

**New Possibilities for accessing the capital markets
for small and medium-sized biotech enterprises**

“New markets” and stock exchange in Belgium and the Netherlands

Joost Heijs

Working Document

Fraunhofer Institute for systems and Innovation Research

December 1997

This is a preliminary study used as input for: Menrad, K.; Lohner, M.; Saviotti, P. Estades, J. (1999) :“New Possibilities for accessing the capital markets for small and medium-sized biotech enterprises”. In cooperation with INRA-SERD, Université Pierre Mendés Grenoble. Luxembourg: Office for Official Publications of the EU (1999 - EUR 18908)

1.- FINANCING PROBLEMS OF START UPS AND EXPANDING BIOTECH ENTERPRISES

„Of all the challenges facing Biotech, financing is omnipresent. The ultimate success of such companies will be depend on how quickly and efficiently products move through the regulatory gates and distribution channels, However, until companies are able rely on their own revenue streams, continued financing is priority for survival“ (EY, 1994, P.10)

If a founder starts with a idea for a new product than normally he has a lot of know-how, concepts for their products, experiences, sometimes good relationships with potential costumers, sales intermediaries, suppliers or research institutes. This „non material“ start-up capital sometimes is related with limited own funds of the founder to cover the financial costs of the extensive tasks related with development of innovative products, processes or services, as well as market entry and the creation of manufacturing capacities. So there is a clear need for support “starting-up” firms and in the follow-up stages of development of these enterprises. (See also Table 1) (Kulicke, 1997, P.126 and P.133)

Venture Capital should strengthen the equity capital base and should have a long term character, in order to minimise the strain on liquidity in the first few business years. The financial requirements of new high tech firms are, in the most of the occasions, difficult to estimate and often founders tend to underestimate the costs and the time required. So investors should have an adequate potential for further financing in order to meet unexpected financial needs (Kulicke, 1997, P.133).

German experiences makes clear that the process of raising capital for New Technology Based Firms NTBF's) tended to be a „trial and error“ procedure rather than a strategically-based involvement of partners in starting-up their new enterprise, there appear to be three reasons for this (Kulicke, 1997, P.129):

- The founders' lack of experience in the many different aspects of financing a firm, and in business matters in general. This includes the awareness of governmental support schemes.
- The absence of a „track record“ and the high risks (technical and commercial).

- „language differences“ between founders often with a technical-scientific background and potential investors (Banks, public funds, venture capital companies Etc.).

Table 1: Activities in the process of starting-up NTBFs, and the financial inputs and outputs associated with them

Phase	Main activities	Financial inputs and outputs
Elaboration of business plan	<ul style="list-style-type: none"> • Definition of the technical aims • Sounding out customer requirements • Evaluating market attractiveness and competition situation • Outlining the technical concept and the development steps • Estimating the need for financing • Raising loans, procuring equity capital • Establishing strategies, especially for marketing and selling 	<p>Input: small, particularly if all possibilities are used for externalising these early-stage costs</p> <p>No output</p> <p>low net capital requirement</p>
R&D	<ul style="list-style-type: none"> • Development tasks for innovative products or processes • Forming or expanding the R&D team • Co-operation in R&D • Continuous observation of the market • Initiating or intensifying contacts with market partners 	<p>High input: of the order of one or several million DM, depending on the type of project and available resources/ experience from previous development projects</p> <p>No output, or small output from this project via marketing of partial results</p> <p>High net capital requirement</p>
Market entry	<ul style="list-style-type: none"> • Measures to make the new product or processes known (presentation at fairs, demonstrations, direct mailing, etc.) • Formal agreements with sales partners, suppliers and production subcontractors • Initiation or expansion of sale system (engaging or training personnel, setting up sales units etc.) • Authorisation procedures • Testing by potential customers • Creating manufacturing capacities 	<p>High input: at least of the same order as in the R&D phase, sometimes much higher</p> <p>Output: first returns from market</p> <p>High net capital requirement</p>
Market diffusion and growth	<ul style="list-style-type: none"> • Further expansion of sale system (particularly for foreign markets), • Building up (regular) clientele • If necessary, installing capital-intensive production plant for the (full-scale) manufacturing of the new development • Further development of the product range for additional applications/customer groups • Maintenance in product development 	<p>Input: high at first, depending on the volume of investments needed for production expansion, then substantially decreasing</p> <p>Output: high, in the case of success on the market</p> <p>Net capital requirement: definitely negative, i.e. profits are made, no external capital required</p>

Taken from Kulicke, 1997, P. 128

The new firms are lacking real securities. On one side, most founders have problems to transfer influence and managerial power to the potential investors while, on the other side, most venture capital companies want to participate in business decisions to overcome erroneous developments (Kulicke, 1997, P.130). That is why for new firms the Business plan is a very important starting point and necessary for success in the process of fund raising. This plan is important both for the founder as well as for the potential investor. For the founder it should provide an important base for a valid strategic planning and clarifies the risks associated with the investments. The German experiences stated that lot of founders did underestimate the importance of a valid business plan (Kulicke, 1997, P.131). But banks do not aim to understand technologies they put more weight on such business plans, the management team, the trading record, product markets and marketing strategies (Hardman, 1997, P.22). The small and medium sized high tech firms and their founders may put more emphasis on the financial aspects of their proposals rather than the technology. Although this balance can be redressed in face to face meetings. Quality proposals emphasises the technology and its proprietary novel features, they compared it with possible competitive technologies which are on the market or in the R&D pipeline. This information allows an assessment of the commercial potential of the start-up project (Fiona Marston Healthcare Ventures LTD London UK; taken from EY, 1997, P.40).

To develop criteria for evaluating the possibilities of new or young bio-tech enterprises and to make them interesting for potential investors we analyse the criteria used already by the venture capitalists. Traditional evaluation indicators such as revenues, price-earning ratios, and discounted cash flows are often not available in the case of the bio-tech companies and other NTBFs.

Venture capitalists are using qualitative criteria for their investments. The survey of the EY (1997, P.39) indicates that the most important criteria are: strong patent position, unique technologies, Experienced Management, platform technologies and business focus. Seppo Makinen pointed out that „The opportunities in the European Biotech industry are good compared to the other sectors. Of course the risks are usually bigger than in other industries. The biggest disadvantage is the lack of good experienced entrepreneurs in this field “ (Seppo Makinen, Director, SITRA Helsinki, Finland; Taken from Ernst & Young 1997, P.29).

Analysing the bio-tech sector it is possible to point out some additional problems which make investments in this sector extra risky. First aspect is that the R&D phase and the market introduction in this sector which takes, in general, more time than in other high tech sectors (Kulicke, 1997). The innovative character of the sector, their interdisciplinary (biology, Chemicals, Physicals etc.) and the intense integration in basic science lead to longer time spans of R&D. Also the broad number of legal requirements and controls implicates lost of time for the research projects. This together with the uncertainty of their future markets, and the

management problems mention before, makes bio technology a special branch for venture capitalists. Therefore also existing technology based firms often need extra capital, not only to fulfil the initial business plan but also for accelerate their growth due to unforeseen success or market developments.

