenburg: 13.2 Sachsen: 12.0	North West: 8.1 South West: 8.0
<b>Sector gaps:</b>		
IT and media	18.8	31.6
Other services	23.5	10.5
Manufacturing high-tech	17.6	15.8
Manufacturing low-tech	40.0	13.2
Life sciences	12.9	26.3
<b>Stage gaps:</b>		
Seed stage	52.6	54.5
Start-up	38.1	56.4
Expansion	14.4	7.3
MBO/MBI	4.1	1.8
Replacement	3.1	3.6
Bridge	3.1	5.5
<b>Deal size gaps:</b>		
Below £100k (below €150k)	42.9	42.9
£100k–£250k (€150k–€375k)	48.4	51.8
£250k–£500k (€375k–€750k)	26.4	48.2
£500k–£1m (€750–€1.5m)	13.2	35.7
£1m–£3.33m (€1.5m–€5m)	12.1	21.4
£3.33–£33m (€5m–€50m)	4.4	1.8
Over £33m (over €50m)	4.4	1.8

investment differentials described earlier merely reflect regional differences in economic structure, enterprise mix and so on.<sup>10</sup>

The survey results certainly provide little support for the claim that an equity gap does not exist, though the precise nature and extent of such a gap – and especially its regional dimension – are far from easy to discern. These difficulties pose an obvious challenge for policies intended to reduce or remove mismatches between the demand for and supply of venture capital.

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<sup>10</sup> Clearly a thorough analysis of the extent and nature of venture funding gaps would need to investigate the perceptions and experiences of a sizeable sample of enterprises and entrepreneurs seeking or requiring risk capital.

## 3 The development of regional venture capital policy

### 3.1 Introduction

In response to the conviction that there are significant funding gaps, particularly for small high-tech-based firms, most OECD governments have introduced remedial policies. The OECD (1997) distinguishes between indirect measures, such as stock market reform, and direct measures that attempt to stimulate and improve venture capital markets. Direct measures can be classified into three types of programmes:

1. The direct *supply of capital* to venture capital firms or to small investee firms
2. The provision of *financial incentives for investing* in venture capital funds or small firms; these are intended to stimulate private investment
3. *Regulatory measures* designed to mobilise certain politically desired types of investor, such as pension funds.

Given the regional focus of this report, we examine the first two types of intervention, as these have been widely used in regional initiatives. They can be further broken down into seven main types of scheme:

1. States may create investment funds or *funds of funds*, in which they are partners, investors or participants.
2. Wholly or majority publicly funded agencies may act as direct *single investors* in small firms.
3. Such agencies may instead act as *co-investors* with private investors that may take the lead in particular projects.
4. Government agencies may provide *refinancing loans* to venture capital firms on commercial or softer terms.
5. Such measures may also be combined with different forms of *guarantees* against a proportion of investment losses, as well as loan repayment forgiveness.
6. *Overhead subsidies* can be used to cover part of the costs of venture capital firms.
7. *Tax regulations and fiscal incentives* can be used to encourage investors to undertake risk capital investments.

(Bannock Consulting, 2001)

As we will see in the cases of the UK and Germany, these instruments are frequently combined to produce quite complex policy measures.

Venture capital policies in Germany have developed as part of policies both for technology and innovation (T&I) and for small and medium-sized enterprises (SMEs). The

key instruments are guarantees, refinancing loans and direct (co-)investment by wholly or majority publicly funded agencies, particularly in the form of 'silent capital'.<sup>11</sup>

## 3.2 The evolution of venture capital policy in Germany: national policies as model and sponsor

### 3.2.1 National policies: the key role of two public institutions

In Germany national public institutions in particular the *Kreditanstalt für Wiederaufbau* (KfW) and the *Deutsche Ausgleichsbank* (DtA), or rather its subsidiaries *Technologie-Beteiligungsgesellschaft mbH* (tbg) and *gbb Beteiligungs-AG*<sup>12</sup> – play a crucial role within public venture capital. They have long had loan- and grant-oriented policies and in the last decade have also become engaged in venture capital policies. The KfW and DtA, as well as similar institutions at the *Länder* level,<sup>13</sup> form a tiered system of quasi-public banks acting as economic development agencies in charge of a complex range of SME and T&I programmes.<sup>14</sup>

The first national venture capital programme, the BJTU pilot scheme (*Beteiligungskapital für junge Technologieunternehmen*, 'Equity for young technology-based firms', 1989–1994)<sup>15</sup> and the BTU programme (*Beteiligungskapital für kleine Technologieunternehmen*, 'Equity for small technology-based firms') introduced in 1995, involved two types of programmes managed by KfW and tbg respectively. The KfW type combines refinancing loans with public guarantees, while the tbg model combines a public-sector co-investment scheme with guarantees.<sup>16</sup> These KfW and tbg programmes, in combination with other equity initiatives, played an important role in the boom of the German venture capital market in the late 1990s (see Figure 3.1).

From 2001 both institutions not only decreased their commitments in absolute terms, but they have done so at a faster rate than the overall decline in total venture capital investment, in this sense acting pro-cyclically. According to our interviewees both institutions are now reluctant to sponsor new deals and are mainly providing additional finance for companies already on their books.

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<sup>11</sup> A feature of public investment in Germany is the provision of equity in the form of 'silent capital' (*stille Beteiligung*). This is risk finance in the form of a subordinated loan that carries no voting rights. Silent capital has a hybrid status between equity and borrowed capital and can be described as 'quasi-equity'.

<sup>12</sup> Here we concentrate on the tbg, as gbb only provides equity to low- and no-tech 'old economy' firms with limited growth prospects.

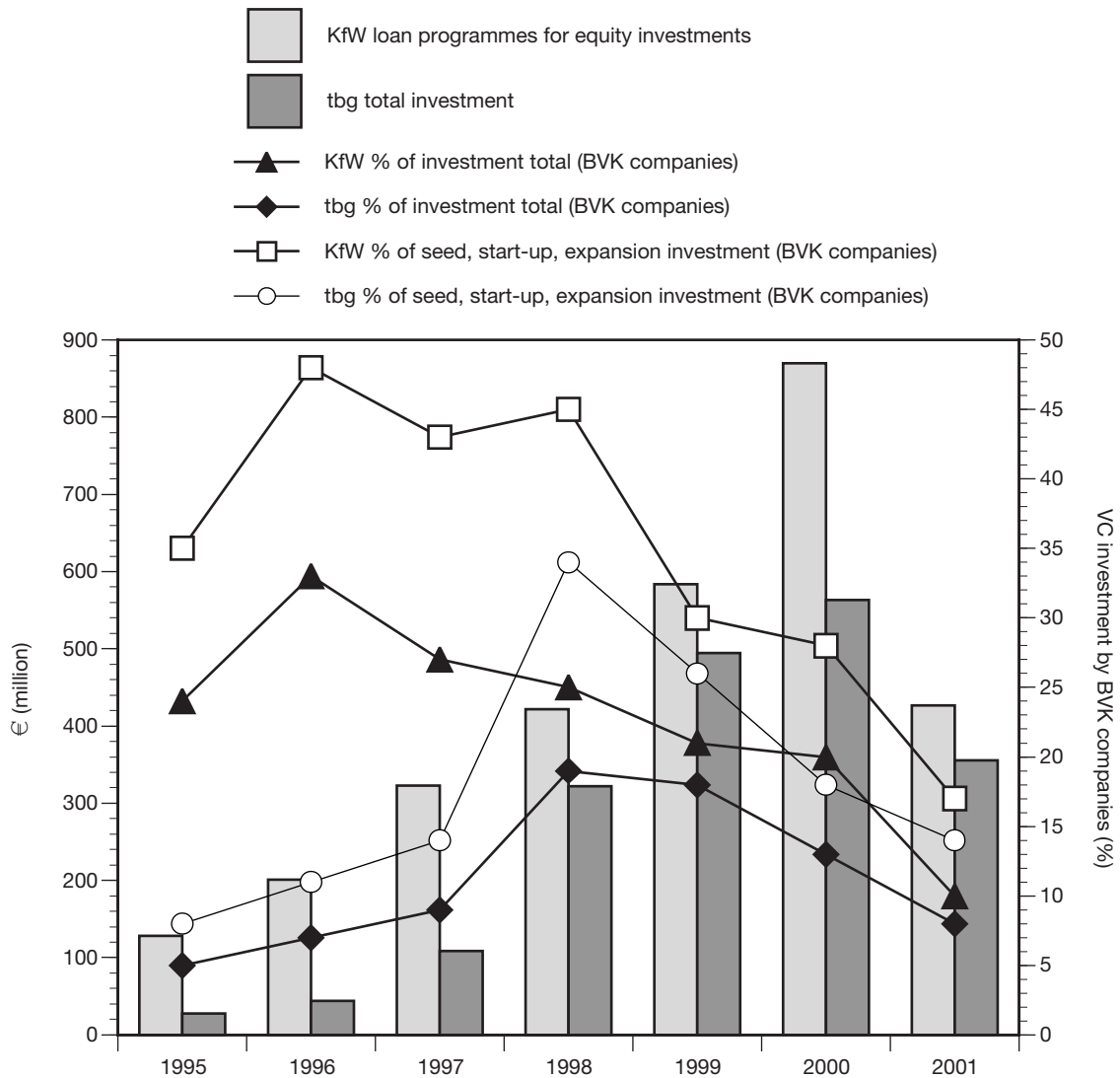
<sup>13</sup> These regional institutions are the (semi-)public *Landesbanken* and – as integrated or separate institutions – public *Investitionsbanken* (except for Hamburg where there is no *Investitionsbank*).

<sup>14</sup> For example, Hannemann and Schmeisser (2001) counted no fewer than 186 national and 822 regional public programmes targeting start-ups in Germany.

<sup>15</sup> This programme was referred to as a 'technology policy learning and stimulation programme' (Kulicke, 1997: 116).

<sup>16</sup> The affiliation of the two models with different institutions has led to some competition and overlap. The most recent decision to merge KfW and tbg's parent company DtA and then concentrate SME support policies in a so-called 'SME Bank' (*Mittelstandsbank*) under the roof of the KfW Group aims at enhancing efficiency and transparency of public policies administered by the two institutions.

## VENTURE CAPITAL POLICY



**Figure 3.1**  
**Venture capital support delivered by KfW and tbg**

Source: Data obtained from BVK, KfW, tbg

The KfW and tbg programmes account for the vast majority of financial expenditure of German venture capital policies at the national level. Other activities include:

- The BioRegio contest, which was launched in 1995 and combined various instruments in order to support the creation of regional innovation networks in biotechnology.<sup>17</sup> One dimension of BioRegio was the supply of matching funds to those venture capital firms investing in target companies.

<sup>17</sup> National policies have often been designed as ‘contests between regions’. However, as we will see below, this regionalisation of T&I policies has only partly been accompanied by the establishment of genuinely regional venture capital policies.

- The *Business Angels Netzwerk Deutschland* (BAND), set up by the federal government together with business sponsors in 1998 to develop an informal venture capital market for early-stage companies.

Most KfW and tbg venture capital programmes (with the exception of policies targeting the Eastern *Länder*, such as FUTOUR) do not have explicit regional objectives, and the distribution of the funding is not based on explicit regional criteria.

### 3.2.2 Regional policies: The variety of measures introduced by different *Länder*

With the notable exception of *Mittelständische Beteiligungsgesellschaften* (MBGs, equity stock companies – see below), venture capital policies at the regional level are fairly recent and vary significantly in their scale and scope across the *Länder*. In addition to consultancy and networking initiatives, each *Land* has developed policies to provide financial support for venture capital investment. These can be classified into four general types:

1. All the *Länder*, except Bremen, have established MBGs, although the level of their activity differs substantially. MBGs were founded as regional development agencies by private regional actors as well as local and regional public banks to provide equity to SMEs in the regions in the 1970s and 1980s (old *Länder*) or 1990s (new *Länder*). Much of their investment is guaranteed by *Länder* guarantee banks (*Bürgschaftsbanken*) which, in turn, receive guarantees, and in some cases refinancing, from the *Länder* governments and the KfW. While the original focus of the MBGs was firmly on traditional SMEs, some have recently expanded their scope to support T&I. The share of the venture capital market accounted for by MBGs remains substantial in terms of the number of investments (34 per cent in 2002, 70 per cent in 1995), but it is small in terms of the total volume of investment (11 per cent in 2002) and currently decreasing.

In addition to, or as a substitute for, their participation in MBGs, some *Sparkassen* (local public (savings) banks) have established their own venture capital firms, usually with a local or regional focus. Although total investment sums and deal sizes are generally rather small, the importance of such firms should not be underestimated. A recent study found that about one fifth of German venture capital firms were established with *Sparkassen* as major owners (Nolte and Stummer, 2000; 2001), and that most of them are located outside the major agglomeration centres.

