B CORE TOPICS 2009

B 1 INNOVATION FINANCING

Financing of innovations is still inadequate

Already in the EFI Report 2008, the Expert Commission for Research and Innovation discussed in detail that innovations are not possible without adequate financing – usually by equity. We emphasised that this is a weak spot for Germany, because of the rather moderate equity funding of its small and medium-sized companies.

This weakness is becoming increasingly obvious in the course of the current crisis. The fiscal framework conditions are hostile to innovation, above all the discrimination of equity in comparison with tax-deductible loan capital. In this respect, fiscal policy is also always innovation policy. Furthermore, the legislative situation in Germany is an unnecessary impediment to the financing of companies with high growth potential.

In 2008, the legislators had attempted to intervene by passing the Law on the Modernisation of the Framework Conditions for Venture Capital and Equity Investments (MoRaKG). The Federal Finance Minister had rightly noted that the inadequate provision of venture capital for young, unlisted companies was a considerable drawback for Germany as a location and this had considerably reduced employment-generating growth potential. One of the elements of MoRaKG is therefore the creation of a new legal form of Venture Capital Participations, with the aim of promoting holdings in young and medium-sized enterprises. It involves two key factors – the classification of the funds covered by the legislation as investment management and the proper utilisation of losses carried forward. However, the validity of key regulations for Venture Capital Participations still requires approval from the European Commission, which is not certain.[1] Were approval not granted then no improvement at all would have been achieved in this crucial sector, and after all the lengthy debates that had previously been gone through, this would act as quite a negative signal, not least to international investors. Despite this, the fact remains that if the law is adopted in this form it will be very limited anyway. Although the orientation of the law is basically right, its scope is restricted unnecessarily to the seed phase of funding.[2] The law also contains very restrictive provisions regarding the investment behaviour of prospective venture capital investment companies.

In the light of this, the Expert Commission expects that only a few companies will decide to follow this path.

At the same time, the law was intended to improve the conditions for Business Angels. These are experienced entrepreneurs who provide capital and valuable expertise for founders of technology-oriented enterprises in particular. In return, they usually receive a holding in the young company, which they can then sell at a later stage.

In an international comparison, as a study recently confirmed, insufficient use is still made of the possibility of financing new enterprises by Business Angels in Germany:[3] It is estimated that there are 2 700 to 3 400 active business angels in Germany – in the USA there are 258 200. Related to population, Germany has 33 to 41 business angels per million inhabitants, compared with 850 in the USA. However,

there is not only potential regarding the numbers of business angels, but also concerning the financing volumes. Whereas an average of between 100 000 and 200 000 euros is made available in Germany, the average sum in the USA is 332 000 euros.

In order to increase the comparatively low numbers of business angels in Germany and to raise the low investment volume, fiscal advantages were defined in the MoRaKG legislation. The Business Angels Network Germany (BAND) expects above all, that people will be encouraged to act as Business Angels for the first time – so that this form of financing will become more popular and the number of possible investors in Germany will increase. This is a very good and important measure.

Here again, however, the legislation includes excessively restrictive provisions which undermine its effectiveness. At the same time, leaving aside the direction and quality of the provisions, the regulations are so complex that it is doubtful whether the improvement will be widely accepted. Box 01 demonstrates this with an example provided by Business Angels Netzwerk Deutschland e. V.

The Expert Commission is in favour of fiscal and other measures aimed at improving the situation for entrepreneurs being conceived and formulated as clearly as possible. They should not require any unnecessary consultations with fiscal experts or lead to uncertainties. Well meant measures can become ineffective if they are obscure and impracticable.

Business Angels tax situation improved
An example[5]

BOX 01

A Business Angel has acquired an open holding of 20 percent in a legible limited company *(GmbH)* for 100 000 euros. After six years he sells his shares in the company for 180 000 euros. His maximum tax-free allowance is 20 percent of 200 000 euros, or 40 000 euros. The marginal relief limit begins at 20 percent of 800 000 euros, or 160 000 euros. He is therefore left with a tax-free allowance of 180 000 euros minus 160 000 euros, equals 20 000 euros.
The example shows that this arrangement is more likely to sweeten problematic holdings which in the end lead to a small profit on sale, rather than create a significant incentive for investment. Interpretation problems are raised by the requirement in Section 20 WKBG that within the five years prior to the time of sale the Business Angel must have held directly at least 3 percent but not more than 25 percent of the shares of the target company, but must not had the holding for more than 10 years. This could be understood as a minimum holding period of five years. The intention, however, is that any holding within the previous five years must be within the band of 3 percent to 25 percent, but not that the shares must have been held for five years. If the holding had been within the band, and the shares were already sold after five years, then the tax-free allowance provision would still apply.

