Biotechnology Firms in Sweden

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ABSTRACT. The purpose of this study is to create an understanding of the strategies that biotechnology firms in Sweden implement, how they manage to keep their competence ahead and how they finance their research. Their main factor of success is the ability to rapidly identify the latest research findings from academia and turn them into commerciable technology. The collaboration with academia is thus an important part of the networking strategy of the biotechnology firms in Sweden. Outsourcing parts of their activities keeps the firms flexible, which is necessary in this high risk business.

Whether a firm chooses an intermediary or integrating position is not found to be correlated to age or size. It is instead heavily influenced by the strategies of large pharmaceutical companies, the nature of the firms' core technology, expectations of investors and the overall access of capital. The private capital market in Sweden has undergone a change during the last years. New marketplaces for young, innovative firms have been created in Sweden and their existence is most likely one reason for the increasing presence of venture capitalists in the country. That, in turn, increases the opportunities for new firms within biotechnology to develop in Sweden.

Introduction

The industry dynamics and technological trends in biotechnology are globally defined, but a nation's institutional rules, traditions and policies highly influence the behaviour of biotechnology firms (Cockburn et al., 1999). The prospects of starting and developing a biotechnology firm are thus dependent on the access to science of high quality and capital in a nation, as well as regulations and culture.The main purpose of this study is to create an understanding of the strategies that biotechnology firms in Sweden implement, how they manage to keep their competence ahead and how they finance their research.

Biotechnology firms are characterized by their strong connection to academia. There is a positive relation between a firm's success and the publication volume of scientists in academia that are linked to the firm through equity or founding (Zucker and Darby, 1997). The star scientists are considered to be the key to where and when a firm commercializes biomedical discoveries. Swann et al. (1998) showed that academics who start new firms in the U.S. establish them close to their academic base. Individuals exiting from a large company to start a new firm establish their business in existing clusters where the new industry is forming, rather than close to the large company. For companies that rely heavily on innovation in research areas it is more important to be near science bases than close to established companies. Powell (1996, 1998) points to the fact that organisations interact more in areas with high factors of insecurity, such as biotechnology, in order to get access to both knowledge and other resources: "Rather than using external relations as a temporary mechanism to compensate for capabilities a firm has not yet mastered, firms use collaborations to expand all their competencies". His studies show that the firms that are best at capturing and developing new discoveries in biotechnology are the ones with large external networks and a strong internal capacity to evaluate the research performed by other actors. These firms are more likely to stay in the front line of research and have a positive development. The key is thus to have a central network position which also makes it possible to attract new partners, for example pharmacautical companies.

Senker and Sharp (1997) searched for an answer to why large pharmaceutical companies

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with strong internal research were linking up with small firms. They found that both parties have a need to access each other's complementary assets in every case. The large companies' financial resources in return for the small firms' technology is an important base for collaborations. It is complemented by a need for the large companies to create internal expertise in order to absorb the technology and the tacit knowledge that comes with it. This creates a better understanding of the possibilities given by the small firms' technology and becomes an important resource in the future development of the large companies. The study concludes that the learning phase is over for large pharmaceutical firms, implying that by now they have the internal capacity to absorb new knowledge from dedicated biotechnology firms, and the ones who do not absorb such knowledge are at a great disadvantage. Also, it is seen as unlikely that the large pharmaceutical companies' reliance on collaborations with dedicated biotechnology firms proves to be a short-term phenomenon. From the small firms' point of view, the collaboration with large pharmaceutical firms is mainly built on the need for direct financial resources. It is, however, also a means of giving the small firms credibility to raise further finance and to develop further collaborations (Swann et al., 1998).

Considering the nature of the biotechnology firms with their dependence on research, it is evident that they run a business which needs large financial resources. The risks involved with research, however, make it hard to attract external financial resources, such as loans or equity, especially for small firms. Many firms start up with internal resources, such as investments made by the founders. It is, however, not very likely that the internal resources will suffice in the long run and, sooner or later, the firm has to choose a strategy for securing the financial resources necessary for the survival and development of the firm.