Biotechnology investments are based on investors perception and hopes. The „story driven“ approach drives the biotech VC market. The limited ability to value the science behind the development of biotech products caused a decision making system that rely's on milestones (patents, successful experiments) or deals (such as strategic alliances) (EY, 1994, P.21). Positive or bad news about one individual company can influences on the image and stocks rates of all firms of the sector. A clear examples of this mechanism was the purchasing of Plant Genetic System (PGS) by the chemical giant Hoechst and Scheering which did raise the stocks of other Biotech firms like for example the stocks of the Dutch bio tech firm Mogen. The value of this company, operating in the same field and making losses already for a couple of years, went up for 38% (Telegraaf 22, Augustus, 1996).

It has to be stated that not all biotechnology risks are equal and within the Biotech sector there are important market differences. On one side, a starting-up health care biotech company stands a much better change of gathering venture capital than a non health care company. The health care market is a transparent and their future demand is reflected by statistics of how many people suffering a particular disease. Although this sector has more legal restriction on market introduction, the mechanism and time that will been lost for official approval are know. Outside the health care „the Markets are more difficult to judge, certainly more difficult to predict, and often more driven by indirect than direct issues“ (Jeremy Curnock Cook, director of venture capitalists, Rothschildt Asset Management; Taken from Davidson, 1997, P.20) On the other side, the industrial biotechnology is based mainly on „add-ons“ and modifications of existing processes that do not result in large long-term results for the companies or their investors (Steve Bunting, Investor specialised in Biotech, Abingworth Investments; Taken from Davidson, 1997, P.20)

A last but surely not least criteria for the attractiveness of a high -tech or biotech firms is its management capabilities. Europe has a clear lack of analytical capabilities for venture capital of biotech and other high tech firms. The investments in Biotech is still a case of professional venture capitalists. (Hersbach; President and Chef Executive Officer of Pharming B.V., The Netherlands, www.quotemedia.nl (05-31-97)).

To improve the success of fund raising there will be need a good developed and realistic business plan and there will be need a good interaction between the founder and the venture capitalist where trust, realism and seriousness are very important.

2.- FINANCING ENVIRONMENT FOR SMALL AND MEDIUM-SIZED HIGH TECH COMPANIES (with a specific focus on bio technology)

„In contrast to the entrepreneurial culture in the United states, which typically encourage funding for the discoveries of its investors, European investors have been more hesitant to provide financing for entrepreneurs. Nevertheless, new approaches are evolving, and the biotechnology industry is one force shaping these changes“ (EY, 1994, P.10). Several interdependent tendencies have improved the possibilities for fund raising of biotechnology firms. Nowadays the biotechnology sector has already produced some succes stories, their firms and market are more mature and venture capitalists are getting more and more experience en evaluating this kind of firms.

There are several forms to finance new high tech companies including biotech like: Grants and public loans, private equity, venture capital, strategic alliances¹, corporate equity, R&D partnerships, public equity, debt financing/factoring, interests, product sales and public support. Here will be discussed briefly the most important concept of financing of risk full high tech enterprises. The private funding by Venture Capital; public funding possibilities and the stock markets

2.1.- PRIVATE FUNDING

The Venture Capital market in Europe is growing fast since the eighties. In 1989 the accumulation of VC funds in Europe² was almost 23 Billion ECUs and in 1994 this amount raised till more than 46 Billion. The venture capital industries of the 16 European countries reflected a dynamic pattern. In the period 1989-1992 the VC market increased each year more than 4 Billion. 1993 with a growth of ECU 3,4 Billion was a bad year but in 1994 the market took up again its dynamic growing dimension with an increase of ECU 6,6 Billion (Figures taken from the yearbooks of the EVCA 1991-1995).

Looking to the figures of table 2 we see, that on European level there is a continuously growth of Venture Capital. The amount of VC invested in 1994 was remarkable higher than in the last 8 years. Since 1989 the amount was roundabout 4,5 billion with a maximum of 4,7 Billion in 1992. In 1994 the investments rose

¹ Including contract/collaborative research, product licensing and manufacturing, marketing, distribution agreements and joint ventures

² The figures given in this chapter reflecting 16 European countries analysed by the EVCA here listed in order of the size of the VC market in each country in 1994.. United Kingdom, France, Germany, Italy, Netherlands, Spain, Sweden, Belgium, Switzerland, Ireland, Denmark, Norway, Portugal, Finland, Austria, Iceland.

almost 32% up to ECU 5,439 Billion. What also increased in the last year is the average investment size. The EVCA report explain this change due to the shift towards the buy-out and buy-in investment. In 1994 for the first time this concept of VC (43% of the amount of all VC investments) exceeded the amount invested in the expansion stage investment (42%). This increase of the average investment is also happen in Belgium and the Netherlands.

The Netherlands has a larger VC market the Belgium Market is growing relatively faster. Looking to the new funds than can be stated that, during the period 1990-1993 the Netherlands and Belgium followed the European global trends. Although it has to be stated that the Belgium market was growing relatively faster. There where the Dutch market had a growth of the Cumulative funds of 132% in the period 1989-1994 the Belgium market rose 176% in that period. But in 1994 the Dutch VC market generated a spectacularly growth of new funds (Almost 100%) and Belgium did not pick up such a high growth rate of new VC capital in that year.

Table 2 Venture Capital investments in Europe Belgium and the Netherlands

Year	EUROPE		BELGIUM					THE NETHERLANDS				
	Total Yearly invest- ments	Biotech. Invest- ments	Cumu- lative funds raised	New funds	Yearly invest- ments	Biotech Investments % Mio ECU		Cumu- lative funds raised	New funds	Yearly invest- ments	Biotech Investments % Mio ECU	
1997						13,9	24,8				4,8	36,6
1996						13,6	14,8				2,1	12,6
1995						9,0	10,1				3,1	14,3
1994	5,439,626	72,686	1073	90	107	6,10	6,53	1847	259	323	3,00	9,69
1993	4,115,083	57,546	965	102	92	2,96	2,72	1702	133	207	1,00	2,07
1992	4,701,243	61,577	842	82	142	0,10	0,14	1560	91	292	2,90	8,46
1991	4,631,900	87,628	749	91	104	6,40	6,28	1579	108	239	1,00	2,39
1990	4,125,718	95,144	640	33	79	7,80	6,16	1475	83	229	3,40	7,79
1989	4,271,003	144,547	607	62	79	0,70	0,55	1392	165	176	5,10	8,98

Sources yearbooks of the EVCA 1991-1997 All figures in thousands of ECU's

Looking to the capital invested in **the bio technology sector** it can be pointed out that in the end of the eighties there was a boom in this sector. In 1986 the venture capitalists invested more than ECU 32 million, in 1989 the Venture capital for Biotech peaked following the global pattern of investment in Biotechnology. with a VC amount of almost ECU 1,45 Billion, being 3,42% of al European VC investments. After 1989 VC investments decreased during four years till ECU 57 Million in 1993 but at this moment it seems that this sector, at least at European level, is regaining its dynamic spirit and in 1994 the investment in bio tech firms raised to ECU 72 Million. And in the most recent years the percentage of VC for

Biotech like percentage of European VC investments is estable (more or less 1,35%).