Innovations additionally threatened by financial crisis and economic downturn

Germany has some catching up to do as far as the financing of innovations in young and medium-large companies are concerned. This financing is important in order to secure the future of the economy in the knowledge and technology society of today. The deep crisis of the financial markets, the end of which is by no means yet in sight, has presented considerable additional challenges for innovation financing worldwide and thus also in Germany. This affects in particular young and medium-large companies.

In a downturn, a key role is played by the behaviour of companies regarding research and innovation.[4] When the economic conditions are positive, companies increase their R&D-budget and introduce new products and processes more frequently. According to a recent empirical study[6] the influence of the economy on research and development is lower in Germany than in other countries.

This is remarkable inasmuch as the larger industrialised countries tend to show a greater dependency on the state of the economy than the smaller ones.

The state of the economy has more influence on innovation activities than on research activities.[7] The successful introduction of a product innovation is above all dependent on the situation in the product market in question. Newly launched products are

much more likely to be accepted at a time when demand is expanding.

The results of the above-mentioned study show that a 10 percent decline in turnover only leads to a decline of about 2 percent in R&D-expenditure, increasing to 3.5 percent in the longer term. Small and medium-sized enterprises react more strongly to changes in the economy. In phases when the economy is weak a lack of equity is a decisive constraint on R&D activities.

Research and development in small and medium-sized enterprises is less constant and correlates less closely with the progress of the economy than does research and development in large companies. The same is also true for innovation activities, and applies both for the transfer from the status of non-innovator to that of innovator and vice-versa. In "good times", SMEs are quicker with innovation activities, but when times get harder they are also the first to make cutbacks. This fact is probably directly related to the financing conditions they face for innovation.

The fine-control of research and development to limit economic influences is not possible and should not be attempted. But pro-cyclical support should also be avoided. Rather, state aid for R&D should be provided continuously and over the long term. Small and medium-sized enterprises deserve special consideration, for the reasons mentioned above. Possibilities for increasing the consistency of R&D and innovation activities in SMEs also during weak phases of the economy, lie above all in the financing sector. Particularly during economic downturns, an equity-friendly fiscal system which supports innovations would therefore be helpful.

The situation on the investment capital market has also worsened

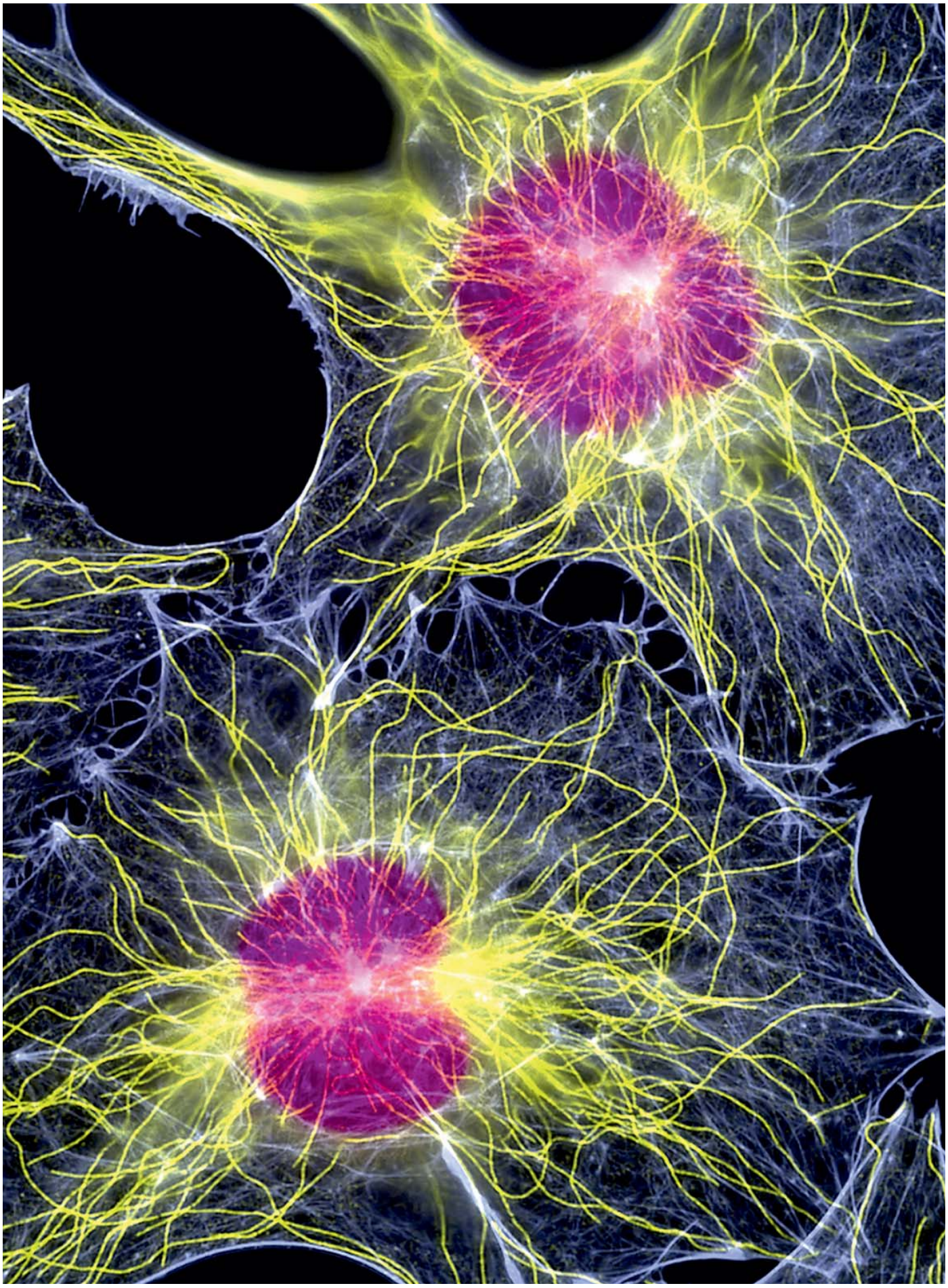
The current financial crisis is obviously having serious consequences for companies and their financing. While the potential for internal financing is limited by the decline in revenues, the situation of the banks threatens to restrict the provision of loan capital, and may even lead to a credit crunch. But also the markets for equity, which is particularly important in connection with research and innovation, are seriously impacted by the global financial crisis.