2. In most *Länder*, and in addition to the MBGs, new institutions were established in the 1990s to act as regional venture capital firms with a public majority share (in most cases held by the respective *Landesbank* and/or regional development agencies). Their sizes and foci vary, but typically these institutions concentrate much more on classic venture capital for high-technology and innovative enterprises than the MBGs. The most prominent example is *Bayern Kapital-Risikokapitalbeteiligungs-GmbH*, founded in 1995.
3. In addition to public majority institutions, there are also small specialist venture capital firms, established by a *Land* together with private investors, with the *Land* only holding a minority share. Examples are Maz Level One and Innovative Medical Technology Centre (Imtc) established in 2000 in Hamburg, which has no public

majority venture capital firms as described above and not even a regional investment bank.

4. Some states pursue venture capital policies by providing capital to new funds which target particular types of companies (e.g. innovation, technology, early stage) without establishing new institutions. The provision of capital is often conditional on the investment of additional matching capital by the fund manager or other private investors, so that there is a leverage effect. Examples include *Innovationsfonds* in Hamburg (together with Schleswig-Holstein), Nordrhein-Westfalen and Berlin.

This fourfold categorisation of different forms of intervention provides a foundation for understanding how venture capital policies vary between different *Länder*. But it is only when we examine how these forms are combined in different regional contexts, and how policy construction has been shaped by different priorities and different capacities for intervention, that we can gain a full picture of the regional diversity and institutional complexity of German policies.

### **3.2.3 Regional case studies: Bayern, Berlin, Brandenburg, Hamburg and Nordrhein-Westfalen**

The regional case studies summarised in Box 3.1 show how the different forms of intervention are combined in different regional contexts and illustrate the regional diversity and institutional complexity of venture capital policies in Germany.

One of the most active *Länder* with respect to venture capital policies is Bayern. While Bayern provides large volumes of finance for direct public (co-)investment, the financial commitment of Nordrhein-Westfalen (NRW) is mainly in the form of guarantees. In addition, NRW features a number of apparently unconnected and relatively small regional and local approaches (including activities of the *Sparkassen*). By contrast, Brandenburg recently concentrated its efforts in one institution, *Brandenburg Capital*, which serves not only Brandenburg, but also invests in the neighbouring regions, particularly Sachsen. In a similar fashion to Bayern, Brandenburg displays active efforts to support decentralised sectoral clusters. The city states Berlin and Hamburg also exhibit significant differences. While Berlin's venture capital policy activities – like those in Bayern and Brandenburg – are dominated by public institutions, we find a closer co-operation with, and reliance on, private actors in Hamburg. Many public actors in Hamburg no longer perceive there to be a regional venture capital gap and so find it hard to justify public support measures.

These case studies show that German venture capital policies typically exhibit diverse and varying levels of institutional 'thickness' or density, together with complex actor constellations and complicated instrument constructions, all of which rule out easy generalisations. Three main factors underpin this variation:

1. Regional venture capital policy development is strongly influenced by the relational networks and knowledge of regional actors, as well as by their past experiences and current interests.
2. Partly related 1., the amount of financial resources committed to venture capital policies and programmes at the *Länder* level varies significantly, reflecting economic and fiscal disparities.

**Box 3.1**

**Regional case studies of venture capital (VC) policies in Germany**

**Bayern: Large-scale proactive co-investment by public institutions**

- Very active MBG
- 1995 Bayern Kapital – public regional venture capital firm with *Land* funding of more than €100m provided under a co-investment scheme with tbg and private investors
- Financial support for local VC initiatives led by private capital (e.g. BioM AG, business plan competitions). BioM AG Munich BioTech Development (BioM) established in conjunction with biotechnology cluster policy in 1998
- Bayern pursues a systematic approach to VC policies as part of an extremely ambitious and proactive set of regional technology and innovation policies. These include the promotion of regional clusters and are characterised by a high level of financial support based on privatisation proceeds

**Berlin: A prevalence of public actors**

- Active MBG
- Innovationsfonds Berlin, established in the early 1980s, managed by regional public development bank and sponsored by the *Land* and EU (Europäischer Fonds für regionale Entwicklung (EFRE), European Fund for Regional Development) plus KfW and tbg support
- 1997 IBB Beteiligungsgesellschaft Berlin – public regional venture capital firm with *Land* funding of approx. €50m, co-invests with tbg
- Despite relatively low financial support by the *Land*, VC in Berlin profits from the extensive research infrastructure, including several universities, technology transfer centres and science parks within the city state

**Brandenburg: Towards a one-stop public agency**

- Active MBG
- Innovationsfonds Brandenburg, established 1994 with *Land* funding only and managed by regional public development bank; main activity is supplying loans at preferential rates, but in a few cases also equity investments, some of them with tbg as co-investor
- 2000/01 Brandenburg Capital (BC) – public regional venture capital firm managing several existing and two newly established funds focusing on different stages; public investors include the *Länder* Brandenburg and Sachsen, tbg and EU's European Investment Fund (EIF); overall volume exceeds €100m, partly covered by *Land* guarantees; investment not restricted to Brandenburg (esp. older funds) and includes the promotion of IT and microelectronics clusters

- Brandenburg recently concentrated its economic development initiatives (except for the Innovationsfonds) under the roof the Zukunftsagentur Brandenburg (ZAB, Brandenburg Economic Development Board). The regional public development bank and the newly established BC are the main partners

#### **Hamburg: Reliance on private actors**

- Active MBG
- No public regional venture capital firm
- Guarantees for and/or sponsoring of three funds in conjunction with KfW, tbg, EU and private resources:
  - 1998 Innovationsfonds Hamburg/Schleswig-Holstein, managed by private VC firm
  - 2000 Technologiefonds Nord, managed by regional MBG
  - 2003 Gründerfonds (EFRE), managed by MAZ Level One (see below) as a result of competitive tendering
- Since 2000 public minority participation in two small venture capital firms focusing on seed finance in specific sectors (MAZ Level One, Innovative Medical Technology Centre) targeting specific clusters
- Hamburg's initiatives are characterised by a low level of financial commitment by the *Land* and considerable inclusion of non-*Land* public and private resources

#### **Nordrhein-Westfalen: Strong local actors and the use of guarantees**

- MBG no longer making new investments, no public regional venture capital firm
- Strength of venture capital firms established by local savings and co-operative banks and the associated regional banks
- *Land* guarantees provided under the NRW-Garantieprogramm, mainly to local savings banks, co-operative banks, their subsidiaries and two privately managed regional funds (NRW-Fonds, Phoenix Turnaround Fonds NRW)
- Since 1998 financial support for network initiative Wagniskapital für Innovationen NRW (WIN, Venture Capital for Innovations NRW), which functions as a marketplace bringing together investors and investees and also brokers *Land* guarantees
- A relatively large share of later-stage investments, particularly MBOs and LBOs, means that NRW receives a relatively small proportion of the national tbg and KfW early-stage programmes
- The lack of central public VC institutions in NRW is partly due to the relative dearth of financial resources, but evidence suggests that this is also a consequence of strength of local venture capital firms

*Source:* Interviews, Internet, documents by relevant institutions

3. Given the constraints on the availability of financial resources, *Länder* governments and other regional actors generally try to draw on the resources made available by 'external' actors, especially the KfW, the tbG and the EU.

The specific requirements associated with these funding opportunities, in combination with the regional actors' networks, create a profound complexity in regional venture capital policies across Germany.

### **3.3 The evolution of venture capital policy in the United Kingdom: towards a regional method**

#### **3.3.1 National incentives and regional interventions**

The regional economic and ideological contexts in which venture capital has developed in the UK are quite different from those in Germany. Central government policy towards the market has, until very recently, been dominated by an approach that seeks to encourage a healthy supply of equity capital through national fiscal incentives rather than through regional or local initiatives and programmes. The Business Expansion Scheme, for instance, permitted individuals investing directly in small unquoted companies to claim tax relief on the amount invested. The Enterprise Investment Scheme, introduced in 1994, also provided a range of tax reliefs to encourage individuals to acquire shares in small higher-risk companies. Venture Capital Trusts (VCTs), established in 1995, specialise in investment in small higher-risk trading companies. VCTs can invest up to £1 million in any one business and are exempt from corporations tax; their investors are also entitled to significant income tax and capital gains relief. Yet their original aim has been subverted to a large degree as they have tended to invest as much as legally possible in lower-risk, asset-backed shares (OECD, 1997).

However, it would be wrong to believe that the UK has seen no examples of attempts to directly supply equity to small firms. The earliest and most notable is 3i, originally established as the Industrial and Commercial Finance Corporation (ICFC) in 1945 by the Bank of England and the major national clearing banks and later renamed Investors in Industry (Coopey and Clarke, 1995). The organisation became the main equity provider in most of the regions of the UK, moving into venture capital from the late 1970s onwards. However, since it went public in 1994, 3i has been driven by the need to make returns for its shareholders. It has closed several of its UK regional offices and in 1998/99 announced that it was adopting 'loose' minimum deal sizes of £1m for technology deals and £3m for general investments. This regional rationalisation and upward shift in deal size have reinforced the perception among many actors that there is an equity capital gap for small high-risk companies.

In addition, direct policy measures to increase the supply of venture capital to small high-risk companies have, for some time, been employed at a local and regional level by sub-national and specialist sectoral institutions (cf. Harding, 1999). For example, the nationalised steel and coal industries created enterprise groups to encourage new firm formation in order to regenerate the local economies and communities damaged by the decline of these heavy industries (British Steel Enterprise was established in 1975, British Coal Enterprise in 1984).

In 1982, in an effort to respond to urban recession and widespread private-sector bankruptcies, five of the large metropolitan county councils also created enterprise agencies or enterprise boards in order to supply long-term capital to small local businesses. By the mid-1980s there were some 20 local authority-based institutions of this kind, the majority associated with Labour-controlled councils. These enterprise units typically raised monies for investment by appropriating a fraction of the local property tax. During the 1980s, however, the funding of such boards was seen as an inappropriate use of public money and was outlawed by legislation. However, several of these agencies managed to survive by privatising themselves, rolling over their capital and seeking new sources of investment from the private sector (examples include Yorkshire Fund Managers, Enterprise Plc, West Midlands Enterprise and Greater London Enterprise). These enterprise fund managers have usually retained close links with their local governments and economic regeneration agencies so that they have continued, to some degree at least, to have a specialist focus on small-firm, high-risk investments in order to support their local economies.

Other fund managers have also been created more recently by local development agencies and training and enterprise councils (TECs). For instance, the Merseyside Special Investment Fund was established in 1996 by a coalition of local development institutions in order to use EU Objective 1 funding for Merseyside to fill a perceived local equity gap. In the North East, Northern Enterprise Limited (NEL) was established in 1989 by a similar coalition of agencies (two North East enterprise agencies and a regional inward investment organisation) to manage certain local funds provided via a local city action team and by British Shipbuilders. In 1991 NEL created its first venture capital fund, and in 2000 it became a self-sustaining entity that now manages £34m in seven funds. Its chief executive states that the company has aimed to 'straddle the public-private divide', and although it remains a not-for-profit organisation, it now prefers to describe itself as a 'regional development business' and public-private hybrid since it aims to maximise the profits of the funds it manages.

A number of such specialist fund managers became key players in the Midland (now HSBC) Enterprise Funds, first introduced in 1993 following a Business in the Community Taskforce report that highlighted the problem of the equity gap for SMEs. The then Midland Bank became the lead investor in nine regional funds, established as limited partnerships<sup>18</sup> with 10-year life-spans, managed by independent private fund managers who could invest between £10k and £150k in small companies. TECs and Business Links provided support for the running costs of these funds, and in 1998 the European Investment Bank invested a further £20 million. They are now known as HSBC Regional Enterprise Funds, and the bank has invested a total of £37 million.

Finally, the Scottish, Northern Ireland and Welsh Development Agencies also created venture capital arms in the early 1980s. In fact, the Scottish Development Agency (subsequently renamed Scottish Enterprise) has had an investment arm since 1975; this became Scottish Development Finance (SDF) in 1982. After surviving a period of confused aims, political uncertainty and opposition, SDF gained more commercial credibility as it

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<sup>18</sup> A limited partnership is a partnership vehicle that allows partners who take no interest in the management of the vehicle to limit their liability for the actions of the vehicle to their capital invested. A general partner takes responsibility and liability for managing the activities of the partnership. Such structures have benefits for investors as they are tax transparent (DTI, 1999b).

became a specialist investor in high-technology start-ups (Hood, 2000). A key innovation here was the commitment of the newly established European Investment Fund (EIF) in 1994, which guaranteed the repayment of the private sector's contribution to the fund. This allowed the establishment in 1996 of the Scottish Equity Partnership as a £25 million limited partnership with an equal public-private investment contribution.