In order to get to the stage where it is possible to attract the interest of large pharmaceutical firms, if that is the strategy of the firm, it may be necessary to acquire external financial resources on the way and also as a complement. Bank loans are often considered a very expensive way of financing research and it may still be hard to find bankers that are willing to give loans to research projects because of the high risks involved and the difficulties of evaluating biotechnology research. Biotechnology firms cannot be evaluated in traditional ways and, as pointed out by Audretsch (2001) in his contribution, investors therefore have to focus on the value of the network of researchers involved in a firm. Firms with high levels of research and development are more inclined to be financed by equity than mature diversified companies that can use their assets to secure loans (Oakey et al., 1997).[1] The development of the industry is thus dependent on the availability of venture capital. Prevezer concludes in her contribution that the open market for public offerings in the U.S. has been and still is an important incentive to start up and invest in biotechnology firms in the first place, as it gives founders and venture capitalists the ability to get a return on their involvement in firms. Gompers and Lerner (1999) also point out that in order to establish a long-run supply of venture capital a nation must have liquid markets where the venture capitalists can sell their investments. They add that there must also be a fundamental technological innovation in the economy along with highly skilled managers and engineers willing to work in entrepreneurial environments.

2. Research question and design

The number of dedicated biotechnology firms in Sweden is about 130. Half of these are within the areas of drug development, diagnostics and functional food.[2] The core of this study is based on case studies of five biotechnology firms within these areas. The analysis is thus limited to a microlevel and together, the case studies create a base for a cross-case analysis. The work is exploratory and relies on analytical generalization to create a picture of the business models of Swedish biotechnology firms. The research question was to obtain new insights into how firms are established, positioned, financed and how they build and keep the competence within the Swedish biotechnology context.

The cases were chosen after the key questions had been identified and discussed with persons related to the biotechnology system in Sweden. The firms differ from each other regarding the number of employees (although they are all small),

age, the range of activities, whether they are independent (not 100 percent owned by another company) and whether they are on the stock market or not. The variables are chosen in order to reflect possible connections between age, size, activities and access to financial resources.

When studying positioning the question is which factors govern the choice of a certain strategy. The variables of age, number of employees and range of activities were used in the search for connections between these and business strategies. In order to find an answer to the question how the firm finances its activities, the variable of being independent or part of another company was used, as well as the variable of being on the stock market or not. This way it is hoped that reasons for different strategies employed by biotechnology firms can be identified, compared and discussed. The chosen firms are presented in the table below.

Out of the five firms initially chosen, three firms agreed to participate in the study. Two new companies, with a similar profile to the two that decided not to participate, were contacted and both agreed to cooperate.

I have concentrated on the research questions and studied them in relation to the variables chosen when selecting the firms for the case studies. If other variables and other firms had been selected, it is possible that other findings would have been made. These would not necessarily contradict the ones I have made in this study, but they may have made more connections clear. I do not in any way claim to deliver a complete description of the system of biotechnology in Sweden. The study provides a picture of the situation some biotechnology firms in Sweden found themselves in 1998.

3. Case studies of Swedish biotechnology firms

The firms chosen for this study are all rather small in terms of number of employees; 13–70. The second largest firm engages in research, production and marketing, much like one of the smallest firms. Between 14 and 17 percent of the personnel at the two firms work full-time with research and development. These two firms are active in the area of diagnostics and quite *market driven*[3] by now. The larger firm owns half of a facility in Germany which handles production, whereas the smaller firm outsources large parts of its production. Both firms mainly use external distributors in order to reach the final users.

The other three firms do not aim at being fully integrated firms. They work with basic research and take a project as far as is appropriate and then find a company interested in cooperating in the further development of the project or, if the project has come to a later phase, in buying the license. How far they take a project on their own is a question of how broad the project is and what human and financial resources are available. Even though all three firms are intermediaries, they are at different stages of establishing that position.

The largest of the three has been able to reach three agreements of collaboration with large pharmaceutical companies, whereas the smallest does not have any agreements so far, but is in discussions with potential partners regarding

TABLE I
The variables chosen for the study and the firms on which the case studies are built, situation in 1998

Variables	Karo Bio	Sangtec Medical AB[b]	Oxigene	IDL	BioGaia Biologics AB
Number of employees	70	65	13	14	17 (47 incl daughter co)
Year of establishment	1987	1972	1988	1988	1990
Activities[a]	R	RPM	R	RPM	R
Independent	X			X	X
On the stock market	X		X	X	X

[a] Sangtec Medical was aquired by ALTANA Group of companies, one of the largest industry groups in Germany, in 1999.
[b] R = Research; P = Production; M = Marketing and sales.
Source: Anna Nilsson, CMI, Karolinska Institutet.

licensing of technology. These two firms are *technology driven*[4] and between 76 and 90 percent of their staff work full-time with research and development. The last firm is market-driven and about 41 percent of the personnel work with research and development full-time. Since this firm's technology can be applied in many areas, several agreements of licencing have been reached with partners found in various industries. The firm has no plans on engaging in production or marketing of the products, since this is better done by the partners that are already established on the market.