Due to the difficult market environment in 2008, there were only two IPOs in Germany (Prime Standard and General Standard).

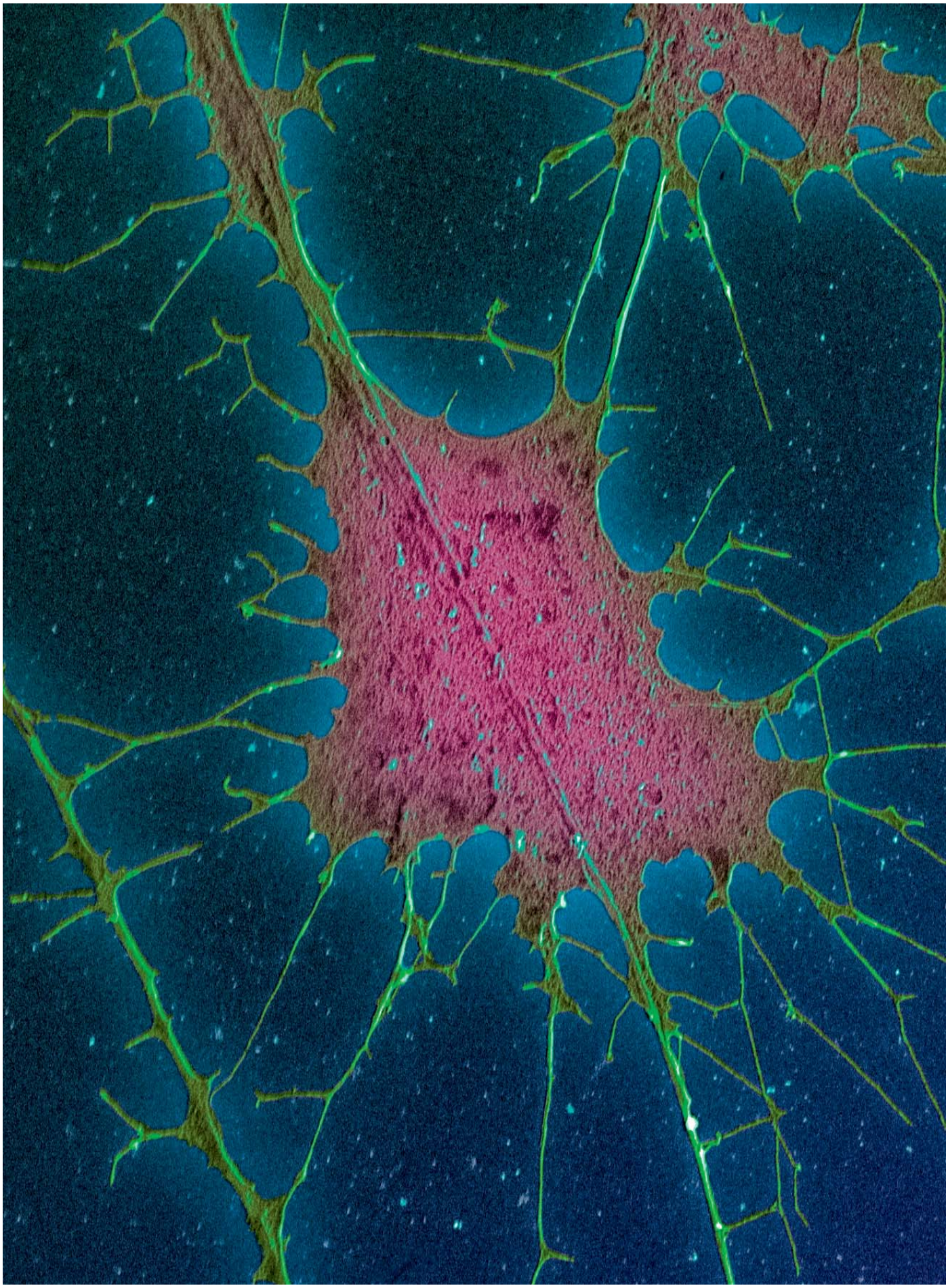
In the three previous years there had been a total of 72.[8] This highlights how drastic the drop has been. Access to the public capital markets is currently hardly realistic.