In 1997 SDF set up the Scottish Technology Fund in a joint venture with 3i, and it has also become the manager for a University Challenge Fund (see below). In 1999 SDF became an independent venture manager company (Scottish Equity Partners Limited), although Scottish Enterprise retains a 25 per cent stake. According to many observers, the consequent primary emphasis on investment returns has been associated with an upward move in deal size and a move away from investing in small high-risk companies within Scotland. In the Scottish Executive's view, therefore, there is once again a need for a new programme of direct intervention in the high-risk, small end of the venture capital market.

### **3.3.2 The regional delivery of national policy: venture capital policy under New Labour**

The arrival of New Labour in government in 1997 signalled a significant break in venture capital policy in the UK. While the government reinforced fiscal incentives for equity investment, it has also supplemented these with a new series of policy interventions designed to directly promote the supply of seed and risk capital.<sup>19</sup>

In March 1998 the government introduced the University Challenge Fund, contributing 25m itself and collaborating with the Wellcome Trust (£18m) and the Gatsby Charitable Foundation (£2m). This fund is designed to assist universities in commercialising their scientific research by supplying seed finance for market research and prototype development (Office of Science and Technology, 2002). The first round of funding was £45m, plus £15m from university matched funding, for 15 seed funds involving 37 institutions. A second round involving £15m from the DTI followed in 2000. The government has described this initiative as a regional policy in that it illustrates how 'national policy priorities can be treated flexibly, to deliver regional centres of excellence' (HM Treasury and DTI, 2001: para. 4.46). Since 2001, however, the DTI's financing of this fund has fallen sharply.

Some of the seed funds have been slow and cautious at investing their money, the large consortia surrounding the funds have often been slow to organise, and the funds have found it hard to appoint experienced fund managers. The DTI comments that 'it would clearly be inappropriate to provide public funding in advance of need' (Select Committee on Trade and Industry, 2001: para. 58). Moreover, these difficulties may reflect a broader wariness of university commercialisation projects by the UK venture capital community. Several of our interviewees stated that such projects were often too far removed from getting products to the market to be worth risking investment.

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<sup>19</sup> In November 1999 a Phoenix Fund was established to provide better access to finance and business support for firms in deprived areas. This was originally £30m, trebled in July 2000 to £100m, and includes a loan guarantee scheme, a CFI fund, a mentor network and a development fund. The Department for Transport, Local Government and the Regions has also recently created a Coalfields Enterprise Fund to supply venture capital to firms in former mining and coalfield areas. It has invested £10m and Barclays Bank a further £10m.

A similar reliance on regional actors to deliver national policies has been apparent in the public promotion of venture capital. Some of the local and regional examples discussed earlier were identified as useful policy models, particularly those that had successfully managed the Midland (HSBC) Enterprise Funds. At the same time the government argued that without public-sector support the existing 'equity gap' funders would tend to move up to larger deals (DTI, 1999a: 30), and that funds work best where they are based firmly within local networks of expertise and knowledge:

'The "equity gap" has been identified as a national problem with regional solutions. Those funds which have historically demonstrated success in the "equity gap" tend to be those which are situated physically close to where investments are made and which have an understanding of local business networks. Funds which are embedded in a business community can control their due diligence costs by drawing on local knowledge and experience.'

(DTI, 1999b: para. 2.2.1).

Moreover, the government also suggested that there might be specific regional market failures and concluded that 'there is a strong role for a regional investment policy where it can tackle particular regional market failures' (HM Treasury and DTI, 2001: para. 4.38). The Treasury describes how public support for risk capital constitutes an umbrella fund to be operated by a new Small Business Investment Taskforce in co-operation with the Regional Development Agencies (RDAs). In accordance with the Chancellor's expressed aim of ensuring 'balanced economic development across the regions and nations of the UK' (HM Treasury, 2000a), the policy was to ensure that all enterprises, wherever they are located, can access the finance they need:

'As part of this strategy, the SBS [Small Business Service] and RDAs will co-decide on regional priorities – the criteria for the funds and the allocation of government support – to narrow the equity gaps for small scale venture capital across the UK. For example, relative to their SME sectors, the North of England, South West and Wales have 50 percent or less early stage venture capital compared to the UK as a whole. The £1 billion target umbrella fund should go a substantial way towards narrowing regional disparities and moving the market forward over the next 3–5 years.'

(HM Treasury, 2000b: para. 3.45).

In line with these aims, the government's 1998 White Paper on competitiveness announced a new Enterprise Fund totalling £180m, which would draw on local expertise and a new support network for business proposals (DTI, 1998). This included a high-technology fund (a 'fund of funds') that invests in venture capital funds that target early-stage high-tech companies. The DTI acts as the cornerstone investor providing £20m (€30m) on subordinated terms, and this has attracted a further £106m (€160m) from private investors and the European Investment Bank (EIB). The Enterprise Fund also included the creation of nine Regional Venture Capital Funds (RVCFs).<sup>20</sup> These involve £50m (€75m) of government funding expected to lever in around £250m (€375m) of private backing, resulting in a viable fund in each of the English regions managed by commercial and experienced fund managers. While the other Enterprise Funds operate throughout the UK, the RVCFs are limited to England so as not to duplicate the venture capital schemes already operational in Wales, Scotland and Northern Ireland.

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<sup>20</sup> The largest component of the Enterprise Fund is a revised Small Firms Loan Guarantee Fund.

**Table 3.1**  
**The DTI regional venture capital funds**

<b>Region</b>	<b>Target size</b>	<b>Manager</b>
South West	£25m	South West Fund Managers – a subsidiary of Yorkshire Fund Managers
South East	£30m	West Midlands Enterprise
London	£50m	London Fund managers – a subsidiary of Yorkshire Fund Managers
Eastern	£25–30m	Classic Fund Managers
East Midlands	£30m	Catapult Ventures
West Midlands	£30m	Midven Ltd
Yorkshire	£25m	Yorkshire Fund Managers
North West	£30m	West Midlands Enterprise
North East	£15m	Northern Enterprise Limited

Source: DTI and Barclays Bank

The main aims of the RVCFs are:

1. To increase the amount of 'equity gap' venture capital available to SMEs (in amounts up to £500,000, approximately €750,000) without displacing existing fund activity in this market segment
2. To ensure that each region has access to a viable regionally based venture capital fund making small equity investments
3. To demonstrate to potential investors that commercial returns can be made by funds investing at the smaller end of the market and thereby increasing the supply of high-quality fund managers operating in the 'equity gap' segment.

Private-sector fund managers approved and appointed by the Small Business Service to date are shown in Table 3.1.

### **3.3.3 The construction of the Regional Venture Capital Funds**

As critics of the RVCF programme predicted (Mason and Harrison, 2003), in some regions it has proved difficult to find appropriately experienced managers, with the result that some managers are handling several regions. Each fund is to operate within its regional boundary and will be governed by a 10-year limited partnership (with the possibility of a two-year extension). The fund managers are to make decisions about investments on the basis of commercial criteria, although the businesses must comply with the EU's definition of an SME<sup>21</sup> and not be owned (above 25 per cent) by another company or companies.

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<sup>21</sup> The current definition is a business with less than 250 employees and either a turnover of less than £24m (€36m) or a balance sheet total of less than £16m (€24m) (Business Link, 2003).

While these are generalist funds with no explicit sectoral focus, there are also some sectoral exclusions as a condition of EU state aid approval.<sup>22</sup> Managers can invest up to £250,000 into a qualifying business in the start-up, early stage and development, and acquisition and buy-out stages. If another venture capitalist is already invested or co-invests with the fund, then total investment of both funds cannot exceed £250,000. Follow-on investments of another £250,000 can be made after a six-month time period. These rules are clearly designed to keep the funds firmly in the smaller, high-risk segment of the venture capital market. The RDAs are charged with supporting the operation of the funds in their region, primarily by using their networks of business contacts.

In order to address possible regional market failures, the DTI noted that regional delivery offered the opportunity to vary the levels of support according to differing regional conditions and thereby to make the funds equally attractive to private investors in all areas. However, any aim of remedying regional disparities in venture capital markets has been downplayed. Indeed the Small Business Service (SBS) is emphatic that the funds do not represent any form of regional policy.

The DTI is responsible for between 25 and 40 per cent of investment, and there is no immediately obvious regional logic behind this share. In addition, the SBS has secured funding from the European Investment Fund (EIF), and in most cases funding from these two sources will provide 50 per cent of the total investment. In order to enable the fund managers to attract the requisite 50 per cent private investment, the DTI subordinates its investments by putting a cap on its return (thus raising the return to other investors) and has agreed that in the event of an erosion of a fund's capital base, its investment suffers the loss first. Barclays Bank has become one of the key private investors in the regional funds, as have the Royal Bank of Scotland and local authority pension funds (Table 3.2).

### **3.3.4 Devolution of venture capital policy: The Scottish Co-Investment Scheme**

Perhaps partly in response to the RVCs, Scottish Enterprise has recently also agreed to a new set of venture capital policies to support SMEs, including an Investment Readiness programme and a new Enterprise Network. It is to divert part of its Regional Selective Assistance Grant to establish a new £20m Scottish Co-Investment Scheme (SCS), which will invest in private funds targeted at the equity gap of up to around £500,000.

The SCS has similar, if slightly more cautious, aims as the English RVCs, but it is noticeable that the structure and parameters of the fund are significantly different:

'The primary objective of SCS is to stimulate the provision of certain levels of equity funding currently not adequately provided by the market in Scotland. It is hoped that this will provide sufficient flexibility to stimulate additional private sector activity and as a consequence help to alleviate financing difficulties typically encountered by early stage investment propositions.'

(Scottish Enterprise, 2002: 2)

The SCS will invite bids from experienced funds and other informal 'gap actors' focusing on start-up, early stage, and building of technology companies. Successful applicants will

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<sup>22</sup> The excluded sectors include land and property, financial services, accountants and legal services, hotels, nursing and care homes, international motor transport, agriculture, forestry and timber production, and horticulture.

**Table 3.2**  
**The investors in six RVCFS**

<b>North East</b> (closed at £15m January 2002)		<b>Yorkshire</b> (closed at £25m July 2002)	
Department of Trade and Industry	£4.5m (30%)	Department of Trade and Industry	£10m (40%)
European Investment Fund	£3.0m	North Yorkshire Local Authority Pension Fund	£3m
Barclays Debt	£3.0m	West Yorkshire Local Authority Pension Fund	£3m
Barclays Equity	£1.5m	Barclays Bank Equity	£2.5m
Tyne & Wear Pension Fund	£1.5m	Royal Bank of Scotland	£1.5m
Teeside Pension Fund	£0.75m	European Investment Fund	£2.5m
County Durham Superannuation Fund	£0.5m	South Yorkshire Local Authority Pension Fund	£2m
Northumberland County Council Pension Fund	£0.25m	East Riding Local Authority Pension Fund	£500k
<b>North West</b> (closed at £35m April 2002)		<b>South East</b> (closed at £22.5m October 2002)	
Department of Trade and Industry	£8.75m (25%)	Department of Trade and Industry	£5.6m (25%)
European Investment Fund	£8.75m	European Investment Fund	£5.4m
Tameside Pension Fund	£5.1m	Barclays Bank Debt	£4.5m
Merseyside Pension Fund	£3.1m	Barclays Bank Equity	£3m
Barclays Bank Equity	£3.0m	Windsor & Maidenhead Pension Fund	£2.2m
Barclays Bank Debt	£3.0m	Royal Bank of Scotland	£1.5m
Royal Bank of Scotland	£2.5m	West Midlands Enterprise	£300k
Astra Zeneca	£0.5m	<b>South West</b> (closed at £25m October 2002 )	
West Midlands Enterprise	£0.3m	Department of Trade and Industry	£7.5m (30%)
<b>London</b> (closed at £50m July 2002)		European Investment Fund	£5m
Department of Trade and Industry	£15m (30%)	Barclays Bank Debt	£4m
European Investment Fund	£8m	Barclays Bank Equity	£2.5m
Barclays Bank Debt	£5.5m	Royal Bank of Scotland	£2.5m
Barclays Bank Equity	£5m	Somerset Local Authority Pension Fund	£1m
London Pensions Fund Authority	£5m	Gloucestershire County Council	£2.5m
Corporation of London Pension Fund	£5m		
London Borough of Brent Pension Fund	£4m		
Royal Bank of Scotland	£1.5m		
London Boro. of Lambeth Pension Fund	£1m		

Source: Barclays Bank, personal communication; information on the remaining RVCFS was not available at the time of writing

enter into a management agreement with Scottish Enterprise involving co-investments on equal and commercial terms. These actors will draw down matching funds as they make qualifying investments and will receive commercial management fees.<sup>23</sup> Co-investments will be made up to a maximum SCS investment of £500,000, within a deal size ceiling of £1m.<sup>24</sup>

<sup>23</sup> The same rules regarding qualifying businesses apply as in the RVCFS programme.