The firm last mentioned has a daughter company in the area of fermentation: offering contract production of biotechnical substances. One of the other market-driven firms is also starting to take on a role as sub-contractor on the research and development side for other companies. This highlights the fact that the role of a firm can be of various kinds and change as time goes by.

A look at the future plans of the firms studied indicate that the positions they have chosen will be reinforced, making the new business model of biotechnology firms even more apparent. All firms, apart from the one presently focusing on market development, are planning to expand their research activities. Agreements with large companies come in as key factors in the expansion, but in different ways. The more integrated firm is looking to reach an agreement with a larger company in order to gain access to a technology needed for the future research in a prioritized area. The market-driven intermediary firm, aims at finding new buyers of licenses for the new technologies the firm is expecting to develop. One of the two technology-driven intermediary firms, expects to reach agreements with large companies interested in buying licenses of the firms technology. The other technology-driven intermediary firm aims at reaching more agreements of cooperation with large companies. This firm also plans to bring some of the projects further on their own and then sell technology licenses, a process that is more costly, but also may give a larger profit in the end.

4. Founding the firms

The two most research-intensive firms in the case studies performed for this study were founded by researchers in academia. In both cases the entrepreneurs were American researchers that had already founded firms in the U.S. Their work with researchers in Swedish academia motivated them to found firms in Sweden as well, in one case together with a prominent Swedish researcher. These firms are strongly connected to, and located close to, the academic research groups in Sweden where the founders still are active researchers.

Two other firms in the case studies were built on discoveries bought from researchers in academia. In one case, the firm has located a group of researchers in the U.S., close to one of the "fathers" of the discovery and his academic research group. The other "father" of the discovery is active in Swedish academia and the firm is closely connected with him and his research group as well, although not located in the same city. In the other case, the discovery was bought by an already existing company with no prior engagement in the health care area. The company created a daughter firm where the project was run and further developed, without connections with the "father" of the discovery or his research group. This firm is located in Stockholm because it is beneficial for it to be close to the institutes from where it recruits most of their personnel and gets several product ideas.

The fifth firm in the case studies is a spin-off from the last firm mentioned. The founders wanted to focus and go deeper into a specific area and thus created a firm in order to realize their plans. This firm is located in Stockholm, which has many advantages but, being a more market-driven firm at present, there is no need for the firm to be located directly at a university or institute.

5. Maintaining the competence in the front line

Working with academic research groups is the main way of renewing the competence for all the firms studied and the managements encourage the employees to expand the informal links with academia. One effective way of establishing contacts is by attending conferences.

All the firms' formal collaborations are, with

one exception, bilateral. The studied firms have agreements with research groups abroad, as well as in Sweden. The collaborations stretch from getting an option to licence a technology by sponsoring a research group, to planning and performing basic research in close collaboration with a research group. One firm is involved in a project financed through the EU framework programs for research and development and another firm has thought about applying, but finds these programs too bureaucratic.

The intermediary firms' studied are all contacted by researchers from time to time, wanting to use the firms technology in their research. This is often beneficial for both parts and the firms are expanding their formal links with researchers in academia along with the expansion of the firms' activities. One of the more integrated firms studied has started to take on an intermediary role as well. This firm is expanding its formal links to academia, as opposed to the integrated firm presently focusing on market development.

The intermediary firms all have their research staff located in the direct surroundings of universities or institutes. It is important for them to have close and informal relations with the researchers in academia and to be able to follow the processes of different projects.

