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The Austrian financial system and its capability to support the development and growth of innovative SMEs in the regional context

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**The Austrian financial system and its capability to support the
development and growth of innovative SMEs in the regional context**

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In my paper on "The financial system and its significance for the development and growth of innovative SMEs in the regional context" (presented at the ersa97 conference) I investigated the process of financing innovative SMEs during their different phases of development and the impact financial institutions have on their growth over and above the pure provision of capital. I argued that a financial system has to consist of different types of actors able to deal with the different financial needs of innovative SMEs during their development phases and has to be characterised by well established networks between these actors to fulfil its capital providing function and that this function is inseparably connected with its supervising and resource creating powers which in turn have a major influence on the development and growth of innovative SMEs in the regional context.

Based on the results of this previous work, additional theoretical and empirical studies, available secondary data and a survey of Austrian equity capital suppliers conducted by the author, the current paper analyses the specific Austrian situation: The capabilities of the financial system to support SMEs' growth and the possible effects recently implemented measures and initiatives to improve SMEs' access to financial resources will actually have.

I will argue that the main obstacles to provide growth capital to innovative SMEs are caused by the Austrian financial system being strongly credit-based, the procedures used by Austrian banks to provide credits and above all the insufficient availability of equity-based financial instruments. Recently established initiatives and support programmes to activate equity capital markets are useful but they do not fully exhaust potentials available and they do not cover regional dimensions of the financing process, which are so essential in supporting SMEs growth. Therefore the paper will propose new measures, designed to close existing gaps and to cope with the drawbacks of the current situation, e.g.: Existing regional equity capital funds supplying public money should provide incentives for private venture funds to co-invest in young high-tech firms, thereby supporting the development of financial networks, which improve risk-sharing procedures and accelerate flows of information and know-how between financial actors.

1 An integrated policy approach is needed to improve funding of innovative SMEs

Problems related to financing innovation and growth of SMEs are seen as major policy issues by the European Commission and many of the single member states.

It is their overwhelming importance in quantitative terms - 99.9% of the 16 mil enterprises in the European Union are SMEs, their share in total employment is about 66.4% and their value added is nearly two times bigger than the value added by LSEs (see European Network for SME Research 1996) - as well as their contribution to structural change and innovative processes which make SMEs a central element of our economic systems. But in spite of their advantages SMEs and especially innovative and technology-based small firms face severe economic problems impeding their development and growth (see e.g. OECD 1993, Kulicke 1993, Binks 1995, Bittermann 1996 etc.). In turn this makes them a risky investment alternative for financiers and thus limits their access to external equity and debt capital sources. As a result economic and financial barriers to development and growth are aggravating one another through a vicious circle and reduce SMEs potential contribution to the economy as a whole.

The European Commission and most of the single member states have launched initiatives and support schemes in order to reduce financial barriers for SMEs. But most of the measures and policies proposed and introduced are designed solely to increase the supply of capital to innovative SMEs. The supervising and resource creating powers of the financial system as well as its sensitive internal structures are often neglected.

In my paper on "The financial system and its significance for the development and growth of innovative SMEs in the regional context" (Jud 1997) I have argued that a financial system

- consisting of different types of actors specialised in dealing with the varying financial needs of innovative SMEs along their development phases and

- characterised by well established networks between these actors is able to break up this vicious circle.

It is the profit motive driving individual financier together with external economies prevailing within a developed financial system which enable investors to effectively supervise their investments and to create valuable recourses helping SMEs to overcome their economic problems. Therefore, policies designed to improve the funding of innovative SMEs should follow an integrated approach. Different policy instruments should be combined in order to generate incentives for different kinds of financiers to invest in innovative SMEs and at the same time to strengthen relationships and networking between these financiers.

In the following sections the main lines of reasoning presented in my paper on "The financial system and its significance for the development and growth of innovative SMEs in the regional context" (see Jud 1997) are summarised in order to outline an interpretative framework. Based on this framework, additional theoretical and empirical studies, available secondary data and a survey of Austrian equity capital suppliers conducted by the author, the Austrian situation is described and analysed in more detail: The capabilities of the financial system to support SMEs' innovation and growth together with the measures and initiatives introduced recently in order to improve SMEs' access to financial resources. Finally the results will be used to outline policies appropriate for Austria which follow an integrated approach as recommended above.