<sup>24</sup> SCS company shareholding will also be capped at 30 per cent in any one company, and its investments will be liquidated within seven years.

### 3.4 Conclusions

It is clear that the development of regional venture capital policies in the UK and Germany has been strongly conditioned by the different character of financial industries and financial regimes in the two countries (Bascha and Walz, 2001; Becker and Hellmann, 2000). The traditional reliance on bank-based loan capital in Germany explains why it was necessary to use an extensive range of public policy measures to construct a venture capital industry, virtually from scratch, during the 1990s. Lehrer (2000: 92) states: 'Given the lack of fit between the native institutional environment and the needs of high-tech entrepreneurship German policy makers have resorted to extensive "compensatory" measures to encourage the founding of high-tech start-ups' (cf. also Sternberg *et al.*, 2001). The prevalence of public and semi-public actors and the dominance of public financial support in the German venture capital market is unusual (Bascha and Walz, 2001).

In the UK, by contrast, despite long-standing concerns about the funding of small firms, the fact that a very large venture capital industry already existed meant that the case for policy intervention and evidence of market failure has been more controversial. Thus it was not until the late 1990s that central government decided to try to directly increase the supply of venture capital to these firms. Its intervention has so far been on a much smaller scale and aimed at demonstrating to the private sector the potential profitability of investment in the (small firm and start-up) 'equity gap'.

Furthermore, the distinctive institutional environments as well as the different aims have also shaped the instruments and mechanisms used to deliver public support to the venture capital industry. The reliance on guarantees and on the supply of capital via refinancing loans and silent capital (co-)investment in Germany seems to stem from, and conform with, the traditional means of providing SME support through loans and guarantees. In the UK, by contrast, the traditional orientation towards fiscal incentives and, in the case of the RVCs, the establishment of 'funds of funds' run as limited partnerships with a 10-year limit demonstrates the stronger market orientation of venture capital policy there, as does the delegation of investment decisions to private managers.

However, the development of regional venture capital policies in the two countries has also involved significant interactions between central governments and local and regional authorities. As our examples show, several *Länder* governments initiated their own venture capital policies during the 1990s, and in most cases these regional initiatives have been designed to draw down and make use of the increasing amounts of KfW and DtA finance available. The existence of such decentralised reactions to and incorporation of central initiatives is perhaps not surprising in a federal system. It is also very obvious that intermingling of national and regional monies is such that there is no clear demarcation between policies at different spatial scales.

It is perhaps more surprising to find that in the UK local and regional policies and actors have also played an important role. In most regions specialist 'gap' regional fund managers often created by local and regional development agencies have existed since the 1980s. Their ability to capture and manage private enterprise (particularly the Midland (HSBC) Enterprise Funds) and European public funds suggested possible means

of public intervention that could possibly reconcile economic development goals with a market-conforming style of operation and decision-making. Such schemes thereby demonstrated the potential value of public-private partnerships in the regions. Recent central government policy has been designed with these models in mind and, indeed, is partly aimed at ensuring that such local partnerships prosper and are not pressured by market imperatives to move their deal sizes upwards into conventional venture capital territory.

This is not to argue that recent UK policy is as decentralised as in Germany; the RVCF model is clearly a *central initiative delivered regionally but essentially the same in each of the English regions*. However, we have seen that devolution appears to be facilitating a new policy differentiation within the UK, as Scottish Enterprise is implementing a project-by-project co-investment scheme, which is in some ways similar to German co-investment practices. In Germany, however, *decentralisation is much less pronounced than one would have expected*. The national institutions of the KfW and tbG are key actors not only in national but also regional venture capital policies because of the competition of various actors, including regional public policy initiatives, for their funds. It is clearly misleading and simplistic then to suggest that the development of regional venture capital policy has been 'centralised' in the UK and 'decentralised' in Germany.

## 4. Policy means and regional outcomes: a comparative discussion

### 4.1 Introduction

This chapter presents a comparative discussion of the operation and impact of regional venture capital policies. It is organised around three main themes:

1. The scale and regional impact of venture capital policies
2. Economic development and market imperatives
3. Policy geographies and regional distributions.

### 4.2 The scale and regional impact of venture capital policies

After a slow start the German venture capital market took off during the second half of the 1990s, experiencing a boom that opened up new exit options and revolutionised corporate financing (Lehrer, 2000). The boom was encouraged by the establishment of the *Neuer Markt* (new market) and the increasing number of public policy measures (cf. Bascha and Walz, 2001). Public programmes were supporting about 40 per cent of all venture capital investment during this period, although by 2001 this figure had fallen sharply to about 10 per cent (cf. Figure 3.1 in the previous chapter).<sup>25</sup>

The extensive use of guarantees clearly helped to leverage in a large amount of private investment. However, the crash that followed the boom resulted in large guarantee pay-outs as investments in technology firms were lost. Guarantee disbursements have now apparently exceeded €1billion (Bundesrechnungshof, 2002), and the costs have increased to such an extent that the guarantee programme is unlikely to continue in its present form. In the UK, by contrast, the DTI is only providing £80m (€120m) to all nine RVCFs over 10 years, and its total commitment to the Enterprise Funds is only £300m to the end of 2003/4.

Our survey results confirm the far greater scale of public support in Germany than the UK (see Table 4.1). In Germany national institutions, such as KfW and DtA, dominate, while the UK reports a more prominent role for local/regional actors and a much higher share of venture capital firms using EU programmes. Furthermore, while firms in both countries

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<sup>25</sup> The Bundesministerium für Wirtschaft und Technologie (BMWi) somewhat ambiguously states that its BTU programme (which includes both the KfW and DtA programmes) mobilised €0.5bn in risk capital to small firms in 2000 (BMWi, 2002; Fuhrmann, 2002).

**Table 4.1**  
**Percentages of respondent firms with some policy engagement indicating involvement with specific institutions**

<b>Germany</b>	<b>%</b>	<b>UK</b>	<b>%</b>
KfW	80.6	DTI	50.0
DtA	76.4	Local authority	10.0
MBG	12.5	Other regional	35.0
Other federal	18.1	EU	40.0
EU	6.9		

Source: Authors' survey

use public finance predominantly in start-up phases, it is also used much more for expansion in Germany than in the UK. This may reflect the general shortage of equity capital in the former economy, as well as the particular needs of enterprises in Eastern Germany following unification.

Our survey asked firms in both countries what public instruments had had the most influence on raising their investment activity (Table 4.2). In Germany guarantees appear to have had a particularly strong impact. Firms here also make more use of 'project-by-project' co-financing than their counterparts in the UK, where only 'public co-investment in fund' has had a noticeable motivational effect. This reflects the 'fund-of-funds' approach used by both the DTI and European official bodies. By contrast, the preference for risk aversion in Germany may explain the pre-eminence of guarantees.

As regards the effects of guarantees, there is no evidence from the failure rates given by firms responding to our survey that this instrument has significantly affected the quality of investments made by German firms by encouraging them to take on excessively risky investments without due diligence. The failure rates given by UK and German firms are

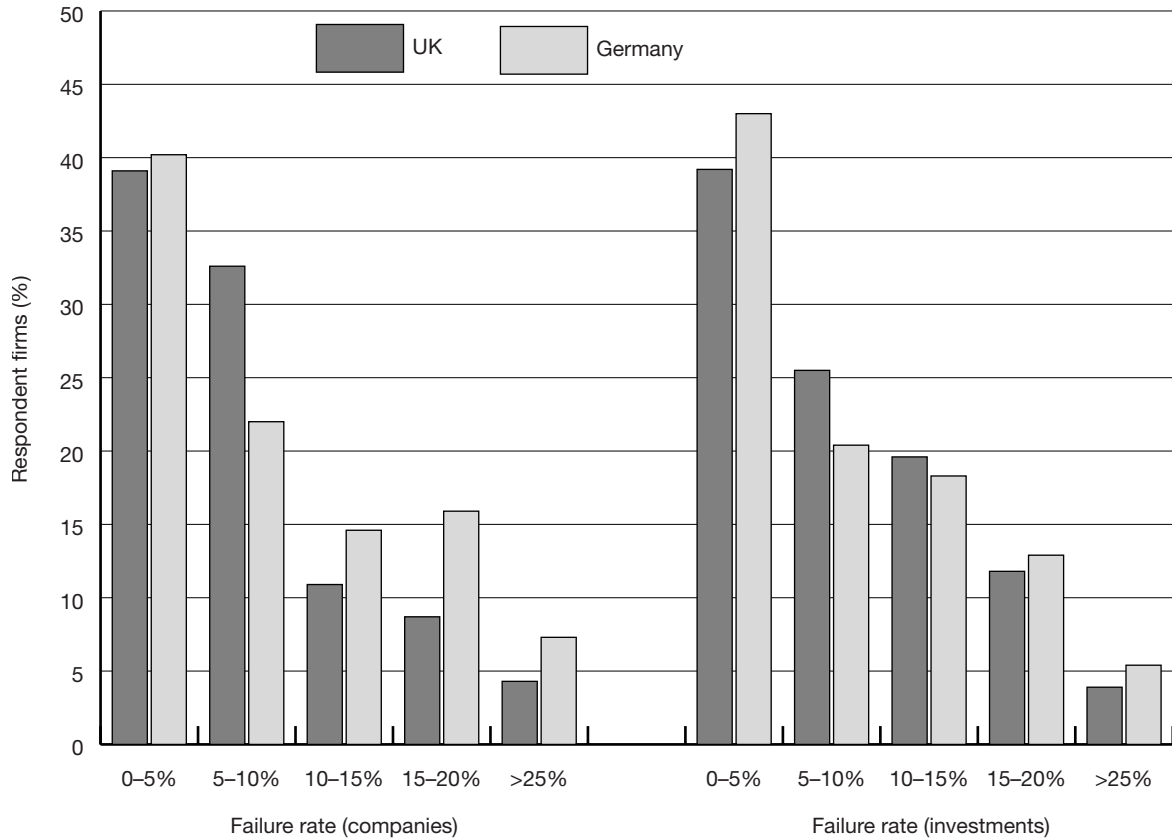
**Table 4.2**  
**Policy instruments motivating venture capital firms to invest**

	<b>Germany</b>	<b>UK</b>
Access to refinancing loans	4.3	5.6
Cheaper refinancing loans	3.8	5.5
Risk mitigation (guarantees)	2.3	5.2
Public co-investment in companies	3.8	4.9
Public co-investment in fund	4.3	4.1

Source: Authors' survey

Note: Weighted average: 1 = very important, 6 = not important

## VENTURE CAPITAL POLICY



**Figure 4.1**  
**Failure rate: number of companies and volume of investment**

Source: Authors' survey

**Table 4.3**  
**Respondent firms' distribution of investments in different sectors (2000–2002)**

Country	IT media	Other services	High-tech manufacturing	Low-tech manufacturing	Life science	Other
UK	36.2	23.2	7.8	13.2	13.5	6.2
Germany	31.6	7.8	17.0	17.8	17.7	7.8

Source: Authors' survey

strikingly similar, despite the fact that German venture capital companies invest a larger proportion of their funds in high-technology manufacturing (Figure 4.1 and Table 4.3).<sup>26</sup>

Some argue that the provision of guarantees may lead to a more hands-off approach on the part of venture capital firms (cf. Keuschnigg and Nielsen, 2001; Schertler 2002). Our

<sup>26</sup> Our survey results for Germany also provided no evidence of a relationship between the share of firms' investment that was publicly sourced and their reported failure rate by volume of investment during the last three years.

**Table 4.4**  
**Extent of management support by venture capital firms by extent of public co-funding of investment**

	Managerial support	
	No (%)	Yes (%)
<b>Germany</b>		
Public share 0–49%	40.6	59.4
Public share 50–100%	75.0	25.0
<b>UK</b>		
Public share 0–49%	8.8	91.2
Public share 50–100%	0.0	100.0

Source: Authors' survey

survey results suggest that German companies do indeed provide less managerial intervention in their investee firms, a feature even more marked for those firms in which public money accounts for half or more of their funding (Table 4.4). Nevertheless, public actors seem to expect that lead investors should engage with management issues at the investee firm (interview project manager, public co-investment institution).

The dominant role of public actors in the German venture capital market stimulates a preference for silent partnerships and may be partly responsible for the continuing preference for silent equity. On the one hand this is a direct consequence of regulations only allowing a certain amount of 'open equity' investment in a public venture capital firm; on the other hand private venture capital companies appear to favour silent public co-investment:

'It's certainly the case that some private venture capital companies prefer to have [public institutions] on board [to] commit silent equity, knowing that this is of advantage for their valuations.