6. Financing

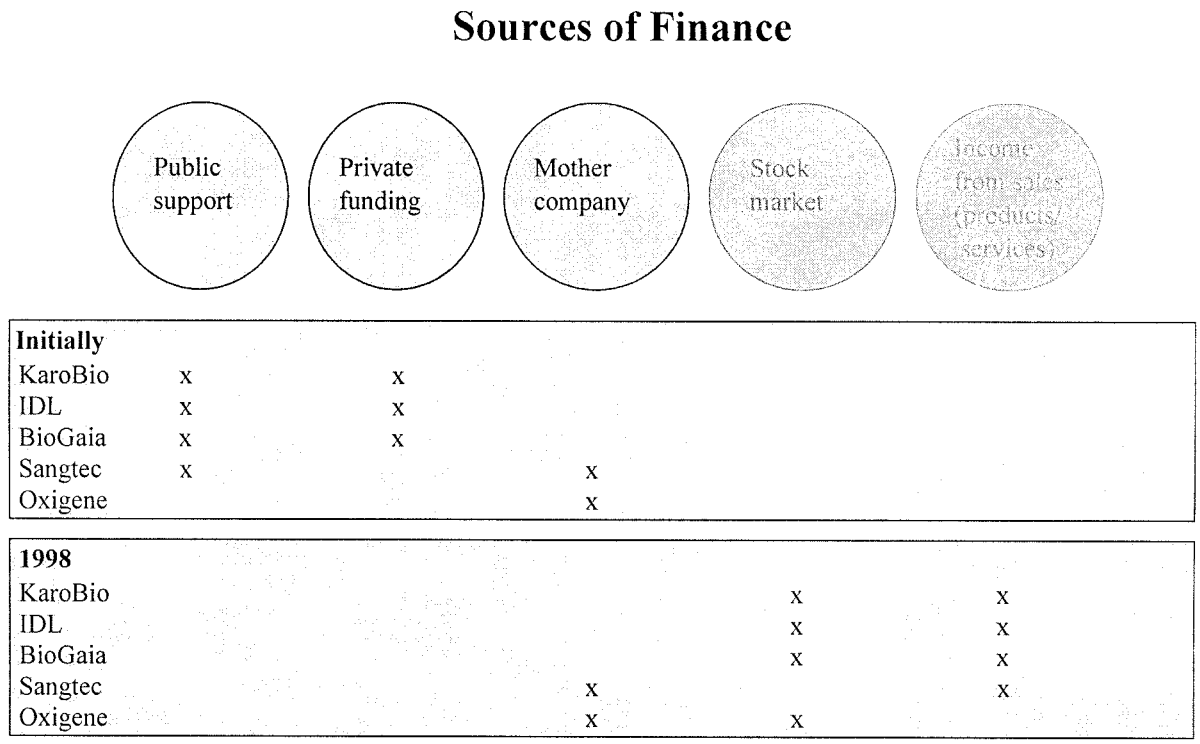
The firms in the case studies were mainly financed by private capital as start-ups. Two of the firms had mother companies (one Swedish and one American) that provided the financial base needed. One of the other firms received financial support from a Norwegian company that entered as the majority owner of the firm initially. Another firm financed the first years with private capital from the founders themselves. The last firm received capital both from a conglomerate of Swedish investors such as the 4th AP-fund, the Investment bank and SPP (a Pension and Insurance Company) and from an American company owned by one of the founders. All firms, apart from the one with an American mother company, received public support at some stage from the Swedish National Board for Industrial and Technical Development (NUTEK). Two of the firms also received financial support from the Industrial Fund and one of these firms also had support from ALMI.[5]

Today, one of the firms finances its R&D by profits from sales. As a complement, the firm has a mother company providing access to financial support. The remaining four firms studied have entered the stock market, but not one of the firms solely rely on this capital. There are different ways of accessing complementary capital. One of the firms has an economic base through its mother company and another firm through profits from sales. The two other firms, acting as intermediaries, cover parts of their expenses with capital gained from agreements of cooperation with, or the sales of licenses to large companies. Having reached agreements with important actors validates their role and importance as intermediaries. Apart from having made scientific breakthroughs, the agreements were prerequisites for the firms' decision to go public. These two firms aim at covering an increasing share of their expenses with the income from agreements of cooperation. The firm with a mother company is also positioning itself as an intermediary, but went public without having reached any agreements with large companies. The stock of this firm has been subject to much speculation and, in retrospect, some in the management think it might have been wiser to postpone going public until agreements had been reached.

The firms gave the following reasons to why they decided to go public, presented in no specific order:

- to get a market value of the firm;
- to give the initial investors a possibility to exit;
- to have the possibility to access capital further on;
- to create a positive pressure on the employees to live up to expectations;
- to give the firm visibility;
- to attract human resources and new contacts.

One of the problems mentioned regarding being on the stock market as a biotechnology firm is that the investors have much too short-sighted interests, giving rise to fluctuations in the stock value. Even though there may be an understanding for the long-term process needed in biotechnology activities, there is not much patience. Another problem mentioned, is that it has become almost



Source: Anna Nilsson, CMI, Karolinska Institutet.