2 Features of a financial system that works for innovative SMEs

Typically innovative SMEs develop and grow along four stages with different funding requirements: the pre-start-up, the start-up, the initial growth and the sustained growth stage (see e.g. Roberts 1990, 1991; Mason and Harrison 1994). Though their development can be classified in typical stages the growth paths (in terms of sales of employment) of single firms together with their specific need for funding can differ considerably depending on various factors (see e.g. Standeven 1993). This has two implications:

- Since innovative SMEs develop in four stages with different funding requirements firms can profit from financiers specialised in meeting the specific requirements of particular stages. But if there are specialised investors they should have close relationships in order to allow continuous funding along the development path of single firms.
- Since the growth path of single firms varies considerably depending on various factors external investors have to deal with these factors in order to manage their investment risks and to secure returns on their investments planned beforehand.

2.1 SMEs can profit from investors specialised in meeting their changing financial needs

At the pre-start-up stage financial needs are generally limited. They can be met by personal savings of the entrepreneur or funds of family members and friends. In addition banks are offering overdraft facilities. In later stages capital needs are increasing without any improvements of the firm's equity base. In this situation access to additional loans often is conditional on external equity investments. Thus the supply of equity capital plays a crucial role in funding innovative SMEs.

At the start-up stage financial requirements are much higher. Capital needs can be met through public support schemes or by informal equity investors so called business angels (BAs). BAs - typically self-made high net worth individuals - are of great importance for small companies because similar to the entrepreneur they are willing to take high investment risks and they are not exclusively driven by profit motives but are interested in the development of the company as such.

At the initial and especially the sustained growth stage the company's requirements for additional funds are rising rapidly. But additional capital needs cannot easily be met by informal investors alone. It becomes necessary to involve venture capitalists - financial intermediaries investing capital of third parties - with far more funds at their disposal. In order to attract capital for their risky investments they have to realise returns well above the average

of prevailing interest rates. Capital seeking SMEs are therefore assessed in detail using time and cost intensive procedures. Thus fixed costs of single investments are high which in turn can make very early stage funding uneconomic. Returns on venture investments occur in the form of capital gains realised through sales of equity stakes. Commonly this is done by means of initial public offerings (IPO) - going public by selling shares at a stock exchange - or trade sales - sale of a venture-backed company to other industrial or service companies.

As the forgoing analysis has shown Banks, BAs, Venture capitalists and security markets specifically for SMEs take on complementary roles in funding innovative SMEs: In providing loans banks rely on a sound equity base of the lender. The necessary equity for the early development stages is delivered by BAs, the raised equity needs of the later stages are met by venture capitalists who realise their returns through IPOs or trade sales. If a financial system lacks one of these capital sources, bottlenecks can occur reducing the supply of capital for innovative SMEs.

2.2 Risk management instruments are based on specific preconditions

In order to manage investment risks and to realise returns on investments, different types of financiers employ different methods and procedures to deal with factors influencing the growth path, respective profit prospects and funding requirements of their investee companies.

Normally Banks build up portfolios of borrowers characterised by particular insolvency risks in order to be able to charge interest rates which cover costs of insolvency and leave them with a return on investment planned beforehand. But it is very difficult to figure out the insolvency risks of innovative and technology-based SMEs because either firms cannot deliver financial information needed by banks or banks are lacking know-how necessary to assess market and technological risks of SMEs. As a result banks confronted with loan applications of innovative SMEs often rely on the provision of collateral for security in order to avoid uncertainty. Thus it is either lack of information available to lenders or their insufficient know-how and experience to interpret it correctly which creates the need for additional equity taking on the

role of business collateral.