In addition the market for venture capital has also been seriously affected by the financial crisis. This is above all the case for young and medium/large companies – the group of companies whose innovative activities are anyway particularly susceptible to the effects of fluctuations in the economy. Thus the existing investment funds and their portfolio companies face a situation in which it is increasingly difficult to relieve themselves of existing holdings. The period that they are being held is increasing and it is increasingly difficult to find a way out through the stock exchanges, and indeed at times is impossible. In view of the problems with equity and loan financing, many funds are forced to support their existing portfolio companies further with equity. This is obviously to the detriment of new involvement. Provided that the investors maintain their commitments to the fund, the overall investment volume will not sink (because this is already available), but it is distributed among fewer companies, and in particular among existing ones rather than new enterprises. At the same time, more attention will be paid to the survival potential of the businesses, which is a mechanism that could already be observed in the so-called dot-com crisis. The long-lasting structural consequences of this are likely to be felt even more strongly in the current crisis, because it is not only a single segment which is affected but the entire financial system. The situation on the loan capital markets has resulted in established companies entering into fewer transactions which involve equity investors. As a rule, the acquisition of such holdings also involves taking considerable loans in order to make the transaction possible. However, their availability is currently very limited – with the result that the volume of external equity financing also seems to be in threat of declining.

Even more than on the existing funds and their portfolio companies, the current situation will also impact on the flow of new capital into the venture capital funds. This has not been reflected in the fund-raising figures in either Germany or the USA, which



Fibroblast cells



Nerve cell culture

are only available through until the middle of 2008. However, there are indications that this is the case, and the passivity of institutional investors makes this assumption seem very probable.

In an international comparison, the German institutional investors are anyway very reluctant to put up venture capital, in particular when this is focused on newly-founded enterprises. Among other things, there are psychological reasons for this. Also, as an effect of the crisis, sums they have available to invest as private venture capital have shrunk. And it is to be assumed that the insecurity that the crisis brings with it will further increase the reluctance to become involved in this form of investment.

At the same time, one of the arguments in favour of private venture capital – the low correlation with the public markets – is becoming less applicable. The introduction of the fair value principle in the new international accountancy standards is reducing the structural difference between the private and public markets. When companies can no longer include assets at the acquisition cost in their financial statements as they did in the past, but are required to book the value at which they could probably be sold for at arm‘s length, then the pricing on the private markets will automatically be based on public market prices. The consequence is that the private markets increasingly follow the price movements of the public markets, and becoming less attractive for potential investors.

In the foreseeable future, investors in venture capital funds will be able to choose between making new commitments and taking over shares in existing venture capital funds. The critical situation with the withdrawal from holdings while at the same time having to maintain obligations to the funds means that many investors are experiencing liquidity problems. This boosts the market for secondary purchases of company holdings, and dampens the dealings with new holdings.