Holland and Belgium are investing relatively more in Biotech compared with the average of the European countries. Table 2 reflects an irregular trend in both countries and Belgium reflects relatively less investments in the Biotechnology sector than Holland. In the period 1989-1991 both countries invested about 5% its VC in biotech but since 1995 Belgian venture capitalists are investing over 10% of all their VC in the Biotech sector while in Holland this percentage is roundabout 4,1%.

2.2.- PUBLIC FUNDING POSSIBILITIES

Strong political support has underpinned the development of the Netherlands as one of the significant bases for European biotechnology. The Dutch government stimulated the field of Biotechnology with more than Dfl. 400 Million between 1981-1993 (Ministry of Economic Affairs, 1995, P.9). Mayor US companies such as Chiron or Centocor, have located in the Netherlands due to the government support by the Foreign Investment Agency and the Development Company of the Region North Holland (EY, 1996, P.57). At this moment there are several support schemes that are available, also for foreign firms. The most important schemes are the subsidies for industrial research projects and favourable loans for product development (ey, 1996, P:57).

A good example is the Industrial Stimulation Program started in 1987 which was aimed on the support of high risk ventures in biotechnolog, promote technology transfer from public to the private sector and develop an indigenous Biotech sector (EY, 1995, P.60). An other support scheme is the Technical Development Credit - the so called TOK scheme- which involves the government providing a soft loan to Dutch-resident companies (Including subsidiaries of foreign companies) which have completed the research phase, but need support to take the products through development. This loan has a fixed interest rate and a payback period is linked to the commercial success over ten years from the particular product. An other example is the support of industrial research projects³ is the so called PBTS scheme for biotechnology, under this programme the Dutch government provides subsidies on industrial research and feasabilities studies (ey, 1996, P:57). An last program to promote industrial R&D in the Netherlands and useful for biotech firms are the support scheme for R&D employment. Wage costs for employers in R&D will be reduced by a reduction of taxes related to their salaries payable by employers (ey, 1996, P:57).

³ Of the 347 industrial projects receiving funding between 1987 - 1994, 11% led to market applications, while a project hit rate of 28% is expected by the end of 1997 (ey, 1996, P:57).

The Dutch State not only provide financial support to young technology oriented firms but also management support and coaching, which is provided by the participation funds (ey, 1996, P:57). Further the Dutch government has created a good R&D infrastructure and is providing institutional support which is seen as important positive aspect of the Dutch Biotech environment Research Institutions like the Dutch Cancer Institute and the Medical Biotechnology Laboratory of TNO have international scientific reputations and had generated some important spin-off firms like the Genepharma or Introgene (EY, 1995, P.60).

Although the Dutch government has created a excellent medical research infrastructure also the agri-food is of growing importance. (EY, 1995, P.60) In the agri-food part of the biotechnology sector are operating some of the Dutch traditional multinationals like Avebe, Gist -brocades or Unilever (EY, 1995, P.60) They are co-operating with High Education Institutes. This co-operation between firms and the academic world is of growing importance like, for example between the University of Leiden and Introgene (Michiel de Haan General partner, Atlas Venture, The Netherlands; Taken from EY, 1996, P.27)

Also in the venture capital market the Dutch government played an important role. Guarantee's Scheme for Private Venture Capital Companies (PPM's) was launched in June 1981. This scheme provides guarantees against loss incurred on individual investments made by officially recognised PPMs⁴. Since the eighties the Dutch government was highly involved in this market but its participation went downwards since 1984. In this year the Dutch government was the main provider of venture capital (46,5% of the total amount of Dutch VC), while in 1987 this participation was reduced to 27%. Nowadays there is much less public involvement with only 6% in 1991 which is more or less the European average (EVCA yearbooks 1986 - 1995)⁵. During the last years the Dutch government was looking for a less active role although they did not withdrawn totally from this field. They are still participating -directly and indirectly- by semi-public institutions like the Governmental Participation Companies and the Regional Development Companies which traditionally provided venture capital. The important change of these companies is their financial restructuring and from now on will have to self finance their venture capital activities (EVCA, 1993, P.122).

⁴ Investments must be made primarily in the form of equity, involving minority participation of more than 5%, and a guarantee of 50% in actual losses incurred. Besides PPM's enjoy special tax status whereby in certain circumstances gains and dividends received are not subject to taxes. Losses of course, not deductible under these conditions either.

⁵ The information about the venture capital provided by the government has to be used carefully. Their quantity is a combination of direct and indirect schemes and fluctuation between years can depend on unusual behaviour of the public administrations . But the decreasing trend of public involvement in the venture capital market is can not be discussed.

Also in Belgium there are generous support schemes available both from central and regional governments. The central government of Belgium provides fiscal incentives for R&D and extensive subsidy schemes are available for domestic and foreign biotech investors especially in Flanders. The Flemish Biotechnology Action Group (VLAB) promotes the basic and applied biotech research (ey, 1996, P:57). Flanders built up a high qualitative technology infrastructure and institutional support is given by the Flemish government. For example the set up of an Interuniversity Institute for Biotechnology with a Budget of ECO 23,3 Million/year ECU (ey, 1996, P:57). Also the Walloon government is fostering the R&D -both financial and institutional- with more than ECU 77,5 million/year including direct and indirect subsidies and interest free loans (ey, 1996, P:57).

In Belgium the role of the Government as provider of Venture Capital also was important. In 1984 they provide 75% of the VC, including funds for rescue operations of firms. In 1986 this percentage decreased to 40% and in 1991 the Belgium government provided only 6,8% of the Belgium Venture Capital (EVCA yearbooks 1986 - 1995). The involvement of the Belgium government in VC financing for Biotech is reflected by the Biotechnology Fund Flanders (BFV with 30 Million USD and the involvement of the GIMV (investment Company Flanders) who is actively participating in some Biotech firms like innogenetics. The BFV make venture capital available to finance new biotech companies in Flanders, to support development in existing biotech firms and to attract foreign biotech firms that want to pursue activities in Flanders.

Further institutions active in this segment are the Flemish Institute for the Promotion of Scientific Technological Research in Industry ((IWT), Flander's Foreign Investment Office (FFIO) and several Regional Development Agencies (FFIO, 1997)

2.3.- CRITERIA TO MAKE BIOTECH ENTERPRISES INTERESTING FOR POTENTIAL INVESTORS

Paragraph one analysed some of the problems related with the finance of high-tech business start ups and discussed briefly the criteria of venture capitalist to evaluate potential investments and how starting firms can improve their image. Among others I argued that important aspects of evaluation are the business plan, potential market and marketing, and, very important the management qualities of the new firm. In this part I will briefly comment the problems of the exit mechanism of firms because one of the most important thresholds for investments in the Bio technology sector was the perceived lack of exit of such mechanisms (EY, 1994, P.11). The EVCA presents in his annual reports about the VC the exit mechanism used by

venture capitalists. 23% of the divestments done in 1994 was by IPOs, 45% by trade sales and 18% by write-offs (EVCA, 1995, P.55).