The dominant risk management procedure employed by business angels is to proactively assist companies in which they invest in order to boost their development and growth. BAs provide management advice and various business related services which leads them to favour firstly investments in sectors and technologies where they have experience and know how and secondly investee companies within a communication zone of about 50 to 100 miles in order to keep close contact to them. But very often it is a costly and time consuming procedure for BAs to find sufficient investment opportunities that meet their criteria. This has three implications: Firstly, a lack of experienced business people is likely to limit the pool of informal investors in early stage innovative SMEs. Secondly, BAs have an influence on the regional innovation system because their activities are regionally based. Thirdly BAs rely on appropriate information on promising companies to decide on investments. If transaction costs are too high discouragement effects could curtail the search for appropriate investment prospects and equity capital by business angels and entrepreneurs respectively. In turn innovative SMEs would face an equity gap during their start-up and initial growth stages.

Venture capital funds combine three instruments in order to secure appropriate returns on investments and to manage associated risks.

Similar to banks they build portfolios of different investee companies to balance success and failure and reduce their investment risks. This works quite well if portfolios consist of many different companies with independent risks well known to the investor. But that is not true for investments in innovative SMEs: information necessary to determine risks is lacking and the number of SMEs accessible to venture capitalists is limited.

Thus venture capitalists build up close relationships to investee companies in order to get a better access to information and to provide specific support services (e.g. management advice, information services etc.) designed to improve firms' performance proactively. Though this approach helps to reduce risks and increase returns on investments it calls for specialisation both in particular industries and technologies to transfer useful know-how and in particular

regions to secure a close and ongoing contact to portfolio companies. As a result the number of accessible investment opportunities is reduced further which in turn impedes risk management through portfolios.

To cope with this drawback venture funds tend to syndicate their investments and to form venture capital networks which take on two distinct functions: further reduction of risks and pooling of expertise. Single venture funds share equity stakes in their own portfolio companies with other funds and in turn co-invest in portfolio companies of these funds. Co-investing typically involves a single lead investor usually located within a communicating zone close to the venture to be able to provide technical assistance and management advice. In doing so the lead investor safeguards the interests of the passive co-investor. The rationale behind this procedure is to increase the number of portfolio companies and in turn the effectiveness of portfolios and to improve the performance of single firms through specific support services provided by the lead investor specialised in particular industries, technologies and regions. Thus syndicating is a risk management instrument supplementing the two mentioned above. In addition it is a vehicle to reduce uncertainty about possible outcomes of investments by establishing venture capital networks in order to intensify flows of information and to share know-how and expertise between regionally and sectorally specialised investors.

Thus it is the stage of development of the venture capital industry which is responsible for a smooth functioning of the supply of private equity capital in the first place. Venture capitalists have to specialise in particular fields and regions to offer valuable assistance to their portfolio companies and they have to syndicate their investments to form networks which reduce investment risks and improve access to wide spread information, know-how and expertise. If individual investors are not able to form such networks they will tend to favour less risky investments in later stage mainstream ventures thereby producing an equity gap for innovative SMEs and new technology-based firms.

Concluding the forgoing analyses three points have to be made:

- A financial system made up of a balanced mix of different types of investors specialised in

dealing with the financial needs of innovative SMEs in particular development stages is much better equipped to fulfil its capital providing function and to allow continuous funding of growing SMEs than any system biased towards a specific type of investor.

- To take on their specific role within the financial system different types of investors draw on specific preconditions. If preconditions are not in place biases can show up:

If Banks are confronted with loan applications they can not assess appropriately and at the same time are not able to avoid emerging uncertainty by relying on collateral they will resist providing credits thereby producing dept gaps for innovative SMEs.

If BAs cannot find sufficient capital seeking companies that meet their investment criteria their search for appropriate investment projects could be curtailed and innovative SMEs would face an equity gap during their start up and initial growth stage.

If the venture capitalists are not able to syndicate investments and to form networks because the venture capital industry is too weakly developed they shift their investments in mainstream industries, away from innovative SMEs. One of the causes for an underdeveloped venture industry is lack of appropriate exit channels for venture investments.

- Within the group of investors BAs and venture capitalists take on an essential role in financing SMEs' innovations because they provide them with the business collateral necessary to access dept capital sources.

3 The Austrian financial system as a case study

In order to highlight strength and weaknesses of the Austrian system for financing innovation of SMEs in the light of the interpretative framework outlined above three major questions

have to be answered:

- What are the main features of the Austrian system in terms of financial actors involved, their specific behaviour and the preconditions for risk management they face?
- What kind of initiatives and measures have been introduced recently in order to deal with prevailing drawbacks and to intensify advantages?
- What should be done to supplement current measures in order to foster a more integrated approach of innovation financing policies?