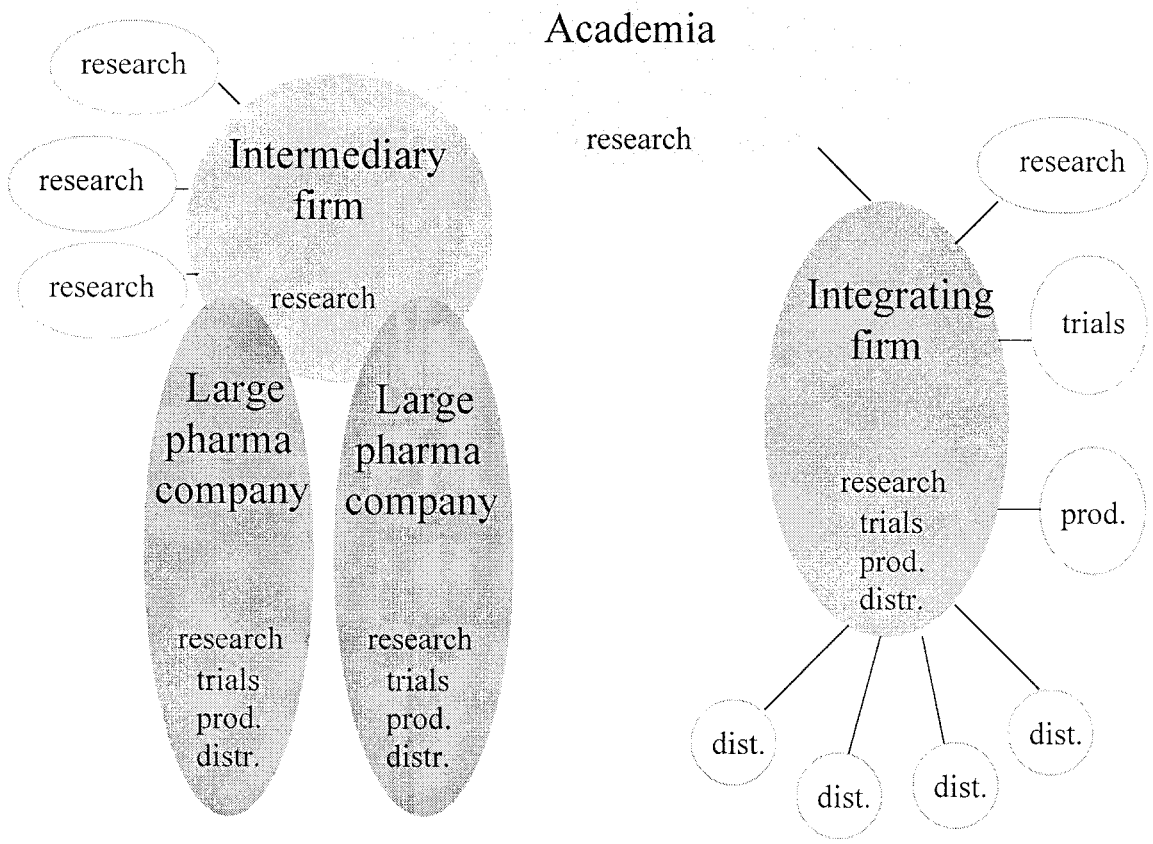
Figure 1. Initial and present sources of finance for biotechnology firms.

too easy for biotechnology firms to enter the stock market. It used to be difficult, but as the interest for biotechnology has increased, so have the possibilities to attract capital for the firms active in the area. This is a positive aspect, but can also be a problem as biotechnology firms without capacity to live up to expectations, can give cause to disappointment on the stock market. This disappointment easily spills over to other biotechnology firms, however well performing they may be.

7. Discussion

When studying the biotechnology firms, the variable of how long a firm had been in business did not provide a satisfactory correlation to the choice of a certain strategy. The oldest of the firms, established in 1972, is the most integrated. Now, that would seem to go along with the traditional way of looking at the development of firms, where the firms take control of an increasing part of the "value chain" as they expand. But, looking at the remaining four firms, established between 1987 and 1990, this way of thinking does not hold. They could be expected to be at similar "stages of development", but they are not. One of these firms is involved in both research, development, production and marketing, whereas the other three concentrate on research and development.