The funding of high-tech growth enterprises in early stages is in general done by venture capitalists. The introduction on the stock market is one of the exit mechanisms (others are write-offs or trade sales). In Belgium the most important exit route for venture capitalists remains acquisition or trade sales. Apart from an attempt by the stock market exchange of Brussels to create an interprofesional market for non-quoted companies the creation of the EASDAQ as a solution to the bad functioning of the second market. the IPO can gain place for exit in comparison sale although the acquisition or trade sale remains still as the most important exit route (EVCA, 1995, P.85)

It is to early to say that the EASDAQ and the „New markets“ in several European countries will accentuate the role of the IPO as an exit mechanism. The IPO as an exit route seems to have some clear advantages; higher price, favoured by the management that will keep its power, and the possibility of retaining shares to get profit of future growth. But there are also some disadvantages The lock up agreements of the „new Markets“ make an 100% exit in a lot of occasions impossible, a group of potential investors have to be convinced of the firms' possibility, and it is not a real option for very small companies. Trade sales are simpler and faster than an IPO, 100% exit is possible, only one buyer has to be convinced and especially for small firms it is the only possibility.

Table 3	Yes	Not sure	No	
Directors of biotechnology start-ups were asked whether they thought an EASDAQ listing would be attractive for them	67%	33%		
European venture capitalists were asked will the EASDAQ increase enthusiasm for investing in European Biotech companies	54%	33%	13%	
Biotechnology company directors were asked to predict whether biotech firms would need more, less or the same access to public equity capital in 1996 ⁶ compared with 1995	more 59%	remain 19%	less 11%	not sure 11%

Taken from Bio Business Outlook 1996

A survey of Bio Business (See table 3); Bio Business Outlook 1996) pointed out that two thirds of the respondents replied that the creation of the EASDAQ has increased their enthusiasm for investing in biotech (90% of the continental European venture capitalists and 40% of the UK respondents) and the same survey anticipates that those investors will raise their investments in biotech for 1997 an extra 30% in comparison with 1996.

⁶ The year the EASDAQ started

So there are some hopeful indication for the short term future and it seems that the new markets and the EASDAQ offer some possibilities alleviate the venture capital market for high-tech firms.

2.4.- STOCK EXCHANGE FOR SMALL AND MEDIUM-SIZED FAST GROWING ENTERPRISES: Requirements and experiences

In the last two years several European stock markets have created special markets for giving small and medium-sized high-tech enterprises with a high grow potential the opportunity to obtain finance this growth. One of the first stock markets for high tech fast growing firms is the Alternative Investment Market (UK, June 1995)) followed by the NOUVEAU MARCHÉ (March 1996) and the EASDAQ (November 1996) The new markets joint by the EURO-NM⁷ network started last Spring (New Market in Belgium; Neuen Markt in Germany and the Nieuwe markt in the Netherlands).

The early European experiences with the so called second tier markets were very poor. They attracted few companies, few investors and suffer from low liquidity (European Commission, 1994, P.iii). Nevertheless the positive experiences of the American and Japanese market for such high-tech firms (NASDAQ and JASDAQ) and several studies by the European Union, the European Venture Capital Association and the financial institutions as well as the rising number of European companies applying for a NASDAQ listing have highlighted the need and opportunity to set up an European Market for shares of innovative high growth companies⁸. The European commission is supporting the creation of European stock markets for fast growing firms because if not American investors would buy out best smaller firms (Comments by Interviews, Taken from European Commission, 1994, p.144) with high growing rates and high level of job creation (WWW:EURO-NM.COM, 7/17/97).

The European sector is clearly gaining critical mass. The number and the quality of deals is increasing. The opportunities in the European biotech industry are good compared to the other sectors. Of course the risks are usually bigger than in other industries (Seppo Makinen, Director, SITRA Helsinki, Finland; Taken from Ernst & Young 1997). The report European Commission mentioned that there is no lack of potential issuers, investors or intermediaries to explain the relative failure of the

⁷ excepted the Nouveau Marché in Paris

⁸ Such companies, often owned by founders or venture capitalists, often are lacking long-term capital for specific business projects (WWW.euro-nm.com, 7-17-92).

second-tier markets. Although hard data are difficult to obtain, estimates confirmed a high number of potential flotation and available capital (European Commission, 1994, P.iii). Also actual estimations, made to estimate the change of surviving of the new markets, are optimistic (Coopers & Lybrand 1996). But like already mentioned, this optimism is, on one side, based on perceptions of managers, company directors and venture capitalists and, on the other side, they suppose a potential growth based on the success of the NASDAQ and JASDAQ.

A study made by Biobusiness (1996, see also Table 3) pointed out that 67% of interviewed directors of biotechnology start-ups thought that EASDAQ listing is attractive for them. 54% of the interviewed venture capitalists indicated that the EASDAQ would increase their enthusiasm for investing in European biotechnology firms and 59% of biotechnology company directors said that the biotechnology companies need more access to public equity capital. So it seems that there is some optimism for the role of new stock markets by the financing of the biotechnology sector throughout Europe. The survey⁹ of Coopers and Lybrand estimated that in Europe there are 480 stock market flotation candidates of which 230 firms could be potential EASDAQ listings and of those 230 round about 20 are biotechnology companies.

The conventional stock markets are not excluding IPO's of the biotechnology firms. There are bioscience companies on a number of conventional markets like in Copenhagen, Frankfurt, Milan, Oslo or Vienna and their performance suggest that it will not be the last of such floatations (EY, 1997). The „New Markets“ are a dynamic, risks are higher and the firms can get bankrupt at once due to the failure of a highly costly R&D project. The introduction of firms on the new markets are seen as a first step to the „Real stock markets“. This was the case on the NASDAQ where several enterprises, once they have established themselves, took the step to the NYSE.

2.5.- STOCK MARKETS FOR HIGH TECH FIRMS

THE NMAX AMSTERDAM

The Nieuwe Markt of Amsterdam Exchanges, the NMAX, is also a new market for young, fast-growing companies with international aspirations. The NMAX, even like the other stock markets discussed here, is officially¹⁰ aimed to offer stocks of

⁹ The survey was done in France, the Netherlands, Spain and the UK.

¹⁰ Till now there are only three firms listed on the NMAX of which two were already listed on the AIM (UK) and their introduction was not aimed on fund raising

companies that need more risk bearing capital and responds to the need for extra financing opportunities for rapid growing enterprises with higher risks but also with higher expected returns. Possible firms are coming from fast growing sectors like high-tech or biotech but also fast growing firms from other sectors are welcome. The New Market of Amsterdam was set up in federation style, forming a network of new markets in Europe together with The Nouveau Marché in Paris, The Neuer markt in Frankfurt and the New Market in Brussels. Which together forms the Euro NM.

The requirements for listing on the NMAX are an effective amount of shareholders equity of the company available for trading (free float) of at least NLG 2 million. The company must have filed or published annual accounts for the last three years. Sometimes a shorter track record is sufficient, but than special conditions will be agreed. As far as the company does not have positive (gross and net) earnings, there is a lock-up mechanism¹¹. Existing shareholders and „large stockholders“ are limited in selling their stocks. They cannot sell any stocks if there are no profits in the first year, after one year of profits he can sell the half of its stocks and after three years of profits -within a period of five- he can sell them all.