It can be assumed that the current financial crisis will in general lead to an appreciable decline in the private equity made available by investors. And these trends from the investment market will in turn have an effect on the business angel market.

These are worrying prospects – both for SMEs and for new enterprises, in particular those involved in technologies with a promising future, such as sustainable energy technologies. The strategy recommended in the EFI Report 2008 for the identification and the expansion of lead markets is thus meeting with considerable obstacles.

Key points for an innovation-friendly tax system BOX 02

The Expert Commission recommends that planning tax reforms should pay more attention to the effects of research and innovation than has been the case in the past. Tax policy is innovation policy – and the current tax system has proved to impede innovation.[9] The Expert Commission makes the following key recommendations for an innovation-friendly tax system:

- Elimination of limitation on losses carried forward when purchasing share certificates,
- Unlimited writing off of losses against future profits,
- Removal of limits on deductibility of interest payments as operating costs
- Avoidance of false incentives for research and innovation by taxing relocations of functions to other countries,
- Improving coordination between interest retention tax and company tax,
- Introduction of R&D support in the tax system, e.g. by tax credits for research and development.

Urgent reconsideration of the tax policies relating to innovations

With the financial situation having worsened so much in comparison with the previous year and given the importance of financing for innovations financing, then the recommendation for fiscal support for innovation, which is repeated in this Report, seems now to be even more urgent. At the same time the Expert Commission emphasises that the German taxation system must be structured so that it can provide long-term support for innovations. Box 02 gives an overview of some instruments which are available for this. In particular the restrictive treatment of losses carried forward in accordance with Section 8c Corporation Income Tax Act (KStG) for technology-based new enterprises needs to be reconsidered.

BOX 03

Impact of the Technische Universität Berlin on the city's economy

A recent study[10] estimates the direct, indirect and induced effects of the entire expenditure of the Technische Universität Berlin (about 370 million euros) on the Berlin economy. The result is that the overall financial impact is considerably greater than the annual expenditure of the TU Berlin and in particular more than the funds that Land Berlin provides as basic funding (some 275 million euros in 2006). In all, there is additional annual value-creation of about 550 million euros, and furthermore demand effects of about 450 million euros are generated in Berlin, more than 11 500 jobs are created or secured in the region, and almost 21.5 million euros tax receipts are generated for Berlin.

At the same time the venture capital sector should be provided with sound framework conditions which would make it internationally competitive – to the benefit of German businesses and their innovative potential.

This is particularly important because other countries are continuing to make progress. In the annual benchmark study of the European Private Equity & Venture Capital Association (EVCA),[11] Germany fell back further in 2008 and is now only ranked 22nd in its list of 27 countries, two places down on the previous year.

The tax system must offer businesses in Germany with better conditions for research and innovation. Without the necessary reorientation, the tax system will counteract the efforts of direct and indirect support and lead to a waste of funds.

B 2 THE SCIENCE EMPLOYMENT MARKET

Lost opportunities due to inadequate investment in research and development

It is now almost a cliché that investments in research and innovation pay off. But they can also be of benefit for the development of the entire region, as is shown by the example of the Technical University Berlin (Box 03). Its importance for the Berlin region is based on a number of effects. Firstly, as a teaching institution it contributes to the education of human resources in the region. Human capital is important for businesses in the region – whether for new enterprises, spin-offs or the development of local businesses. Universities and research institutions also boost demand for goods, services and personnel and thus promote growth. More difficult to measure, but no less important, are the "soft" location factors generated by the image effect of universities and research institutions. The debate about the Creative Class (Box 04) has shown how important a creative climate can be when it comes to attracting "Talents". Universities and research institutions are therefore extremely important for the scientific and economic development of regions and countries.

This only makes it all the more regrettable that Germany invests less in research and development than other countries. The level of three percent of GDP remains an objective, but it will not be reached in the near future.

No strengthening of innovative potential without an educational offensive

Germany needs both finances and well trained personnel. The shortage of academics is already apparent and it will grow worse – in relative and absolute numbers. It is estimated that by 2020 the demand for graduates could exceed the numbers available by well over a million (Fig. 01).[12] This is due above all to the fact that a well-trained and numerically strong generation will be gradually reaching retirement age over the coming years. The labour force potential will sink so much that even immigration and increasing numbers of women in employment will not be able to compensate fully for this demographic effect.[13]

Germany is not a special case here. In the USA, Japan, and other European countries the demand for highly-qualified professionals[14] has risen disproportionately. Between 1997 and 2007, the growth in employment of graduates in general and natural scientists and engineers in particular has been above the German level almost throughout the remaining EU-15 countries.[15]