(Project manager, German public co-investment institution)

In one sense guarantees may have acted pro-cyclically in that when demand was high in the high-tech boom, the availability of such support allowed more investments to be made. However, in the context of the recent market crash, guarantee payouts to venture firms may have acted counter-cyclically to cushion the impact of the downturn. It might be argued that this could disadvantage the long-term health of the industry. The downturn ought to have a beneficial selection ('clean-up') effect in that only the stronger and more able companies should survive. Given their counter-cyclical nature, guarantee payouts could therefore weaken and dilute this effect.

However, in the light of the recent collapse of the *Neuer Markt*, it could be argued that counter-cyclical support at this time may actually be an effective way of sustaining Germany's emergent equity culture. Policy-makers have also become more cautious and selective about granting public guarantees. Not surprisingly, this has created some

dissatisfaction among some client venture capital firms who feel that the fall in the acceptance rate has contributed to a climate of uncertainty and volatility.

The UK venture capital industry, by contrast, seems to have little enthusiasm for guarantees. For instance, the DTI's consultation paper on the RVCFs offered the potential of providing guarantees as part of three possible models for intervention (DTI, 1999a). The dominant, though not unanimous, view among UK venture capital firms is that policy should demonstrate that commercial returns can be made from investments in small firms. The policy should then cease, leaving private firms to fill the gap. According to the chair of the East Midlands Development Agency (EMDA), 'The holy grail is to establish that you don't need the government subsidy' (Campbell, 2001). This is one example of the way in which intervention in the UK tends to be more 'market-conforming'.

The second crucial difference in policy mechanisms is the much more extensive use of 'project-by-project' co-investment in the German regions. A project-by-project co-investment approach offers the advantage that a wider range of managers and actors can be drawn into the policy process. For example, the new Scottish Co-investment Fund aims to appoint a wide range of approved managers and to thereby benefit from including some business angels and syndicates. In Germany regional project-by-project co-investment bodies similarly draw on local expertise. A major difference between the Scottish programme and German types of co-investment is that the former involves no element of soft money or subordination. Thus, as one of our interviewees commented, the Scottish scheme will be crucially dependent on getting matched private investments.

The disadvantage of project-by-project co-investment is that it may become slow and bureaucratic. Thus it is perhaps not surprising that one of the major ways in which German respondent firms felt that policies could be reformed and improved was to speed up the decision-making process.

According to the interviewees in Bayern, the establishment of a regional co-investment body is in part able to offset this. In line with the three-party co-investment model, the *tbg* is usually soon on board once *Bayern Kapital* has approved an application. In some cases investees informally approach *Bayern Kapital* and receive a non-committal 'stamp of approval', which often facilitates the search for a lead investor. In these cases *Bayern Kapital* is fulfilling a valuable role as a 'certifying agency' (cf. Lerner, 2002: 77–78).

In the case of the English RVCF single private manager approach, the agency risk is probably higher in that the performance of each fund will depend primarily on the performance of each nominated manager. The advantage is that each of the fund managers has considerable autonomy and freedom of choice in their deal decision-making. Incorporating several fund managers in some of the peripheral English regions would have been enormously difficult, and a project-by-project co-investment approach may not have been feasible. The type of policy feasible in any region clearly depends on the institutional resources available, and in some of the English regions these resources have proved to be very thin.

### 4.3 Economic development and market imperatives

The use of these different mechanisms is closely related to the way in which policies are constructed over space, and to the extent to which they are able and designed to incorporate the expertise and knowledge of regional agencies and actors. In the UK the government argued that, by establishing regional managers, the RVCFs would tap into the local networks provided by knowledgeable managers and the RDAs. In Germany, however, most venture capital policies do not have explicit regional objectives and intentional regional outcomes. Instead, federal venture capital policies often work by providing finance to specialist firms and other public and private investors, some of which have a local or regional focus.

There is also an apparent difference between the two countries in the extent to which local public actors are seen as legitimate agents of investment. The view that policy would only work if it is operated by private actors was widely expressed in the UK. The idea that public institutions could pick winners and identify investment opportunities was treated with some derision (interview, corporate financial executive, RDA). Although negative comments on the role of public institutions are also widespread within the German venture capital scene, wider innovation and technology policies are viewed much more favourably (interview, senior representative, equity investment division, semi-public bank).

The approval of public involvement in the venture capital market is strongest when there is both 'a critical mass of venture capital and a critical mass of technology-oriented firms', as an interviewee within the Nordrhein-Westfalen (NRW) Ministry of Economics put it (see also the discussion of clustering in the next section). Certain German interviewees were aware of the British line of critique that venture capital policies had supposedly supported firms that would 'dissolve into thin air', but responded that:

'The fact is that the strong start-up policy in Germany has alarmed the British somewhat, motivating them to say "well let's try to close this gap within the venture capital sector, the gap between business plan and the first round of financing". This means within the seed sector they would certainly like to do many of the things we do.'

(Senior official, *Land* government)

However, rather than rolling over loans and supplying continuous public subsidy, the RVCFs are based on transparent 10-year limited partnerships, with a possible two-year extension, and are designed to make respectable rates of return in order to demonstrate to the industry that start-up funding can be profitable. The policy obviously has some regional and economic development goals, but these are subordinated to the commercial imperative:

'The goal is that the funds demonstrate that commercial returns are possible, so that new funds can follow without any state aid. We did not want a strong local influence which would have led into regional policy issues, because this is about commercial decisions and not regional policy.'

(SBS official, DTI)

The RVCF fund managers are under pressure to meet the commercial imperative and, simultaneously, to invest small deals in target firms. The pressure is intensified by several other constraints. As a result of the partnership structure of the RVCFs, investments have to be made in the first five years so that returns can be reaped before the partnership is wound up. The other major constraint is the limit on investments of £250,000 and another £250,000 after a six-month gap. This could make it much harder for the RVCFs to make respectable rates of return. Several of our commercially minded interviewees felt that it might have been better to allow the sums invested to be much larger, especially for high-technology investments. However, the present investment limit conforms with EU state aid rules, and this will clearly be an obstacle to any revision. The RVCF scheme was delayed for some months from October 2000 because of investigation by the EU Commission under Article 88(2), and one reason why the £250k limit was imposed was to ensure that the programme did not run foul of state aid rules.<sup>27</sup>

The RVCF constraints, both in terms of time and size of deal, will undoubtedly make the achievement of a quality deal flow and respectable returns very challenging targets. The commercial principle that funds should demonstrate attractive returns conforms with the spirit of Anglo-Saxon venture capitalism, but it also limits some of the economic development possibilities of the funds. A number of interviewees explained that many of the proposals for funding they received were from small companies with a 'lifestyle' focus; these were important to local economic development and employment but were not suitable investees for venture capital. Such firms typically have only moderate growth proposals and so are unlikely to make 15 per cent-plus rates of return for venture investments (interviews senior executive, RDA; managing director, specialist fund manager).

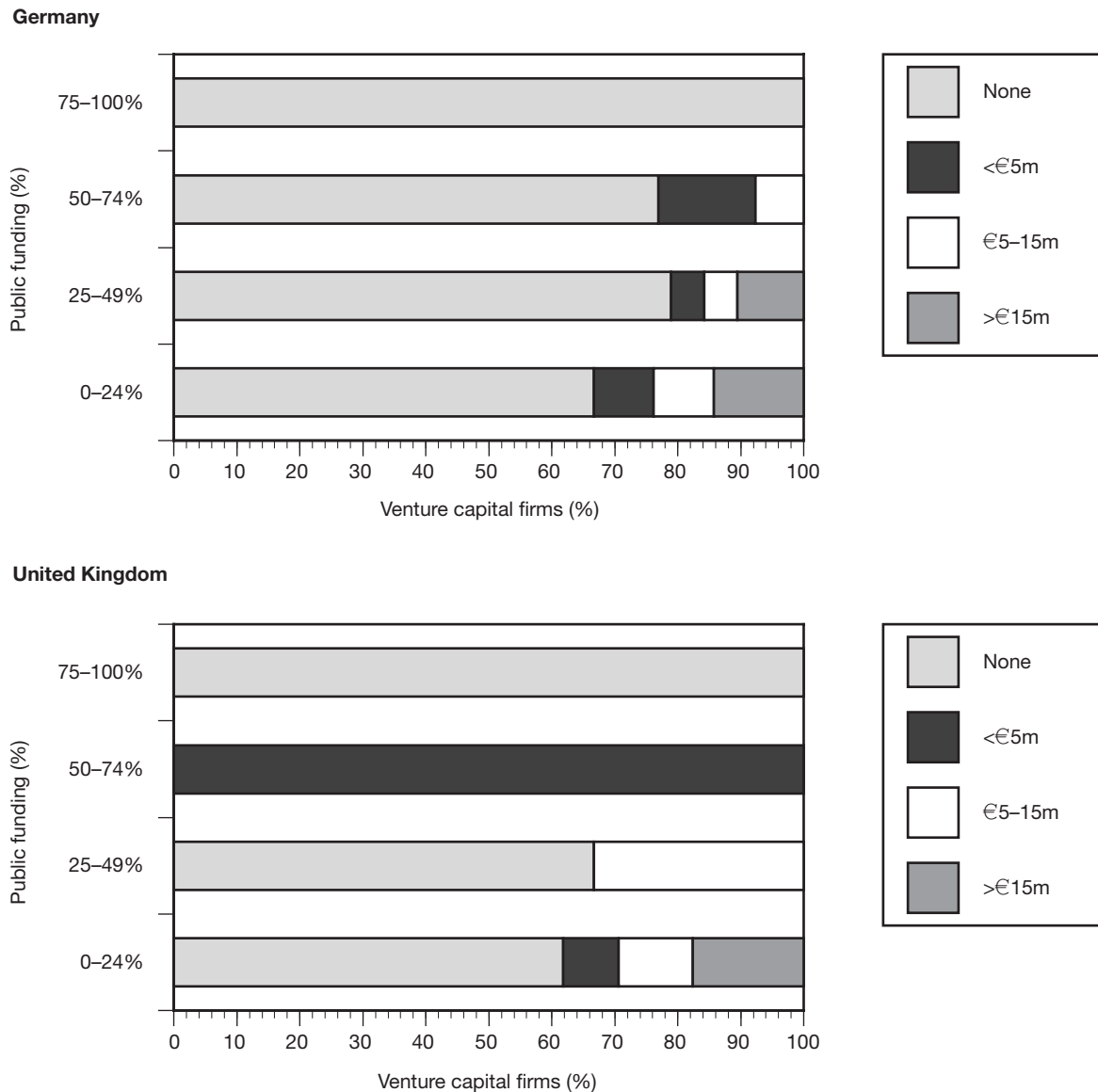
In both countries policies appear to be operating, as intended, to allow firms to make investments in smaller firms, so that policies may be counteracting the upward trend in deal size in the private sector (see Figure 4.2). But in general our findings suggest that in Germany the commercial imperative is less strongly expressed and followed within the venture capital industry.

While the expected and realised rates of return for German companies appear on the whole to be lower than for their UK counterparts (Figure 4.3), it is noticeable that those companies involved with public finance display the lowest rates of return. This weaker commercial imperative may mean that German policy can meet a wider range of economic development goals, provided that adequate public funding continues to be forthcoming. However, as Harding (1999) argues, venture capital is by no means a panacea for regional development, as there are many firms for which it is not appropriate.

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<sup>27</sup> Guarantee programmes have the advantage that the EU state aid rules only count guarantees as a small percentage of the total sum invested, and so similar amounts of public finance can legitimately be used to leverage in a far larger amount of private money.