3.1 Main features of the Austrian system

In its publication on "National systems for financing innovation" the OECD (OECD 1995) distinguishes between two archetypal national financial systems: "the market-based systems, in which financial securities markets play a predominant role in supplying industry with external capital, and which are notable for the separation between ownership and control and credit based systems, which give a much more important role to banks, both as financing channels and as partners in corporate management" (see OECD 1995, p. 68). This classification is based on two criteria: "the degree of recourse to loans and the degree of use of financing instruments that are negotiable on a securities market (e.g. shares and bonds)" (see OECD 1995, p. 70).

Employing these criteria the Austrian financial system can clearly be classified as being credit-based. 1996 the stock of credit investments of Austrian banks in private non financial companies was about 90 bil ECU compared to a stock of about 25 bil ECU invested through the Austrian equity capital market (Vienna stock exchange) and a stock of around 50 bil ECU raised on the private bond market (for reference see OENB 1998). Using these numbers a ratio of investments on the securities markets to loans provided by banks of about 85% can be calculated which shows a clear dominance of bi- or multi-lateral financing agreements as opposed to market-based financing instruments.

It would be expected that the dominant role of credit-based financing in Austria should lead to a risk averse behaviour of financiers. Though credit investors are able to manage even high risk through portfolio building if they are well informed about insolvency risks of their borrowers in general they have no incentives to do so. Financiers providing loans at prevailing interest rates are not able to participate in the profits of risky ventures which can be well above average but they are negatively effected by high risks in the case of an insolvency.

Experiences made during the last decade have shown that Austrian banks do not follow this behavioural pattern. On the contrary they seem to take on the role of risk bearing equity capital providers indicated by an all time high number of insolvencies during the mid-nineties which caused a loss of dept-capital of about 14 billions ECU in total. An amount far from being covered by interest payments of sound portfolio companies of banks. This risk-orientated behaviour of the Austrian banking sector follows from two reasons.

Firstly, a financial system dominated by a particular type of investment may have problems in adapting to changing financial needs of the economy - caused for example by an increased propensity to innovate - without reducing its specific strengths and comparative advantages. The specific merits of the banking sector lie in its ability to analyse financial risks of borrowers together with the quality of their internal risk management systems and to determine a structure of interest rates based on their findings which reduce the risk borne by capital invested. The lack of equity-based financing instruments in Austria together with a low interest rate policy by Austrian banks forced lenders to take on more and more entrepreneurial risks which eventually led to the situation described above.

Secondly, The supply of loans by Austrian Banks is commonly linked to specific procedures of supervising and monitoring investments which came to be known as "Hausbankprinzip". Mostly companies in search of external capital are interested in finding a partner for long term cooperation and not just anyone bank meeting their current capital needs. From the viewpoint of the lender this kind of long term agreement allows a better access to company specific information used for an ongoing monitoring of credit investment and gives the opportunity to influence strategic decisions of management. In exchange the bank is willing to provide

additional money more easily and to speed up corresponding decision processes. But this kind of relationships between financiers and borrowers can easily switch a more flexible lending into an increased propensity to bear entrepreneurial risk leading banks to supply equity-like capital.

Innovative SMEs and new technology-based firms could not profit from the relatively high risk orientation of Austrian Banks. More than other types of firms they depend on real equity which was hardly available from external sources in Austria. In addition innovative, small and new firms are the most risky investment alternatives for lenders because they are not able to build up efficient internal risk management systems and often lack internal reporting systems needed for the "Hausbankprinzip" to work successfully. Communication channels and trust have to be build up first in order to allow proper flows of information between lenders and borrowers. But even if information flows are well organised, banks do need specific know-how to assess economic problems and risks of innovative and technology-based firms; a know-how which has not been built up by Austrian banks up to now.