An other requirement is the obligation of a three years mentorship (a bank or an broker). This sponsor promotes the stock transactions in close co-operation with a stock specialist and is comparable as a kind of market maker (Telegraaf, 21 February, 1997). Just as in the case of other introductions on the stock market, the company must publish a prospectus. Among other things it should include the financial prognosis, the strategy, the market, the products and the management. After the introduction timely information is of vital importance for investors confidence. Therefore, the information about the company must be published on a quarterly basis.

The NMAX has at this moment (July 1997) only three enterprises listing at their market. The first one that was listed in the NMAX -The Dutch firm PolyDoc- was already listed in the Alternative Investment Market in London. There it was no IPO and also it was not a increase of stocks. PolyDoc did introduce itself on the market for getting extra money but the introduction was aimed on image making by the market of computer services (Telegraaf 20 March 1997). A second firm that is on this market is Antonov (a French/English firm) which also was already listed on the AIM before entering in the NMAX. The third firm is Prolion specialised in bio-mechatronica and real time Robotics.

¹¹ In earlier times Amsterdam had already such Market for fast growing firms (The parallel Market) which did not do very well because some private owners of those firms used that market to get rid of it . To overcome the problems of the past the new market introduced some limitations. Former owners has to keep a minimum of stocks and are not allowed to sell them till they made profits during three years (Within a period of five years) (the Handelsblatt, 25-02-97)

A firm who reflected clear interest for an introduction on the NMAX is ICT Automatisering -a Dutch firm of computer software integrated in electronically consumer goods industry and production lines- which exist already since 1978. The reasons for such introduction is the to obtain capital for expansion and the exit possibility of venture capitalists (Telegraaf, 22 April, 1997).

The discussion about a listing on the new market in order to prepare the company for the real stock market is also in applicable to the Dutch situation. For example CSS, a Dutch firm listed on the NMAX, announced that its introduction in the NMAX was a first step in the direction of the AEX (Telegraaf 4 April 1997) Like in many cases the reason to go to the stock market was not only a lack of financial resources but also an image building strategy.

THE NEW MARKET OF BRUSSELS

Belgium has two markets for young fast growing high-tech firms besides the EASDAQ, which will be discussed later, and, the New Market, created by the Stock market of Brussels, which its first listing was launched in April 1997. Also this New Market is integrated in the network of EURO.NM. The requirements of listing are 60 million Belgian Francs of Equity, a minimum of 100.000 securities to be distributed in public which would be worth a minimum of 100 million Belgium francs

The EURO-NM is designed to build up a decentralised European stock market, based on a network of similar national markets (Amsterdam, Brussels, Frankfurt, Paris). The EURO.NM members have signed a Markets Harmonisation Agreement which establish rules and regulations of this European network. The EURO.NM is a flexible organisation with the task defining the minimum requirements necessary to link these new markets The Agreement defines the minimum standards of listing requirements, membership and market rules to be adopted by each member (WWW.euro-nm.com, 7-17-92) In the future they will combine the use of domestic stock markets and the access to European venture capital markets

The most important minimum requirements are: management holdings must undertake to keep 80% of their shares for a minimum of 6 months (Lock up requirement); listing applications are submitted to the market authorities of each country and approval is based on a prospectus and the use of an market network combining the central orderbook with market making (WWW.euro-nm.com, 7-17-92).

EURO.NM has the advantage of combining order driven market - with twice daily fixing- and market making, while EASDAQ only has a market making (or quote driven) system. The order driven trading gives full price transparency, while the

advantage of market makers is the better liquidity due to the competition between those market makers (Handelsblatt 14-08-96)

The discussion about the advantages and dis-advantages of listings on the EASDAQ or the New Markets of Brussels will be integrated in a broad discussion about the competition between EASDAQ and the new markets joint under the EURO.NM which will be presented after the description of the EASDAQ

THE EUROPEAN ASSOCIATION OF SECURITY DEALS AUTOMATED QUOTATION (EASDAQ)

EASDAQ has been created to bring together high-growth enterprises, their investors and financial intermediaries into one highly liquid, well regulated, pan-European stock market. There the firms will have access to a wider range of capital sources than can be found in any national stock market (EASDAQ). The Market started in the autumn of 1996 as pan-European exchange deliberately styled on NASDAQ¹². At the moment of launching the EASDAQ they expected to list 15 firms at the end of 1996 building up to 50 in the next twelve months time. These would include some of the roundabout 80 European companies already listed on NASDAQ which are seeking dual listing.

At the moment 12 firms are listing at the EASDAQ which are very diversified looking to their nationality (6 countries). Six of them where EASDAQ-IPO's, three of them were dual IPO's together with the NASDAQ and three of them introduced themselves on the EASDAQ but where already listed on the NASDAQ. The problem for dual listings, mentioned by the EASDAQ responsables, is the search of market makers due to the fact that European investors are not well informed about the firms coming from the NASDAQ¹³ (Reuters, 29 October, 1996).

Requirements for the EASDAQ

¹² -using a very similar trade system and requirements for listing on the market) There admission rules have been modelled on those of the NASDAQ and comply with the key SEC standards. For example the EASDAQ has the same demanding information disclosure standards as NASDAQ and SEC and is reported by a uniform standard for all firms of each country. This ensures that shareholders, and the market in general are kept fully informed about the companies

¹³ This statement is supported by the fact that Liquidity for the EASDAQ firms was good but for those firms with dual listing the liquidity was low (Hallmann head of the admission of EASDAQ, taken from Reuters, 4 June, 1996)

The listing of new firms on the EASDAQ has to be approved by the Belgium Commission of Banking and Finance (CBF) but the prospectus can be approved by the Competent Authority in Belgium or the company's home state.

The minimum requirement of the EASDAQ are: ECU 3.5 Mln of total assets, ECU 2 Mln. of capital and reserve and a freefloat of 20% with a lock-up period of 18 months. The firm do not need exist a minimum number of years like for example in the case of the NASDAQ and the most European new markets (EURO.NM). Once approved an OPI, or an other kind of introduction on the EASDAQ, the shares can be traded on the throughout the European Union due to the special trading system (See box 1).

BOX 1

Trade system of the EASDAQ

On-screen quotations are reflected on the network of EASDAQ trading terminals. Trading takes place by the telephone between brokers and market makers¹⁴ which offer their prices to buy -or Sell- and which are be distributed by screen. On the basis of that quoted prices authorised brokers can contact the market maker by phone and after an agreement both has to confirm it. Transactions are matched and confirmed using TRAX which is operated by the International Securities Market Association

The EASDAQ uses a quote driven system, common in the Anglo-Saxon Countries instead of an order driven set up. In the quote or price driven system there are always two prices, a bid and a ask price¹⁵. In the „classic“ order driven system, in which a seller's and buyer's orders are matched provided both are from the same price is the same as that from the offer price. Obviously a market maker will adjust the price in the direction of his order book (Reuters, 28 November, 1996)..