Moreover the result of the study indicates, that the business model of biotechnology firms makes it impossible to judge the role of an actor within the biotechnology system by only looking at a variable like the number of employees. The less research-intensive firms, in this study referred to as integrating firms, seem to handle most of the research activities in-house and sometimes use external actors when it comes to production and even more frequently in marketing and distribution. The research-intensive firms outsource some of the research and sell, or aspire to sell, licenses



Source: Anna Nilsson, CMI, Karolinska Institutet.

Figure 2. The positioning of intermediary and integrating firms.

of their technology to large companies that will take the project through further phases of development, production and marketing. Taking an intermediary role, these firms become important actors for large companies searching for new discoveries. The intermediary firms are not so much valued by their potential partners by their size as by the quality of their research. Firms that are more integrated, but still perform research, may also play an intermediary role, partnering with other firms in certain projects.

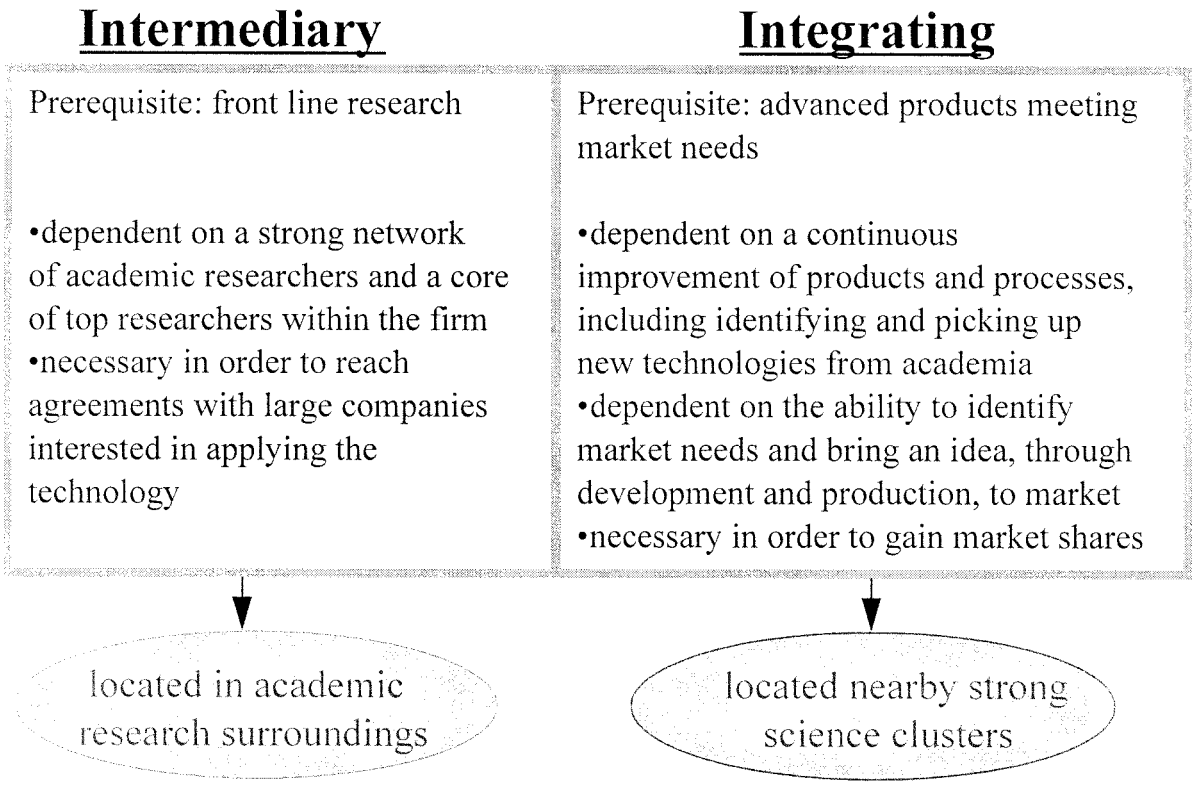
Whether a firm chooses an integrating position is heavily influenced by the strategies of large pharmaceutical companies, expectations of investors and the overall access to capital. Another factor, not chosen as a variable initially, that may influence the strategy of the firm is how broadly their technologies can be applied. The biotechnology firms bringing forth substances for drugs rarely have the possibility to compete with the large pharmaceutical companies, due to high development-, production-, marketing- and distribution costs. These biotechnology firms work with research that can be applied widely and may therefore attract the interest of several external actors. They can choose to play an intermediary role and cooperate with the large companies, bringing in financial resources for further research. If a firm's technology is more narrow and specified, the process through the different phases may be clearer and not as costly. There are not likely to be as many potential external partners available and the need for them at early stages, for financial reasons, may not occur.