## VENTURE CAPITAL POLICY



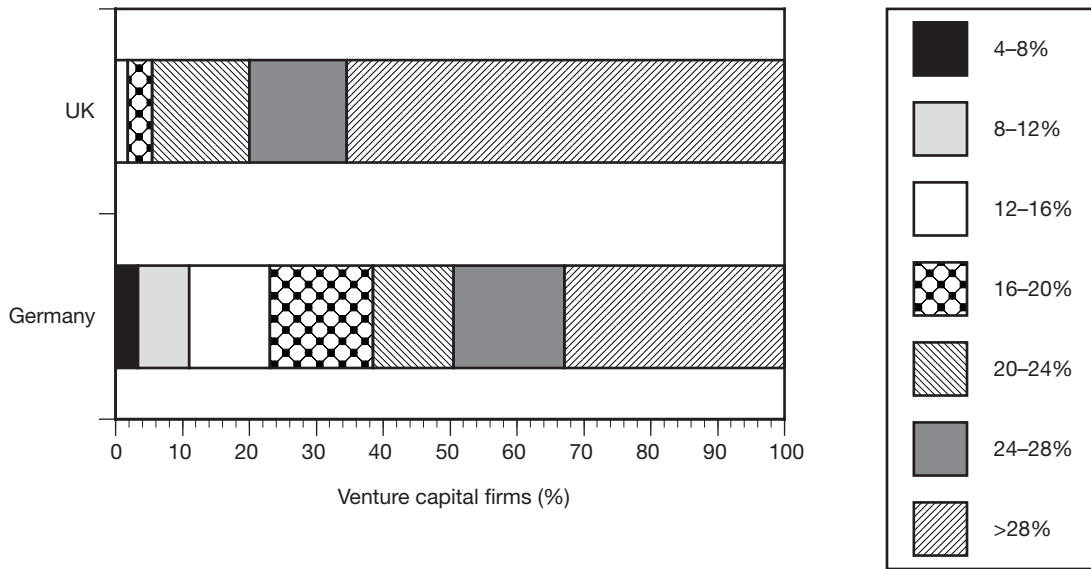
**Figure 4.2**  
**Demanded minimum size of potential investee by share of public finance,**  
**Germany and UK, 2001**

Source: Authors' survey

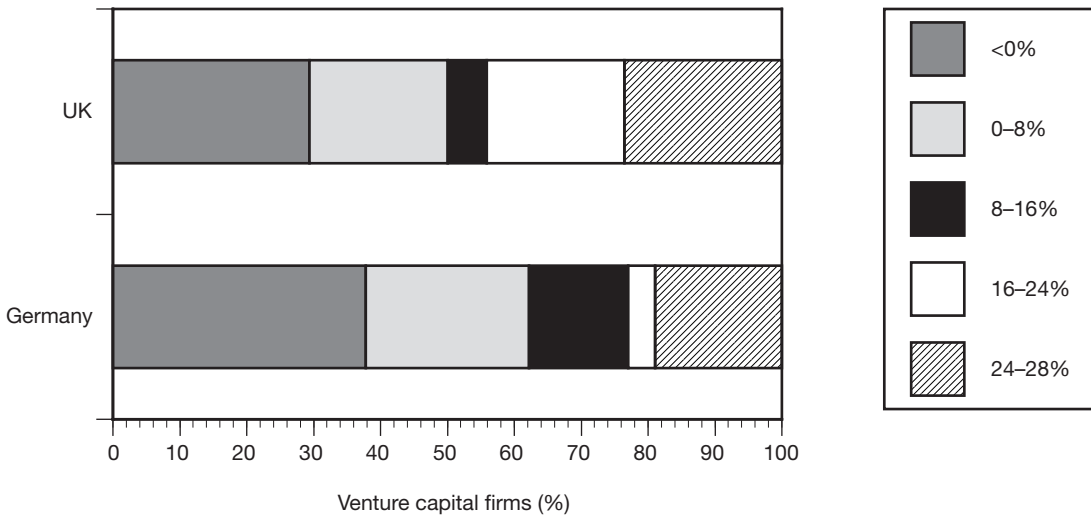
### 4.4 Policy geographies and regional distributions

Two contrasting views have been expressed about the geographical character of venture capital policies and their outcomes. On the one hand, Lerner (1999) has argued that public policies inevitably encounter a pressure for geographic diversification and equalisation of funds across areas. This, he suggests, weakens the impact of public venture capital policy, which is most effective when focused around clusters of activity. On the other hand, Mason and Harrison (1999), commenting on UK experience, have argued

**Expected rate of return**



**Realised return on investment**



**Figure 4.3**  
**Realised and expected return on investment, Germany and UK, 2001**

Source: Authors' survey

that public support for venture capital policy tends to follow the market in geographical terms and goes to areas that are already receiving the dominant share of private investment, thereby reducing its additionality.

At first sight the UK funds appear to lend support to Mason and Harrison's view, in that the largest fund is in London, which already dominates the country's venture capital market (see Chapter 2). However, when we compare the location quotients of the ratio

**Table 4.5**  
**RVCFs relative to regional stock of businesses**

<b>Regions</b>	<b>Size of RVCF (£ million)</b>	<b>Number of VAT-registered businesses, 2000</b>	<b>Location quotient fund size</b>
London	50	249,606	1.16
South East	22.5	280,379	0.47
South West	25	149,800	0.97
Eastern	27.5*	163,275	0.98
West Midlands	20*	136,490	0.85
East Midlands	30	110,970	1.57
Yorkshire/ Humberside	25	117,050	1.24
North West	35.5	160,935	1.28
North East	15	41,930	2.07

Source: VAT-registered businesses – BVCA (2002), Global Entrepreneurship Monitor (2002)

Notes: \* refers to provisional target size of fund rather than actual size at closing.

Location quotients refer to each region's share of the national total of RVCF monies, divided by each region's share of the national stock of VAT-registered businesses.

The Eastern figure is midway between the minimum targets of 25 and maximum of 30.

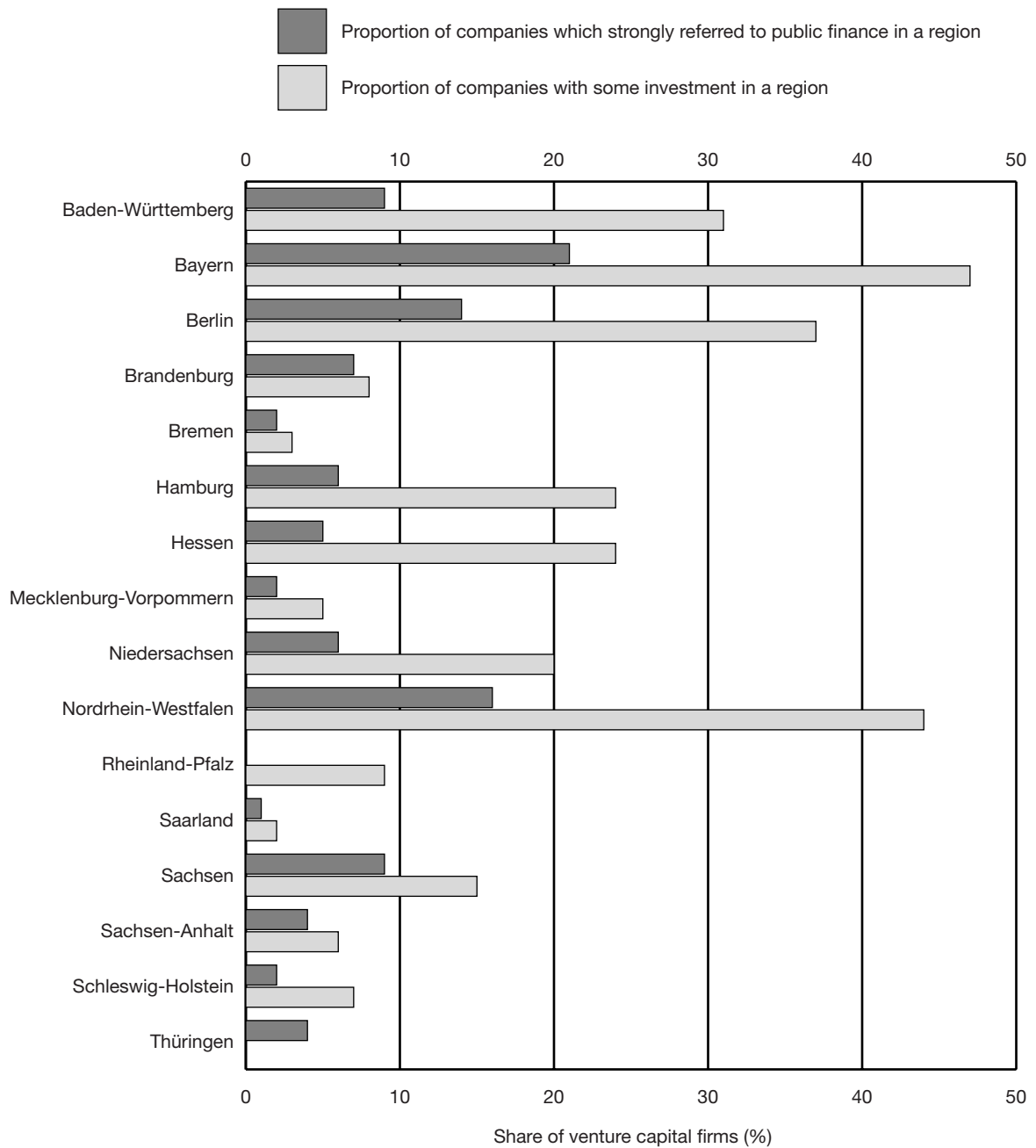
between the size of the RVCFs and the stock of VAT businesses, it becomes clear that the quotients exceed unity not only in London but also in the East Midlands, Yorkshire, the North West and North East (Table 4.5). In these terms there is no evidence of a systematic trend either towards 'market-strong' or 'market-weak' regions.

Rather, unequal regional outcomes have emerged as an unintended result of the variable experiences of fund creation. It seems that the involvement of regional fund managers and the RDAs has meant that those regions with active and well-established public actor networks and traditions of using public (especially EU) monies to support local gap-targeted venture capital activity have proposed relatively large funds and have also managed to secure the necessary 'private' investments (e.g. the East Midlands).

The DTI's consultation paper (1999a) offered the possibility of the funds being even more strongly targeted on peripheral regions. However, the prevailing view in the UK venture capital industry is that rigid geographical targeting is likely to lead to poor investment decisions. In general it seems that geographical restrictions on possible investment are regarded as a sure way of damaging the deal flow and reducing fund returns.

Turning to Germany, the key question is whether that country's more decentralised institutional framework of venture capital policy and uneven policy development mean that public programmes are reducing or reinforcing the uneven geography of private venture capital markets. It might be expected that the role of the KfW and DtA/tbg produces a more even regional distribution of national public venture capital monies. However, our survey of German venture capital firms displayed a marked regional imbalance in investment. The regions with high investment activity are also the regions in which many venture capital firms strongly referred to the importance of public finance (i.e. Baden-Württemberg, Bayern, Berlin, Nordrhein-Westfalen, Sachsen, and to a lesser

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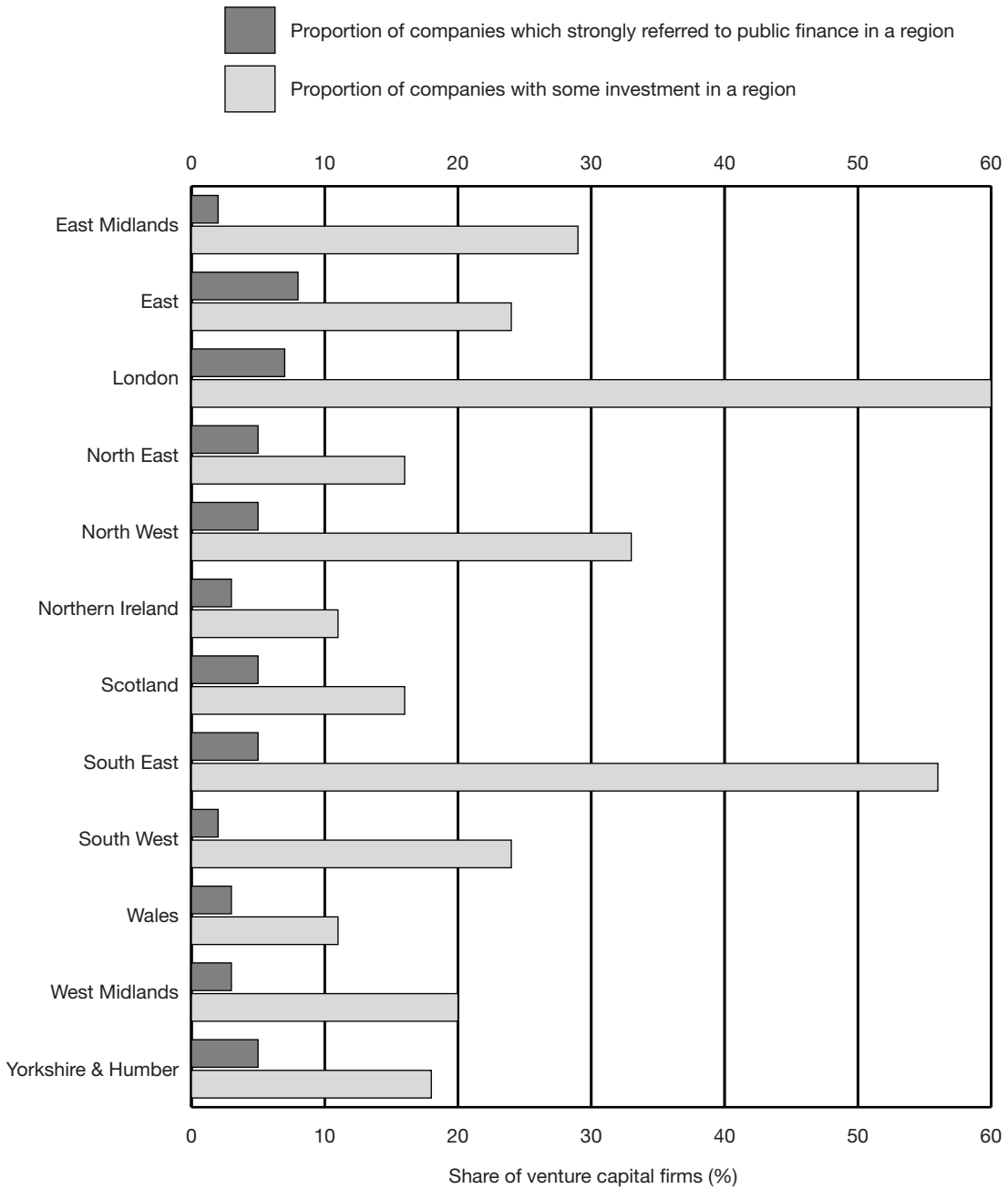


**Figure 4.4**  
**Strong reference to public finance and investment activity by region, Germany, 2000–2002**

*Source:* Authors' survey

extent Hamburg). In the German case there is also a high correlation between the number of companies with some investment shares in particular regions and those with 'strong reference' to access to public finance in those regions (see Figure 4.4). This contrasts with the situation in the UK, where a smaller proportion referred to the importance of public finance across all regions and there is no correlation with the regional variations in investment activity (Figure 4.5).