Advantages and dis-advantages of the EASDAQ

EASDAQ will list firms, regardless of their size and their, which are looking for an international share base and have international aspirations. The pan-European character of the EASDAQ is based on recent European Union directives which provides the regulatory structure which allows stock markets, brokers and companies to operate and raise capital throughout the European Union without having to seek separate regulatory approval in each members state. EASDAQ members and the intermediaries, are required to have the approval of their home states regulatory authority. They are able, then, to participate on the EASDAQ market throughout the European Union.

¹⁴ European and US market makers can display competitive prices over the network of the International Securities Market Association (ISMA).

¹⁵ While in the "order driven" system brokers are charging a commission for executing a trade, large orders are net of fees in a quote driven set-up and brokers earn their money on the spread, or difference, between the bid and the ask price.

For the investors the EASDAQ means the ability to invest and trade directly in the shares of foreign companies without the problems and the costs associated with cross-border share transactions on domestic markets. This is made possible by the EASDAQ's trading platform. The firm can choose in which currency the stocks will be traded and at this moment there are used three different currencies (Belgian Francs, French francs and the Dollar)

Despite NASDAQ's success it has not been entirely able to match the status of the NYSE. Several companies (About 40 a year at the end of the eighties beginning of the eighties) shift to the NYSE and no one has moved in the opposite direction (European Commission, 1994). A same problem we will see by the EASDAQ where firms are listed who wants to apply in the future for other traditional stock markets.

BOX 2.- Advantages of the EASDAQ

Advantages for the companies

- .- direct access to a wider range of capital providers than is available on national markets, making easier to fulfil the capital needs of companies
- .- EASDAQ provides dual trading facilities combination with the NASDAQ
- .- a higher profile throughout Europe
- .- a multinational market will be bigger and more liquid than national markets

The last two points means that the costs of capital raised will be cheaper, and secondary offerings will be easier to fulfil.

Advantages for the investors, whether institutional or private, include:

- .- easy, direct, on-screen access to foreign stocks
- .- a bigger market means greater liquidity
- .- more dynamic performance from shares
- .- a high level of regulations

The advantages of the intermediaries include:

- .- the new market will create new business opportunities
- .- economic entry costs
- .- low entry barriers for existing dealers

Taken from the EASDAQ folder which provide a description of these market

3.- FINANCING STRATEGIES OF BIOTECH ENTERPRISES

There is no much written material about the financing strategies of Dutch and Belgium biotech firms. Like already mentioned for New Technology Based Firms - including bio-tech- the fund raising is more a learning by doing it process than a clearly strategic plan of fund raising. Especially for business start ups the possibilities for financing are limited. Once a firm exists and some venture capitalists has given their confidence in the project others will be convinced more easily to join the project. Therefore it has to be clear that for most Biotech firms, the public financial market (stock market) are unattractive and access is very difficult. So they are depending on private placements, institutional investors or so called „Business Angels“.

Table 4 A case study of financial development of bio-tech firms

Gene Pharming Europe (Netherlands)		
(Capital raised by US parent for both UAS and Netherlands Operations)		
1988	Founded with ECU 530.000 from institutional Venture Partners and Genencor ECU 1,6 Mln research grant from Netherlands government ECU 5,4 Mln from US investors Eco 3,6 Mln from European investors	
1989	ECU 10,7 Mln from existing and new investors	
1990	ECU 4,6 Mln from investors	
1991	ECU 2 Mln equity investment from research partners	
1992	ECU 10,2 Million development loan from the Dutch government	
1995	ECU 10,2 Mln private placement	
Innogenetics (Belgium)		
Formed in 1985 by scientists and businessman		
Financing 1985-1995: Grants 15%; Contract revenues 20%; Product sales 43%; Equity 19%; Loans 3%		
Shareholder structure	1995	1996
Private	50%	35%
Institutionalise	47%	28%
Personal	3%	2%
Public	0%	35%
1985	ECU 5.3 Mln financed by GIMV (Investment Company of Flanders) founders and VC investors and business angels ECU 7,1 Mln from existing shareholders and Baring Ventures and other investors	
1988-1989	ECU 14,3 Mln Private placement	
1996	ECU 63.9 Mln by IPO on the EASDAQ	

Source: compiled from EY, 1994-1997; Overhead sheets about INNOGENETICS presented in Biotech 1997 Amsterdam)

Venture capital companies are evaluated as good partners for a business start up and young high-tech firms. Most Dutch entrepreneurs financed by the Venture Capital

firms were very positive about their experiences. Not only the financial support but especially the management support and strategic advice of venture capital companies are evaluated very positively (Lensink, 1997; Based on interviews with 140 Dutch firms).

Looking to the two case studies presented in table 4 it can be pointed out that during the first years of existence of the high tech firms there is an important role for private investors, venture capitalists and public support. Only after a few years of its founding and positive experiences (which not means profits) a firm -or the venture capital company- can study the possibilities of an IPO. The IPO is not always used as a way of increase of funds but also as an exit mechanism for venture capital or to improve the image of a firm by clients and suppliers.

1 4.- EXPERIENCES WITH AN IPO OF HIGH TECH COMPANIES 2 AT THE STOCK EXCHANGES.

In comparison with the new markets in Europe the NASDAQ still appears the favourite destination for firms, due to its well informed retail base and excellent analyst community. Although it can be noted that only a very few of the current European firms on the NASDAQ see meaningful trading volumes (EY, 1997, P.29). The NASDAQ is good for larger growth companies with a global presence. The absence of a good market in Europe -until now- for IPO's of smaller firms means that venture capitalists may be missing opportunities to back such firms. (Comments by Interviews, a Dutch venture capitalist, taken from European Commission, 1994, p.144). The Chief Executive Officer of the EASDAQ, mister Putzey, do not see the NASDAQ as a real competitor. For most European firms the costs in financial and human resources (Including a roadshow and expensive legal support) to get listed on the NASDAQ are very high (Putzey, Taken from „De Standaard“, 27 September, 1997).

London still dominates the European scene especially in the field of Biotechnology. More than 200 million ECU were raised in IPOs on the two London markets (5 firms are on the London Stock market while three companies joined the Alternative Investment Market (AIM) (EY, 1997, P.29) Although the UK is still leader Germany and France are waking up to take advantage of the existing opportunities (Rob Zegelaar, Partner, Atlas Venture, the Netherlands, Taken from EY, 1997).

At short term there will be a competition between the several new markets that were created in the last years. In the Belgium case for example both markets -by statements of EASDAQ's chief executive officer Jacques Putzeys and Mister Lefebvre Head of the Brussels Bourse Management Committee, are admitting some competitiveness but pointed out the complementarity. Putzeys stated that the „new Markets“ should attract the national orientated companies while the EASDAQ

should be interested for (Reuters, 7 may , 1996). Lefebvre admits that both are to some extent competitors. The concept of Euro NM combined the strength of interest in the home market with an international dimension „we should not have a simplistic view, there is no pan-European reality“ he said. Our approach is probably more consistent with the European reality, which is the scenario of multi-access. The Euro NM would cope with different accounting standards and other national differences while EASDAQ demands that the candidate companies adopt international accountings standards. (Reuters, 29 October, 1996).