No matter the positioning, the main factor of success for all the firms in the case studies is: the

ability to rapidly identify the latest research findings from academia and turn them over to commerciable technology. This includes holding a front line position within the research field, having patents that protect your work and a network of top researchers. The firms in the case studies are all connected to science bases, but to different degrees. The firms studied work through extensive networks and have formal links with academic research groups in various countries, even though the firms themselves do not have employees there. As the firms expand their areas of research, their networks with external actors grow.

My findings are therefore in accordance with the authors referred to earlier, highlighting the benefits for biotechnology firms to establish links with researchers in academia. Not only have the discoveries firms build on often sprung from academia, but the links also play an important part as a base for the continuance of the firms' research and development. The intermediary firms are more dependent on being located in the immediate surroundings of academia than the integrated firms that are engaged in more activities than research.

One aim of this study was to describe the ways in which biotechnology firms finance their research. After looking at the firms' different approaches, analyses in search for factors that may govern the approaches were performed. Taking the initial variables into consideration when selecting firms for the case studies, it has not been possible to detect a clear pattern of behavior. The reason may well be that the group studied is too small. The one thing worth noting is that the only firm not on the stock market is the largest and most integrated firm of the five. The finding goes well in hand with Boards discovery of research-intensive firms being more frequent on the stock market than mature, diversified companies.



Source: Anna Nilsson, CMI, Karolinska Institutet.

Figure 3. Characteristics of intermediary and integrating biotechnology firms.

Access to capital is closely integrated with a firm's strategy. For the intermediary firms it may be a question of being able to pursue a research project further and then licensing out the technology. This way they can earn a larger profit than if an agreement is established at an earlier stage. For the integrated firms the access to capital may influence everything from engaging in more research in order to improve products, to creating sales organizations in order to replace some distributors on important markets.

All the firms studied have at least two major financial sources. Even if a firm is owned by a mother company, financial resources need to be found in other ways as well. For an integrated firm, they can be found in the profit from sales. For an intermediary firm, the stock market may be a solution. All the intermediary firms in the case studies, as well as the integrated firm not owned by another company, use the stock market as a complementary source of capital. One important reason for entering the stock market is to give the initial investors an exit. The firms owned by other companies do not have this requirement and may, if they have another source of finance, not find it necessary to enter the stock market.

8. The biotechnology context in Sweden, beyond the cases

Focusing on the establishment of biotechnology firms, the cases studied all build, directly or indirectly, on discoveries from Swedish academic research. The firms were, however, mainly created by industrialists who purchased the discovery from the inventor, by industrialists who spun off an idea from an existing company or by initiative from American researchers/entrepreneurs.[6] Even though the sample is small and the result can not be generalized it still raises the question of why it does not seem to have been as common for researchers in Swedish academia to create their own firms as it is in, for example, the U.S.A.

Part of the answer lies in the fact that a researcher in academia faired pretty well economically, up and through the 70s. During the 80s the wages in the private sector increased at a pace that the universities could not follow. As a reaction to this, some researchers left academia and started their own firms. This was, however, not "comme-il-faut" and the researchers' actions were often questioned by former colleagues. In the 90s the attitude towards entrepreneurs became more open but, altough some left academia, most researchers stayed because they were already set on an academic carreer. An important factor is likely to be the lack of raw models that could show the (economic) benefits of creating a firm. In the late 90s Swedish politics have been very focused on entrepreneurism, which in turn has resulted in new initiatives at many universities in order to promote start-ups. The interest to start a firm within the area of biotechnology has also been positively affected by the upswing that the industry has had on the capital market. Moreover, the advances related to the mapping of the human genome have created business opportunities for many researchers. As business plan competitions and other arrangements make it possible for researchers to try their ideas and meet with potential investors, whose interest has been key to the last years' positive development, the potential for making use of the research in Swedish academia is increasing.