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**Figure 4.5**  
**Strong reference to public finance and investment activity by region, UK, 2002-2002**

Source: Authors' survey

BVK data suggest that the German private sector remains very hesitant to commit venture capital to the East, and especially to *Länder* such as Mecklenburg-Vorpommern. While it is extremely difficult to separate demand and supply factors, this reluctance necessitates a much more proactive public approach, in venture finance and in technology and innovation policy more generally.

**Table 4.6**  
**KfW-backed investments, by *Land*, compared to shares of firm population**

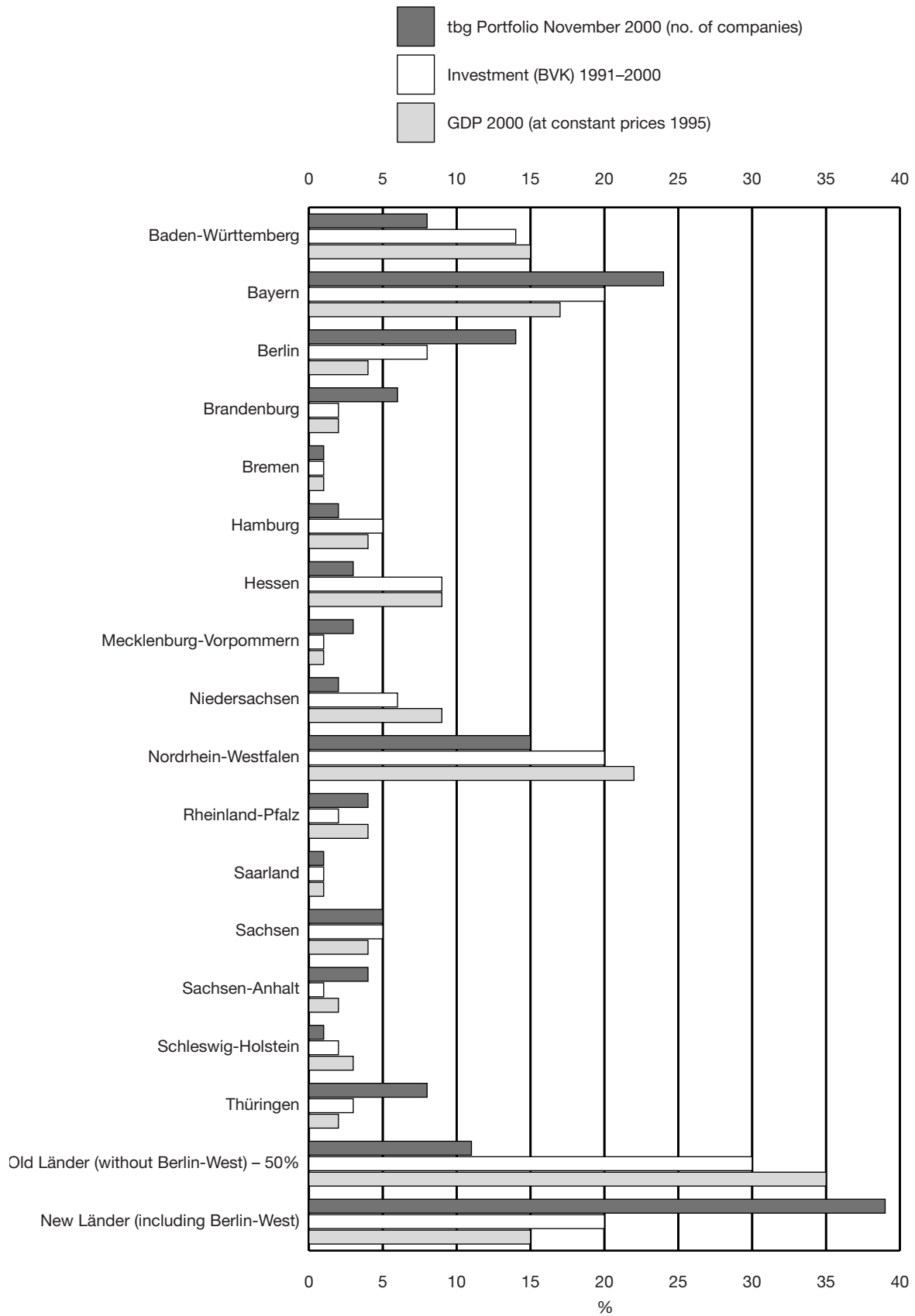
	Amounts invested 1998–2001 (KfW data)		Firm population in 2000 (Umsatzsteuer- statistik)	Location quotient
	Total (€)	% share	% share of firm population	
Baden-Württemberg	237,150,432	13.16	14.02	0.94
Bayern	385,649,508	21.40	17.36	1.23
Berlin	224,146,135	12.44	3.81	3.27
Brandenburg	57,632,616	3.20	2.66	1.20
Bremen	11,890,411	0.66	0.74	0.89
Hamburg	89,423,789	4.96	2.65	1.87
Hessen	89,337,650	4.96	7.89	0.63
Mecklenburg-Vorpommern	69,637,247	3.86	1.74	2.22
Niedersachsen	57,054,237	3.17	8.54	0.37
Nordrhein-Westfalen	184,721,381	10.25	21.40	0.48
Rheinland-Pfalz	23,437,839	1.30	5.12	0.25
Saarland	7,764,368	0.43	1.17	0.37
Sachsen	183,897,655	10.21	4.67	2.19
Sachsen-Anhalt	60,586,988	3.36	2.30	1.46
Schleswig-Holstein	35,527,471	1.97	3.42	0.58
Thüringen	84,109,291	4.67	2.53	1.85
Total	1,801,967,018	100.00	100.00	1.00

Source: KfW, *Umsatzsteuerstatistik*

Examination of both tbg and KfW data supports these findings. Bayern, Baden-Württemberg, Berlin, Sachsen and Nordrhein-Westfalen also account for the largest shares of public monies invested by the KfW during 1998–2001 (Table 4.6). A comparison with each region's share of total BVK investment, the tbg's 2000 portfolio and national GDP confirms this impression of regional disparity (Figure 4.6). Controlling for the potential population of regional venture recipients in each *Land* by shares of enterprises (location quotient in 2000) provides a slightly different picture, displaying a considerable spread (Table 4.6). Most notably, Nordrhein-Westfalen fares much worse if one takes into account that it contains more than a fifth of Germany's population of VAT-registered firms. Even though Nordrhein-Westfalen has a considerably higher number of firms within 'old economy' sectors, the poor performance of the region in terms of public venture capital support is still surprising. On the other hand, a disproportionate amount of public support is being directed to Berlin, Sachsen and Bayern.<sup>28</sup> The ability of the city states of Hamburg and Berlin to attract relatively large amount of public venture capital support is particularly apparent.

<sup>28</sup> Furthermore the success of Bayern in attracting national funds may be downplayed by these KfW figures as *Bayern Capital* relies heavily on tbg funding.

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**Figure 4.6**  
**Regional distribution of tbg portfolio in Germany, 2000**

The East German *Länder* also have high location quotients as a result of several factors:

1. There are specific programmes targeting the East
2. In most national programmes projects the East receives higher percentages of guarantee and other public finance
3. Programmes also allow higher absolute amounts to be invested in each deal in Eastern *Länder*.

Nevertheless, several notes of caution are important here:

1. The figures do not show tbg funding: technology investments made by the tbg in Germany amounted to a total of DM2.5bn for the period 1991–2000, some DM543m (21 per cent) of which were committed to the new *Länder* (Deutsches Institut für Wirtschaftsforschung (DIW), 2001: 38).
2. BVK data suggest that the private sector remains hesitant about committing venture capital to the East. While it is extremely difficult to separate demand and supply factors, this reluctance necessitates a much more proactive public approach in venture finance and in technology and innovation policy more generally.

There are indications that the national venture capital policy instruments in Germany are tending to (re-)produce an uneven regional distribution of venture capital investment. According to an official at the Federal Ministry of Economics, national venture capital policy does not have explicit aims in terms of the regional distribution of support. Rather, policy is 'demand-driven and depends solely on the activity of the region or *Land*' (interview, official, federal ministry of economics). The influence of market demand is therefore mediated and either amplified or muted by the 'bottom-up' organisational capacity and initiative of regional actors. Proactive venture capital policies coupled with innovation and technology policies at the *Land* level are able to capture and divert public venture capital money (Bayern is a good example).

The idea of promoting clusters of high-technology firms has become an increasingly popular policy strategy in both the UK and Germany (see Koschatzky *et al.*, 2000: xxvii). Regional clusters are seen as the ideal way to promote young industries and technologies, and venture capital may play an important role in providing access to the necessary early-stage finance. The Bavarian government has pursued its own cluster approach and has used Germany's BioRegio competition to create what is, so far, a successful biotechnology cluster around Munich. The biotechnology and venture capital clusters here represent different sides of the same coin. It is clear that venture capital policies on their own cannot create such clusters, but as the experience of the Silicon Valley cluster in the USA has shown, locally focused venture capital policies work best when closely co-ordinated with complementary technological development strategies (cf. Hellmann and Puri, 2002; Harding, 2003).

A similar focus on biotechnology clusters has characterised UK policy thinking. For example, in its report *Biotechnology Clusters* (DTI, 1999c) the DTI listed the need for a vibrant venture capital industry as one of the critical factors necessary to encourage the development of strong biotechnology clusters, citing the US experience as the model to be emulated. Similarly, the UK government has encouraged the new Regional Development Agencies (RDAs) to develop cluster policies as part of their economic strategies, and the RDAs have seized upon the cluster idea with enthusiasm. Yet how far

each and every region of the UK can develop sizeable high-technology clusters is debatable (Martin and Sunley, 2003). In the absence of other supporting technology and infrastructure policies, it is both unhelpful and unfeasible to try to use venture capital policy as a means of creating clusters. A number of interviewees explained that the key requirement for the birth of a successful venture capital-fuelled cluster was a certain scale of investment opportunities.

## 4.5 Conclusions

Being dominated by concepts, ideas and frames of reference that originated in the US, venture capital actors articulate these practices within long-standing national and also regional institutional settings. Not surprisingly, this dialogue has brought about different institutional outcomes in Germany and the UK.

UK actors appear to favour temporary and commercially based public intervention, aiming at a short-term demonstration effect. German venture capital actors, by contrast, seem to be more willing to accept longer-term public subsidies, justifying intervention in terms of beneficial spillovers from high-tech start-ups to the whole economy. Such spillovers are notoriously difficult to quantify and demonstrate, however, and it remains to be seen whether policies can continue to be effective in the current post-crash, more risk-averse environment. On the other hand, in the UK, the short-term demonstration of profitability seems unlikely to be achieved, raising the key question of whether there is a case for a permanent state subsidy even in generalist small firm funds.

Our findings provide important insights into the current state of two of Europe's largest venture capital markets and serve as a reminder of the continuing strength of national institutional settings. In addition to these national differences, a careful look at policy geographies and regional distributions has been revealing. In the case of politically decentralised Germany, our findings display a paradoxical picture. We have shown that national policies overall have no explicit regional dimension. With the exception of the Eastern programmes, rather than offsetting regional imbalance (as might have been expected given the workings of regional policy in Germany), the sizeable national public funds going into venture capital investment have tended to follow the market and to some extent have reinforced geographical differences.

This appears to give *Länder* policy actors considerable leeway to steer venture capital monies into their regions. Successful regional policies and a growing awareness of the potential of venture capital may have contributed to the growing number of regional initiatives and programmes designed to tap KfW, tbg or EU money. Just as in the case of the English RVCs, however, it is still too early for a definite judgement as regards both the sustainability and the transferability of some of the policies. The example of Bayern is instructive: public decision-makers here appear uncertain as to the effects of the recent market slump at a time when the privatisation bonanza appears to have been exhausted. And even if there has been the creation of what is referred to as 'critical mass', the specific Bavarian financial situation mitigates against easy policy transfer.