Concluding the foregoing analysis the Austrian system for financing innovative SME is characterised by the following features:

- the dominant role of the banking sector
- the lack of specific know-how of banks needed to assess and to deal with risks of innovative SMEs
- the lack of equity-based financial instruments appropriate for innovative SMEs

Following the conclusions drawn from general analysis in chapter two this features turn into considerable financial problems for fast growing innovative SMEs because access to external equity capital sources seems to be the critical element in the process of financing innovative SMEs. Therefore attention is now turned to the developing equity capital market for unquoted SMEs in Austria.

During the last decades no activities have been reported in the Austrian informal equity market. Surely this can be traced back to lacking interest of data collecting institutions and

researches in that market segment but undoubtedly the missing awareness was fuelled by potential informal investors being idle. The situation has changed recently with the introduction of the first Austrian Business Angel Network which is described below. But in spite of this new initiative Austria is still at the very beginning of an informal equity market to develop.

In the same time period the Austrian venture capital market showed many ups and downs but a sustainable basis for a sound development could not be established. The ups were mere trials of a few banks to build up a new branch of their business which was highly successful in other countries like the USA, Canada or Great Britain. The downs came near to an overall stop of all the private venture capital activity. But the situation changed considerably in the early 90th and during the last three years Austria reached a new peak in venture capital investing.¹

In 1995 fifteen venture capitalist were active in Austria. In just two years the number rose by 47% to 22 equity suppliers. The amount of capital invested and not realised till 1996 was at least 33 mil ECU. The amount of new investments increased from 1995 to 1996 by 247%. The share of venture capitalists investing private money even rose by 4600% during the same period. Surely this explosive development in venture capital activity can be traced back to both the market being very small at the outset and relatively large amounts of money being turned over by a single investment projects. But it indicates that the Austrian venture capital industry currently is in a start-up stage with promising future perspectives.

Though venture capital supply in Austria developed rapidly, several problems of a still infant industry are remaining. The share of public money in total investments is considerably large with around 31%. Venture capitalists active in Austria are too risk averse. Too few investments are made in early stage ventures: There is no activity in the seed stage at all, just 13% of total investments go to the start-up stage of firms and medium sized enterprises (50 to 249 employees) capture the largest share of investments (60%). In addition venture capital networks are weakly developed in Austria which can be traced back to the intensive involvement of public institutions in the venture market and the lack of specialisation of individual financiers in particular business sectors and technologies. Just 6% of all investment

projects are syndicated which corresponds to at least 36% of investments in monetary terms. But if one observes just the networking behaviour of private investors the numbers are totally different: 76% of total private investments and 64% of all private investment projects are syndicated.

This shows that the intensive involvement of public institutions in the venture market is one of the main bottlenecks for networking of financiers which is essential for a smooth functioning of the private equity market for innovative, technology-based and fast growing SMEs (see p. 6.).

3.2 Policies introduced recently

Recent positive developments in the informal and the formal private equity market in Austria can be traced back at least to a small part to an increased interest of Austrian technology policy makers in private equity financing of SMEs. During the last two years new instruments have been introduced to raise the supply of private equity capital and to improve small firms' access to this kind of capital source. The most influential ones are shortly described in the following:

- In late 1996 the Austrian Innovation Agency established the first Business Angel Network (i2) in Austria. Investors and firms can announce their willingness to invest and their capital needs respectively and have to submit more detailed data needed by i2 to assess economic aspects of potential deals and to classify them. Based on i2's findings capital-seeking firms are matched with appropriate investors and a first meeting between potential partners is arranged. In addition Business Angel Network provides various information services and puts the partners of a potential deal in contact with external consultants in business related fields.
- In accordance with the i2 initiative BUERGES (a public institution providing financial support for SMEs) sells equity capital guarantees for Business Angels in order to reduce prohibitively high capital risks of inexperienced informal investors. This should help them

become familiar with this investment alternative which is rather new for Austria.