Biotechnology firms are generally based on a strong technology, protected by patents and increasing the patent portfolios is part of their research efforts. Swedish academic research within biotechnology holds a front position which firms profit from when building and maintaining their competence. Collaboration is vital to the success of biotechnology firms and the Swedish government has increased the responsibility of the universities to interact with society at large. In 1977 a new law proclaimed that the universities were responsible for spreading knowledge about their research. In 1996 the law was changed to include interaction with society. In 1997 and 1998 the universities were further encouraged to increase interaction with, for example, industry and public organizations. Technology transfer (TT) offices were and are still being set up, but since it is still a relatively new phenomena, there is a struggle to make the transfer an efficient mechanism. It also needs to be added that in Sweden researchers own their inventions and may not choose to use the service of a university TT-office.

When it comes to the area of biomedical research, the Swedish system is characterized by

close cooperation between academia, clinical practice and basic, pre-clinical and clinical fields. One reason for this is that 40 percent of academic medical research is conducted in academic hospitals, which also brings forth research-minded doctors who have proven to be an important link between medical practice and research and development. By having a tradition in pharmacy, rather than chemistry, the former Swedish pharmaceutical companies have had good relations with the medical profession and, as a consequence, with biomedical research. This kind of research is financed by the state and is of great value to Swedish firms that find various ways of creating links to academia.[7] Sixty-five percent of the biotechnology related articles published in 1986–1997 that were written by Swedish firms were co-authored with a public research organization in Sweden.[8] The heads of the universities are sending the message to their organizations that the research produced should be put to use in society and it is politically correct today for researchers to engage, part of their time, in firms as for example scientific advisors.

The collaboration with academia is one part of the networking strategy of the biotechnology firms in Sweden. The firms apply a business model where they outsource parts of their activities, in order to be flexible and keep costs down. The firms are well aware of the fact that a project may fail and are therefore careful not to build up and invest in more (human) resources than absolutely necessary as flexibility is constrained by Swedish labor regulations. Both intermediary and integrating biotechnology firms are found in the Swedish context and as their business partners are found all over the world it is difficult to say to what extent the environment in Sweden influences the choice of positioning. It can be argued that the intermediary firms are able to benefit more from the Swedish academic research, as they are research-focused. At the same time it is possible that the intermediary firms find it more difficult to attract financing, since their main resources are in the form of intellectual capital.

Investors that lack the expertise to form a judgement of the possibilities of a new biotechnological discovery are likely to avoid early-stage financing. Public funding therefore plays an important role in the early stages of a firm or a project, especially because it is "soft" money and the inventor still owns his/her idea. All firms studied, with one exception, received public support for early-stage projects. There are several public actors that provide funding to firms, which is positive in the sense that pluralism is good, but might be negative as it may be confusing for entrepreneurs that would rather have a "one-door" solution.

The private capital market in Sweden has undergone a change during the last years. More venture capital has become available for innovative firms in their early development phase, especially for firms within biotechnology or information technology. A number of venture capital firms,[9] specializing in biotechnology, have entered the Swedish financial market place lately. These sometimes do not only bring financial resources to the biotechnology firms, but act as strategic advisors as well. There is also an increasing number of organizations, often a part of the university organization, looking to commercialize ideas from academia. The venture capital market in Sweden has not only grown, but has also become more dynamic. Even if some investments are shortsighted, there are a number of actors that complement each other and act at different stages of a firms' life. This development is a sign, not only of more money being available, but of a market that has become more mature. New marketplaces[10] for young, innovative firms have been created in Sweden and their existence is most likely one reason for the increasing presence of venture capitalists in the country. That, in turn, increases the opportunities for new firms within biotechnology to develop in Sweden.

Notes

[1] Seaton and Walker, 1997.

[2] Database at the Swedish Board for Industrial and Technical development.

[3] "Market pull is the idea that innovators make technical improvements in response to perceived market demand. They identify an innovation which is likely to sell and then design a technology to fit what the market will demand." (McKelvey, 1996).

[4] "Technological push is the idea that innovators think in technical terms and see obvious opportunities for technical improvements." (McKelvey, 1996).

[5] ALMI operates at the commission of the Swedish government, county councils and certain municipalities to support

the growth and development of small and medium-sized companies.

[6] There was no information about this fact when selecting the firms. If other firms had been selected the picture would probably look a bit different.

[7] Carlsson, 1997.

[8] Sandström et al., 2000.

[9] For example Health Cap, Novare Kapital, Karolinska Investment Management Fund, Biolin och Cimon.

[10] OTC-listan, O-listan, Stockholms Börsinformationslista, IM InnovationsMarknaden, Aktietorget och Nya Marknaden.

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