Despite this note of caution, decision-makers in both countries can draw some general policy lessons from our cross-national comparison. Seen from a UK perspective, the

German experience appears to support the view that public programmes can be important in stimulating and supporting the development of regional venture capital markets under certain conditions. A longer-term perspective may well be needed in fields where commercial viability is not easily achieved (e.g. the seed stage). A further policy lesson concerns our finding that a higher degree of regional decentralisation may facilitate regional initiatives, a feature especially appropriate for venture capital policies operating in the small deal size and early-stage segments.

Although it is too early to draw firm conclusions about the British RVCs, there are relevant issues here for German actors. The first concerns our feeling that the comprehensive approach taken by KfW and tbG, though crucial at a time when the venture capital market was still at a very early stage, might in fact not be as efficient in the present economic and venture capital climate where market actors have to cope with crisis. In particular, a policy review would have to reconsider the prominent role of risk mitigation and discuss whether the disproportionate reliance on guarantees should be reduced. Further, it also appears that more reliance on, and delegation of responsibility to, private or public regional actors within 'fund-of-funds' approaches might help to reduce the bureaucratic problems associated with large public or quasi-public institutions. This might provide a potentially valuable means of integrating regional development aims into the venture capital policy agenda.

## 5 Conclusions

Venture capital policies have attracted growing interest and commentary in recent years (for example cf. McGlue, 2002; Doran and Bannock, 2000; Harding, 2002). Our argument in this report is that national and local contexts are crucial to the development and outcomes of regional venture capital policies, so that the transfer of policy ideas and lessons is by no means easy. Context is important in four senses:

1. The different combinations of policy instruments adopted in Germany and the UK clearly reflect the different financial-institutional regimes and political economies that continue to exist in these two states. German reliance on risk mitigation as opposed to the UK's preference for more commercially minded and ostensibly temporary interventions have set the parameters for the construction of venture capital policies at a regional level.
2. The effects of any venture capital policy depend on the stage of the business cycle and the status of high-technology markets. It is apparent that the ability of German policies to establish a functioning venture capital industry was partly the result of their operation from the mid-1990s, when high-technology investments were booming. The recent technology and stock market downturns clearly pose different problems for policies in the two countries. In Germany it seems unlikely that programmes will be able to rely so heavily on guarantees in the future. There continue to be many unresolved questions about the quality effects of risk mitigation (Bannock Consulting, 2001), and the high costs of recent disbursements in Germany seem likely to further reduce European policy-makers' enthusiasm for guarantee instruments. In the UK, on the other hand, the problems of achieving a short-term demonstration effect in the RVCFs may be intensified if the slow economic growth damages opportunities for, and rates of returns on, investment. At present the policy aim of demonstrating the potential profitability of early-stage investment to sceptical private firms appears highly optimistic.
3. Policies are strongly shaped by local and regional economic conditions, including the local character of the venture capital industry itself. We have found clear evidence that local and regional networks and knowledge remain important to venture capital funding, particularly for early-stage investments (cf. also Mason *et al.*, 2002). Our evidence also suggests that venture capital firms tend to invest disproportionately in the regions in which they are based. Proximity to investee companies continues to be important for most firms, and our findings indicate that the perception of the risk of an investment opportunity is partly shaped by a firm's familiarity with, and presence in, the region in which the opportunity is based. Thus it clearly makes a good deal of sense for venture capital policies to attempt to incorporate and benefit from this local and regional constitution of activity. Yet, while the UK's RVCFs are regionally administered, they all follow a standard national model, and the degree of decentralisation in Germany is circumscribed by the key role of national actors and is variable between different *Länder*. In order to be effective, venture capital policies need to incorporate and work with local commercial expertise and knowledge.

The key question, then, concerns the best way to do this. Much more in-depth research is required on how venture capital firms use public policies, how they select projects for investment, how different instruments affect their monitoring and due diligence and hence returns, and the extent to which firms succeed in picking winners and thereby increase the additionality of the programmes (Lerner, 2002). Many of these difficult questions will only be answered by detailed interviewing of firms. Nevertheless, our results do allow us to provide some comment on the strengths and weaknesses of different forms of policies.

Co-investment instruments and financing loans on a case-by-case basis clearly enable national authorities to scrutinise and manage closely the distribution of their funds. However, national regulation of these instruments may rule out any real regional level of agency and may risk reducing the speed and flexibility of decision-making. It may be preferable, then, for case-by-case support to be managed by commercially minded regional actors with a closer knowledge of local investors, a greater awareness of regional economic conditions, and an ability to identify possible complementarities between venture capital and other regional policies. The primary responsibility of a regional agency might be to examine whether firms should be recognised as appropriate competent investors and, having done this, to monitor their investments, rather than rigorously scrutinising and controlling every investment decision. The new Scottish Co-Investment Scheme represents a variation of this model, and a similar approach is already practised to some extent in Bayern. The future operation of these models should be examined closely.

In theory, a 'fund-of-funds' policy has the advantage of allowing regional actors more autonomy and may allow them to respond more rapidly to investment opportunities. This approach is clearly also a means of incorporating and using the local expertise and networks of regional actors. The subordination of public investments in such funds also appears to be a relatively cost-effective way of leveraging private investment and, because of the way in which funds of funds can draw on EIF support, it seems highly probable that this approach will be more widely used across Europe. One limitation of this policy as applied in the RVCFs in the UK is that it mainly relies on the expertise of only one fund manager in each region. A further disadvantage of the RVCF model as implemented in the UK are the strong restrictions put on the size and timing of eligible deals. This reflects the UK government's determination to address the early-stage equity gap, as well as EU competition rules, but it runs counter to the delegation of investment decision-making to private-sector actors who may be better able to determine the equity needs of their regional economy.

4. A further contextual influence on the operation and potential transferability of venture capital policies is the interaction between formal venture capital policies and other policies and interventions. Our results and regional examples show that regional venture capital policies are more effective when they operate in conjunction with other measures focused on stimulating a flow of high-quality investment opportunities, and with policies designed to overcome the knowledge asymmetries that fragment the venture capital market. Here then, we echo the need for a raft of policies focused on both formal and informal capital, on knowledge infrastructures and the sequential stages of the venture capital market (Harding, 2002; Mason and Harrison, 2003).

Finally, our research has also demonstrated that one of the highly predictable characteristics of recent venture capital policy development in the two countries has been a marked regional unevenness in the implementation and outcomes of policies, and in particular significant differences between 'market hot spots' and 'market cold spots'. Again, this confirms the importance of the geographical character of venture capital, in that it is mainly a reflection of pre-existing regional variations in institutional capability in equity financing. The demand for venture capital is not independent of this local institutional capability, as it plays a key role in creating a flow of investment-ready proposals. Its absence has been apparent in the lack of public monies devoted to some of the German regions and in the difficulties faced by the new funds in some British regions. Simply trying to redirect some venture capital money to these regions in a top-down manner is not a sufficient response, as it risks being a form of geographical targeting which by itself does not create the conditions for effective investment and may simply result in poor returns.

The longer-term policy goal should be to try to encourage the construction of an indigenous institutional capability, that is, a critical mass of venture capital firms and associated services and expertise. German policies since the mid-1990s appear to some extent to have achieved such a construction, although they have been mediated and strongly influenced by the locational preferences of private venture capital firms. We suspect that the future challenge for venture capital policies, especially in more 'market cold' regions, will be to find new and less heavily subsidised ways of building and supporting a sustainable regional institutional capability.

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Brandenburg Capital GmbH: <http://www.bc-capital.de/selbst/index.htm>

Deutsche Ausgleichsbank (DtA): <http://www.dta.de/dtaportal/tbg/>

gbb Beteiligungs-AG (gbb): <http://www.dta.de/dtaportal/gbb/index.jsp>

IBB Beteiligungsgesellschaft mbH (IBBB): [www. http://www.ibb-bet.de/](http://www.ibb-bet.de/)

Innovative Medical Technology Centre GmbH (imtc):  
[http://www.imtc-hamburg.de/html/index\\_engl.html](http://www.imtc-hamburg.de/html/index_engl.html)

Investitionsbank Berlin (IBB): [www.investitionsbank.de/](http://www.investitionsbank.de/)

Investitionsbank Brandenburg (ILB): [www.ilb.de/](http://www.ilb.de/)

Investitionsbank Nordrhein-Westfalen (IB): [www.ibnrw.de/](http://www.ibnrw.de/)

Kreditanstalt für Wiederaufbau (KfW): <http://www.kfw.de/>

maz level one GmbH (Hamburg): <http://www.mazlevelone.com/>

Ministerium für Wirtschaft und Arbeit des Landes Nordrhein-Westfalen:  
[www.masqt.nrw.de/](http://www.masqt.nrw.de/)

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Zukunfts-Agentur Brandenburg GmbH (ZAB): <http://www.zab-brandenburg.de/>

## **Appendix**

# **Main organisations and institutions interviewed**

3i Düsseldorf, Herr Zollmarsch, 31 July 2002

3i Frankfurt, Thomas Paul, 23 June 2002

3i Glasgow, Bruce Keith, Investment Director, 21 August 2002

3i Hamburg, Andreas Denkmann, 30 August 2002

Barclays Bank, Urban and Regional Economic Development Unit, London, Mark Ford, Senior Manager, 23 August 2002

Bayerisches Staatsministerium für Wirtschaft, Verkehr und Technologie (BStMWVT) München, Dr Ronald Mertz, Dr Eric Zwintz and Daniel Curio, 11 July 2002

Bayern Kapital, Landshut, Dr Nathalie Götting, Project Manager, 14 August 2002

BC Brandenburg Capital GmbH, Potsdam, Prof. Dr Michael Gross, Managing Director, 19 July 2002

BTG Hamburg, Dr Stefan Papirow, CEO, 16 September 2002

Bundesministerium für Wirtschaft und Arbeit, MinR Faas and Neuhaeusser, 22 April 2002, Bonn

Bundesverband Deutscher Kapitalbeteiligungsgesellschaften (BVK), Berlin, Dr Holger Frommann, 13 February 2002

European Investment Fund, Brussels, 14 August 2002.

Gap Fund Managers, Edinburgh, Nelson Gray, 23 September 2002

Heptagon Capital Beteiligungsgesellschaft der Freien Sparkassen mbH & Co. KG, Hamburg, Dr Thomas Keidel, CEO, 15 October 2002

IBB Beteiligungsgesellschaft, Berlin, Geschäftsführer (Managing Director/Head) Roger Bendisch IBBet, 15 July 2002

IKB Düsseldorf, Holger Schragmann, Senior Project Manager Private Equity, 24 May 2002

Innovative Medical Technology Centre (imtc) GmbH, Hamburg, Dr Georg Thiessen, CEO, 17 September 2002

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Kreditanstalt für Wiederaufbau (KfW) Frankfurt, Martin Koch, 1 November 2002

LfA Förderbank Bayern, Nürnberg Branch, Herbert Antes, 10 June 2002

MAZ level one GmbH, Hamburg, Dr Michael Lübbehusen, 29 August 2002

MBG Berlin Brandenburg (Mittelständische Beteiligungsgesellschaft, Berlin, Geschäftsführerin (Managing Director) Frau Wolf & Assistant Frau Weber, 17 July 2002

Ministerium für Wirtschaft und Mittelstand, Energie und Verkehr des Landes NRW (MWMEV NRW), Düsseldorf, Dr Reiner Eisold, 24 May 2002

Ministry of Economics in Hamburg, Uwe Glatz, 15 February 2002 and 19 September 2002

Northern Enterprise Limited, Gateshead, Barry Hensby, Chief Executive, 28 August 2002

OneNorthEast, Newcastle Upon Tyne, Karl Gardiner, Senior Executive Corporate Finance, 5 July 2002

Scottish Equity Partners and Deputy Chair Scottish Enterprise, Professor Neil Hood, 4 March 2002

Senatsverwaltung für Wirtschaft, Arbeit und Frauen, Berlin, Dr Paustian, 18 July 2002

Small Business Service, Department of Trade and Industry, Sheffield, 13 February 2002

tbg DtA Bonn, Referent Herr Jahn, 29 July 2002

West Midlands Enterprise, Birmingham, Martyn Booth, 15 October 2002

Westdeutsche Landesbank Girozentrale, Düsseldorf, Wolfgang Freudenmann, Direktor Equity Investment and Monika Hesse, Manager, 1 August 2002

WIN, Wagniskapital für Innovationen NRW GmbH, Düsseldorf, Dirk Meissner, vice managing director, 31 July 2002

Yorkshire Fund Managers, Leeds, Nigel Barraclough, Investment Manager, 29 August 2002