- FGG (Finanzierungsgarantiegesellschaft - Ost-West-Fonds) provides quite similar financial engineering instruments for venture capital funds. Firstly, it sells put-options to formal investors which give them the right to sell their share in a particular portfolio company during a predefined time period to FGG at a particular price agreed upon in advance. Secondly, it sells put-options covering the whole portfolio of a particular venture capitalist and not just a particular venture within that portfolio. These put options are designed to reduce the investment risk of financier considerably providing them the opportunity to "investment experiments" in new business sectors and technological fields in order to build up know-how and experience necessary to follow a successful long run investment strategy.
- Vienna stock exchange has introduced a new market segment specifically for fast growing mid-sized firms called Austrian Growth Market (AGM). Compared to the main stock market AGM makes it easier for SMEs to go public because particular thresholds regulating access to the main market are reduced and small firms are supported through specific services at reduced costs. In addition a market maker system was introduced guaranteeing continuing liquidity of the market. Principally the new stock exchange offers a new source of capital for fast growing mid-sized firms and provides an exit channel for venture capitalists to realise their capital gains.

3.3 Integrated policies to make the Austrian system work for innovative SMEs

As indicated by the forgoing analysis much has been done during the last months in order to activate Austrian private equity capital markets and at least to some extent recent achievements should be traced back to prevailing initiatives. By introducing i2, Business Angel guarantees, risk reducing financial engineering instruments for venture capital funds and a new market segment at the Vienna stock exchange specifically for fast growing mid-sized firms policy makers tried to improve SMEs' access to different capital sources needed to allow an effective funding of different growth stages. But they missed to follow an integrated approach:

Initiatives are not reconciled with each other helping investors to build up close relationships and to form networks in order to reduce their financial risks associated with investments in innovative and technology-based SMEs.

- Though i2 should be seen as an important initiative to improve early stage financing of SMEs it does not take account of the financial situation of small firms in later stages of their development process. It does not provide mechanisms helping firms and Business Angels to build up relationships to venture capitalists or other later stage financiers.
- Prices for put-options supplied by FGG are set to avoid any form of subsidy or financial support for venture capitalists. This is the right approach if one aims at supporting investors in a developing equity market to build up the know-how necessary to manage portfolio risks on their own or to produce the right mix of risks and expected returns for their portfolio. But it does not generate any incentives for financiers to invest in high risk ventures. If networks are at the base of managing risks associated with investments in innovative and technology-based SMEs venture capitalists cannot individually build up risk management tools appropriate to deal with this kind of investments. Additional incentives are necessary to stimulate capital flows in innovation related and early stage businesses.
- Though currently there are just two companies quoted on the AGM-segment of the Vienna stock exchange it could become at least principally an important exit channel for private venture capitalists². In addition other stock exchanges recently founded in various European countries and at an overall European level could take on this role. But it is doubtful that public institutions providing equity which account for more than 30% of the market share in Austria have the know-how and the experience necessary to cash their capital shares through IPOs. Currently most of them realise investments by selling shares back to the company which can cause considerable problems. Mostly firms have to raise loans in order to finance the exit which may jeopardise their financial situation and in turn their future development.

The integrated approach I would propose based on the general principles elaborated in the

first part of the paper and the analysis of the specific Austrian situation is well equipped to deal with these problems. In addition it helps to fully exploit potentials provided by the specific structure of the supply side of the Austrian capital market: All the public venture funds mentioned before operate on a regional base (except one). Mostly they are embedded in a regional development organisations with a much broader scope of activities operating financial support schemes, providing infrastructure (e.g. technology parks, incubator centres), supplying various soft support services (e.g. technology transfer, information services, management advice) etc. This brings them in close contact with regional businesses as well as regional actors like universities, technology transfer institutions, educational institutions etc. and makes them build up good knowledge about the regional economic situation and its dynamic development. Thus regional funds could take on the role of providers of information and know-how concerning particular regions; a role being highly important for the venture capital business.

These regional non-for-profit public funds are at the core of the initiative. As promoters of regional development they should set incentives for Business Angels and private venture funds to get involved in early stage financing of innovative SMEs more intensively.

They could syndicate their investments with Business Angels in order to exploit the following advantages:

- Syndication would reduce investment risks of Business Angels and public funds (risk sharing) and promote risk spreading strategies of both (portfolio building). In addition capital could be distributed more widely which would be to the advantage of additional capital receivers as well.
- The regional fund with more capital at its disposal than the Angel would be able to secure for additional rounds of finance if needed by the company to continue growth. This could help to increasing potential capital gains of both equity providers.
- The regional fund could act as an exit channel for Business Angels wanting to realise their

capital shares.