The advantage of the EASDAQ as the only new market with a pan European position will be soon disappear. France's Nouveau Marché is planning to establish a pan-European network of national high growth markets under the EuroNM banner. The Frankfurt, Brussels and Amsterdam Bourses have all signalled their intention to follow the footsteps of the French one and linking themselves to a European network based on co-operation between the “new markets”¹⁶ (EY, 1997, P.28) Although the need of a good market in Europe for IPO's of smaller firms are pointed out several times, such a market doesn't has to be pan-European (Comments by Interviews, a Dutch venture capitalist, taken from European Commission, 1994, P.144). This statement was reflected by the case of NEUROSEARCH. Before entering in the stock market they studied the Options of the NASDAQ, London Stock exchange and Copenhagen (The EASDAQ was not in operation at that time). They choose for Copenhagen because they thought that international investors believe it is important to demonstrate strong support from investors of the home country. There would be little benefit, due of the costs of a dual listing, to implicate also other markets in the IPO (Hendrik Moltke, Neurosearch, Denmark, Taken from EY, 1997, P.42).

Pharming B.V. is one of the few Dutch Biotech firms that is studying the possibility for an IPO. Although they are not in a hurry as having sufficient capital. The firm, which value is about FL 160 Million, has a broad number of patents in the USA, Europe and other parts of the world. Their market position will be analysed by English and American market makers. This does not mean that Pharming B.V. will introduce it self in the NASDAQ or AIM. This choice is still not made. Other possibilities are the EASDAQ or an dual listing NMAX/NASDAQ or NMAX/AIM The co existence with direct competitors on the same stock market is no problem. Investors like to distribute their risks, also by more firms in the same field (Hersbach Pharming B.V. (NL))¹⁷.

¹⁶ The firms will be listed on their home markets and will be regulated by their domestic authorities and all trades will be done in their own currencies.

¹⁷ Compiled on information of Reuters (30 April, 1997) and from the Internet, website: [HTTP: //www.quotemedia.nl/profiel/vragenhersbach.shtml](http://www.quotemedia.nl/profiel/vragenhersbach.shtml) (05-31-97)

QIAGEN (NL) went on the market by an IPO on the NASDAQ¹⁸ because the Neuer Markt or EASDAQ did not exist on that time and 60% of the companies' revenues and 30% of the employees are based in the US. While European biotech investors are accustomed to trading on the NASDAQ, US investors, who account for 75% of the biotech funding, are still not as active in European Markets. „The disadvantage that you are one of the 300 biotech firms on the NASDAQ is more than compensated for by the benefits of accessing a large community of bankers, analysts and investors highly specialised in Biotech. *“If it is possible you should follow the investors and not to ask to follow you.”* (Schatz, QIAGEN NV, Taken from EY, 1997, P.43). European investors are accustomed to trading on the NASDAQ but US investors are not active in the European markets. This QIAGEN case confirms the idea that the NASDAQ is being used to enter in the American market. „No foreign company lists on the NASDAQ unless it has, or plans to have substantial exposure to US product markets, So there must be a need for a Pan-European market (Comments by Interviews of an American Investment Banker, Taken from European Commission, 1994, p.144).

INNOGENETICS NV (Belgium) decided to introduce themselves on the EASDAQ due to their pan European profile. The Brussels Stock Market and the EuroNM (Belgium) are perceived as locally orientated and, therefore, do not provide the visibility and liquidity needed for growth companies and have less „placing“ capacity compared to the EASDAQ. Also the UK-based stock markets -LSE and AIM- do not offer the pan European profile which only is obtainable through the EASDAQ (Heuverswyn, INNOGENETICS, Belgium; Taken from EY, 1997, P.43)). The EASDAQ could be a Marketplace for those firms who want to start their globalisation on a European level. For INNOGENETICS an European stock market was preferable due to the favourable investment climate in Europe and the fact that nearly three quarters of their business is in Europe. In the NASDAQ it should be impossible to position ourselves within the 300 hundred biotech firms as a profitable diagnostic firm. The similarities between the NASDAQ and EASDAQ made it possible to use the EASDAQ as a good platform for a possible future US flotation (Heuverswyn, INNOGENETICS, Belgium; Taken from EY, 1997, P.43)

Another choice what can be made is a DUAL LISTING on one of the global orientated stock markets (EASDAQ/NASDAQ) and the local market. Two firms that used such concept are EXONVA (UK) and GENSET (Fr.) The XENOVA group (UK) started with listing only on the NASDAQ but two and a half years later they chose for an introduction on a second market the London Stock Exchange. The reasons were, on one side, to be on the local marketplace to give European investors the possibility to step in and, on the other side, because the number of UK analysts that are following the market had reached a critical mass (Nisbet,

¹⁸ Just before making that decision the German company integrated the firm into a Dutch holding Company to facilitate stock option plans and enable employee equity ownership.

XENOVA group, UK, 1997, P.43). For the financial responsables of GENSET in France the NASDAQ was an obvious choice because it is the most active global market for Biotech equities and the major level of gnomonic competition is in the US. There is also a strong experience among US biotech analysts about the evaluation of Gnomics and good research coverage is essential for Public Companies. There they believed that a presence at the home market would be positive, and the creation of the Nouveau Marché gave the opportunity to make a dual listing. The disadvantage of such dual listing was the nearly double costs of the operation to meet independently two sets of securities regulations and financial report requirements (Brandys, Genset SA, France, Taken from EY, 1997, P.42).

On one side, it can be concluded that there will be some competition between several stock markets but, on the other side, can each stock market be a clear option. It always depends on the location of the firm and its markets European firms interested in the American market will try to enter on the NASDAQ. Europeans with a clear European image will go to the EASDAQ. Firms with such an European or international profile can decide to obtain a second listing on their home country in addition of a listing on the EASDAQ/NASDAQ. While the smaller firms will take the option to introduce themselves in the stock markets of their home country.

5.- STOCK EXCHANGES IN AMSTERDAM, BRUSSELS AND THE NEEDS OF SMALL AND MEDIUM SIZED ENTERPRISES

Looking to the few experiences of firms entering in the European new markets (Including EASDAQ) it can be stated that the most of them are firms existed several years with good business results. Not al IPO's where aimed at obtaining more business capital, and a large number of IPO's where based on image and marketing or were exit mechanism for venture capital companies.

Like already mentioned the possibilities offered by the European stock markets for start-up high tech companies relatively poor. Also for small companies it will be difficult to enter in the stock markets. The costs of an introduction -especially for small and medium sized firms- are high.

A firm need a critical mass and has to convince a broad number of investors of their future possibilities for making profits. Which will be difficult due to the lack of financial analyst. Hersbach of Pharming B.V. stated that there is a lack of market analysts specialised in Biotechnology while in England (With 20 Biotech firms on the AIM) or the US with more than 300 biotech firms on the NASDAQ¹⁹) there is a

¹⁹ The market for venture capital of the USA has always been larger than in the European countries. The US is praised for its accumulation of experience in the analysis of these markets and their firms.)

lot of knowledge about the financial risks and opportunities of this sector. Pharming has contracted these analysts to study the placement position of the company (The President and Chef Executive Officer of this firm G. Hersbach internet, 1997)

This do not mean that there is no important role for the European „new Markets“. They are important to support the establishment of a European biotechnology sector. The stock market as a good exit mechanism for VC and the appearance of successful biotech firms on this markets can lead to an improvement of this sector within Europe and raise on an indirect way the venture capital focussed on this sector.