In a similar way regional funds should attract private venture capitalists to early stage financing by supplying call-options to them in case of syndicated deals. With a call-option regional funds sell the right to buy their equity share during a particular time period at a predefined price to the private venture capitalist. This has several advantages:

- Syndication promotes risk sharing and risk spreading
- In case of a successful growth process of the investee company the call-option gives the private fund the opportunity to substantially increase its locked-in capital gains. The regional fund on the other hand has a new exit route avoiding problems associated with selling back his share to the company.
- Call-option would be an excellent supplement to the put-options supplied by FGG. Put options reduce investment risks of private funds and syndicating with regional funds reduce it further through risk sharing. This would create an excellent environment for private venture capitalists to get involved in early stage financing together with Business angels. In this way regional funds would be put in the position of a mediator between these two complementary types of investors.
- In addition regional funds would take on the role of catalysts in the process of creating venture capital networks. They would become partners for syndication and could bring their knowledge and their experiences together with valuable information concerning the regional economy and the regional businesses to the process. This could at least to some part substitute for venture capital networks which are so important in countries with a highly developed private equity market.

But why should regional funds most of which are operating for years change their behaviour in a way proposed above? The answer to this question is straightforward: The federal state has to set incentives appropriate to bring these changes about.

A call for tender dedicated to regional funds should be launched. Single funds develop their own syndicating models and submit a proposal which is assessed by means of a criteria catalogue based on the instruments described above. Models which pass the test apply for financial support of the federal state: low interest rate loans covered by financial guarantees of the federal state could be provided in order to refinance equity investments by regional funds. Above all this would have two advantages. Regional funds would be able to extend their financial restrictions and to enlarge their scope of activity and the federal state would have an effective instrument to generate impulses for an accelerated development of the Austrian equity capital market.

In fact this initiative would follow an integrated approach linking together the recently introduced measures designed to activate the Austrian equity capital market.

Syndicating with Business Angels would reduce their investment risks, spread their activity, provide them with attractive exit routes and give them access to specific experiences, know-how and information of the regional funds. These incentives could increase the pool of potential informal investors making it much easier for i2's to put capital seeking firms in touch with Business Angels.

Syndicating with venture capitalists would give them incentives to get involved in early stage financing in order to intensify links to Business Angels and to provide better exit routes for regional funds. This would comply services provided by FGG and could help to make better use of the recently introduced growth market of the Vienna stock exchange.

In addition networking of equity investors could be fostered and the comparative advantages of investors with a strong regional base could be exploited: better access to information about prospective ventures, more money for a wider range of companies, improved support services for single investee companies (management advise, information services etc.) and the opportunity to adapt regional policies to the needs of investors and firms in a better way.

Moreover close collaboration between different investors could foster the development of a more diversified and hence more effective equity capital market in the long run helping to

improve supervising and resource creating powers of the financial system in order to break up the vicious circle capital seeking innovation-orientated firms are confronted with.

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5 References

- Barkham, R., Gudgin, G., Hart, M., Hanvey, E. (1996), The Determinants of Small Firm Growth - An Inter-Regional Study in the United Kingdom 1986-90
- Binks, M. (1995), The Relationship Between UK Banks and their Small Business Customers, in: Cressy, R. et al., eds., Financing SMEs - a comparative perspective, Stockholm.
- Bittermann, F. (1996), Privatkapital für Risikofinanzierungen - Risikokapital für technologieorientierte Klein- und Mittelbetriebe, Wien
- Bygrave, W. D., Timmons, J. A. (1992), Venture Capital at the Crossroads, Boston
- Cressy, R et al., eds. (1995), Financing SMEs - a comparative perspective, Stockholm.
- Deakins, D., Philpott, T. (1994), Comparative Practices in the Finance of New Technology Entrepreneurs: United Kingdom, Germany and Holland, in: New Technology-Based Firms in the 1990s“, London
- European Commission (1995), Grünbuch zur Innovation, Brussels.
- European Commission (1996), Seed Capital, Advance Report, Brussels.
- European Network for SME Research (1996), The European Observatory for SMEs, Zoetermeer.
- European Venture Capital Association (EVCA) (1994), Fund Raising and Investor Relations, Zaventem
- European Venture Capital Association (EVCA) (1995a), Boosting Europe's Growing Companies, Zaventem.
- Fischer, A. B. (1994), Raising Capital for a New Venture, in: Fortune, 13, 1994, S. 99-101.
- Florida, R., Kenney, M. (1988), Venture capital, high technology and regional development, Regional Studies, 22, pp. 33-48.

- Harrison, R., Mason, C. (1995), Developments in the Promotion of Informal Venture Capital in the UK, in: Cressy, R et al., eds., Financing SMEs - a comparative perspective, Stockholm.
- Harrison, R. T. (1996), Developments in the Promotion of Informal Venture Capital, in: European Innovation Monitoring System, „Innovation Financing: Private Investors, Banks & Technology Appraisal“, Karlsruhe.
- Hemer, J. (1996), Innovation Financing: Private Investors, Banks & Technology Appraisal, in: EIMS Innovation Policy Workshop, Luxembourg, 1995.
- Jud, T. (1997), the financial system and its significance for the development and growth of innovative SMEs in the regional context, paper presented at the 37th European Regional Science Association Congress, Rome, Italy.
- Kulicke, M. (1993), Chancen und Risiken junger Technologieunternehmen. Ergebnisse des Modellversuchs "Förderung technologieorientierter Unternehmensgründungen", Karlsruhe.
- Loistl, O. (1991), Kapitalmarkttheorie, München.
- Mason, C., Harrison, R. (1994), The Role of Informal and Formal Sources of Venture Capital in the Financing of Technology Based SMEs in the United Kingdom, in: Oakey, R., ed., New Technology-Based Firms in the 1990s, London.
- Oakey, R., ed. (1994), New Technology-Based Firms in the 1990s, London.
- OECD (1993), Small and Medium-sized Enterprises: Technology and Competitiveness, Paris.
- OECD (1995), National Systems for Financing Innovation, Paris.
- OECD (1996b), Venture Capital and Innovation, Paris.
- OENB (Österreichische Nationalbank) (1998), Statistisches Monatsheft, Tabellenteil, in: http://www.oenb.co.at/stat-monatsheft/statab_p.htm.
- Österreichische Kontrollbank, Hrsg. (1993), Finanz Markt Austria, Initiative Finanzmarkt Österreich Maßnahmenprogramm, Wien.
- Philpott, T. (1994), Banking and New Technology-Based Small Firms: A Study of Information Exchanges in the Financing Relationship, in: Oakey, R., ed., New Technology-Based Firms in the 1990s, London.
- Roberts, E. B. (1991), Entrepreneurs in High Technology: Lessons from MIT and Beyond, New York.
- Roberts, E., B. (1990), Initial capital for the new technology enterprise, IEEE Transactions on Engineering Management, Vol. 37, pp. 81-94.
- Standeven, P. (1993), Financing the Early Stage Technology Firm in the 1990s: An International Perspective, Discussion Paper prepared for the Six Countries Programme Conference on Financing the Early Stage Technology Company in the the 1990s. An International Perspective, Montreal.
- Steiner, M., et al, (1996), Technologiepolitisches Konzept Steiermark, Leykam, Graz.
- Wiener Börse (1996), Vienna Stock Exchange, Wien.
- Wupperfeld, U., Hemer J. (1995), Die Betreuung junger Technologieunternehmen durch ihre Beteiligungskapitalgeber - Empirische Untersuchung, Karlsruhe.

¹ The data presented in the following is based on a survey of Austrian equity capital suppliers conducted by the author in mid 1997. About 50% of all providers active in Austria at that time have filled in the questionnaire. Thus just half of the market supply is reflected by the data. In addition results can not be seen as being

representative for the whole market because the population (just 22 providers) is so small that each additional questionnaire would have had considerable influence on the final results. But compared to alternative information sources about the Austrian private equity market the current survey can be seen as a considerable improvement.

² Recently Vienna stock exchange went into a cooperation with sock exchange in Frankfurt. They agreed to form a common market starting in autumn 1998.