An IPO is one of the exit possibilities for venture capitalists to leave a company and important threshold for investments in the Bio technology sector was the perceived lack of exit mechanisms (EY, 1994, P.11). So the new markets provides the Venture Capitalists new exit ways²⁰ and in that way VC invested in existing firms will come available for new start-ups. The Netherlands have more than 50 Biotechfirms taking the fifth place after the UK (200) Germany and France (Each one with about 100) and Sweden (70) and just before Belgium with about 35 firms (EY, 1997, P.17) Mister Alleman, chairman of The Dutch Society of Participation Trust/funds²¹ said that 10 till 20 of the firms, financed with venture capital of one of the participation funds, are willing to go to the NMAX (Telegraaf 30 May 1997) Estimation about the possibilities for IPO's of Biotech firms were not given.

Also for the European economy in general the new markets play an important role. There only the best firms with proved growth potential have access to the stock markets there is a clear need of such markets in Europe to keep these firms in property of European investors.

About the discussion on specialisation and survival of the „new markets“ in several European countries (EURO.NM) in competition with the NASDAQ, EASDAQ and AIM can be argued that there where the EuroNM is aimed on local money for national firms whereas the NASDAQ/EASDAQ are more orientated to international orientated firms.

Looking to the regional distribution of the investments than it can be pointed out that almost 90% (86% of the Amount) of the investments made by European Venture Capitalists were in their own country, 6% (11% of the amount) were in other European countries and only 4% (2.15% of the amount) was invested outside Europe (EVCA, 1995, P.52). Belgium and the Netherlands has a same profile. For Belgium these percentages were respectively 93%, 5%, and 2% and the Dutch VC

²⁰ Here has to be take in account the problems of IPOs as exit mechanism mentioned before

²¹ Nederlandse Vereniging van Participatiemaatschappijen

market showed percentages of 92%, 4% and 4%. For the Netherlands has to be mention that by these investments are excluded the investments which are made by subsidiaries set-up abroad and that Dutch venture capitalists are particularly active in setting up such cross-border subsidiaries (EVCA, 1993, P.122).

So most of the investors wants to finance national firms which means that they are probably more interested in EURO.NM markets than in ESADAQ or NASDAQ.

	NMAX (NL)	New Market (B)	EASDAQ (B)	
Requirements				
Track Record/Company age	3 years	2 years **	no	
Profitability	no	No	no	
Minimum number of share holders			100	
Minimum number of Shares		100.000	100.000	
Minimum of free float				
Of shares	20%		20%	
Of capital		100 Mln. BEF or 25% I		
Total assets			3,5 Mln. ECU ***	
capital and reserves	NLG 2 Mln. ²²	60Mln. BEF Equity	ECU 2 Mln. ***	
Free float	NLG 2 Mln.		20%	
Lock up period	Till 1-3 years of profits		18 Months	
Market makers	3 years		Continuously two market makers	
Sponsoring	3 years		During the IPO	
Market Capitalisation			50 Mln. US \$	

* Resources EY, 1997, P.32

** Firms with less than two years of track record only can do a IPO to increase their capital

*** After introduction to the market ECU 2 million in assets and ECU 1 million in capital and reserves must be maintained

²² Net Equity or „Eigen Vermogen

EASDAQ	Nationality	Dual trading	Market	Date of IPO	
ACTIVECARD S.A.	French		Computer security	20-12-96	
ARTWORK SYSTEMS Group N.V.	Belgium		Computer software	11-12-96	
CHEMUNEX S.A..	French		BIOTECH (Micro biology testing systems)	25-03-97	
DR. SOLOMON'S Group, plc.	England/Wales	NASDAQ	Computer software	27-11-96	
ESPRIT TELECOM Group, plc.	England/Wales	NASDAQ	Telecom	28-02-97	
INNOGENETICS N.V.	Belgium		BIOTECH	28-11-96	
LERNOUT & HAUSPIE SPEECH PRODUCTS N.V.	Belgium	NASDAQ			
MERCER INTERNATIONAL; Inc.	Switzerland	NASDAQ	Pulp and paper	17-01-97	
NTL, Incl.					
PIXTECH, Inc.	USA	NASDAQ	Flat Panel Display Tech.	04-02-97	
SCHOELLER BLACKMANN AG	Austria				

NMAX	Nationality	Listing in Other markets	Market
PolyDoc	Dutch	AIM	Computer Services
Antonov	French/English	AIM	Versnellingsbak
Prolion			
<i>Computer Software Solutions</i>	<i>Dutch</i>	<i>Prepares a NMAX IPO</i>	<i>Computer Software</i>
<i>ICT</i>	<i>Dutch</i>	<i>Prepares a NMAX-IPO</i>	<i>Software/ automatisation</i>

Brussels Stock Exchange (www.stockexchange.be)

Davidson, S. (1997) Why venture capital will fund industrial biotechnologies soon. In *Nature Biotechnology*: Supplement June 1997

EASDAQ (1997) Admission to the EASDAQ
EASDAQ, Brussels

EASDAQ (1997) Key Market Statistics and listed companies profiles (WWW.EASDAQ.be)

EASDAQ (1997) Several information folders of the EASDAQ where used

EASDAQ (1997): Description of the EASDAQ, EASDAQ, Brussels

Ernst and Young (1997) European Biotech 94, A new industry emerge. Ernst & Young Brussels

Ernst and Young (1997) European Biotech 95, Gathering momentum. Ernst & Young Brussels

Ernst and Young (1997) European Biotech 96, Volatility and Value. Ernst & Young Brussels

Ernst and Young (1997) European Biotech 97, A new economy. Ernst & Young Brussels

European Commission (1994). European second-tier markets for NTBFs. Sprint study, Brussels-Luxembourg

EVCA (1997) Europe private equity (Special Paper). Better Exits. Zaventum, Belgium

EVCA (1997) Europe private equity (Special Paper). European Success Stories. Zaventum, Belgium

EVCA 1991-1996, Venture Capital in Europe. EVCA yearbooks. Zaventum, Belgium

Government of Flanders (1997) Biotechnology in Flanders. Flanders, Europe's best business location. Flanders Foreign Investment Office

Government of Flanders (1997) Flanders, Europe's best business location. Flanders Foreign Investment Office

Hardman E. (1997) A loan and biotechnology. In *Nature Biotechnology*. Supplement June 1997

Koschatzky, K. (Ed) (1997) Technology Based Firms in the innovation process Management, Financing and Regional Networks. Physica-Verlag, Karlsruhe

Kulicke, M. (1997) The Financing of New Technology based Firms. In; Koschatsky (Ed) 1997

Kulicke, M. (1997). Charakteristika und Problemlagen von jungen und kleinen Biotechnologie-unternehmen.

Ministry of Economic Affairs (Netherlands) (1997) Biotechnology in the Netherlands: Ready for the Market. The Hague.

NIABA (1997) Biotechnology News. June (1997) NIABA Leidsdam

NMAX (1997). Platform for the new performers. AEX Amsterdam