

Venture Capital Investment in the Life Sciences in Switzerland

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Abstract: Innovation is one of the main driving factors for continuous and healthy economic growth and welfare. Switzerland as a resource-poor country is particularly dependent on innovation, and the life sciences, which comprise biotechnologies, (bio)pharmaceuticals, medical technologies and diagnostics, are one of the key areas of innovative strength of Switzerland. Venture capital financing and venture capitalists (frequently called ‘VCs’) and investors in public equities have played and still play a pivotal role in financing the Swiss biotechnology industry. In the following some general features of venture capital investment in life sciences as well as some opportunities and challenges which venture capital investors in Switzerland are facing are highlighted. In addition certain means to counteract these challenges including the ‘Zukunftsfonds Schweiz’ are discussed.

Keywords: Biotechnology · Life sciences · Venture capital · Zukunftsfonds Schweiz

Nuts and Bolts of Venture Capital Investment in Life Sciences

Venture capital is a key driver of innovation. In a recent study on the ‘The impact of venture capital on the persistence of innovation activities of Swiss start-ups’ Arvanitis and Stucki^[1] concluded that higher technological potential appears to stimulate the supply as well as the demand of venture capital funds.

In the first (‘seed’) round of financing biotech and medtech companies are looking for between CHF 0.5 and CHF 2.0 million, and require an average of 3.4 (angel) investors to achieve this. Provided that these young companies can successfully raise further funds and thereby cross this critical phase (also called ‘valley of death’) their funding needs increase: in subsequent financing rounds where professional venture capital investors usually join the required investments can easily increase to CHF 10 million (series A round) and later up to CHF 20–30 million (series B- and series C rounds), especially with (bio) pharmaceutical companies, where the production of (bio)pharmaceutical material as well as clinical studies can cost millions and overall development is long (up to 10–

15 years). It is not uncommon that CHF 50 million equity capital or more go into a single (bio)pharmaceutical or Medtech company until its exit (acquisition/merger or IPO; see below). Furthermore, the search for capital these days is extremely time- and contact-intensive, and the process usually takes between 9 and 12 months. Such financing rounds are usually carried by entire syndicates of investors, in order to: mitigate risk, share the increasing capital demand and bring different networks and sets of expertise to the table.

Young entrepreneurs and companies with innovative products and business models frequently find themselves confronted with the chicken-egg dilemma: they need to demonstrate their high potential in order to attract capital, yet often require that capital in order to demonstrate their potential.

Success Stories

In order for venture capital funds and their investors to get their investments returned and make the profit that they expect, portfolio companies eventually have to be ‘exited’, *i.e.* either sold to or merged with a (publicly listed) company or get publicly listed themselves.

The latter exit route (Initial Public Offering ‘IPO’) has, however, become more difficult in Switzerland in recent years, and the IPO window in Switzerland is only now, with the IPO of Molecular Partners, timidly re-opening. Mergers and acquisitions (M&A) are therefore the main current exit route for investors.

A very good example of a successful exit of a Swiss biotech company is the acquisition of GlycArt Biotechnology

(Schlieren/Zurich) in 2005 by Roche for CHF 235 million in cash. This transaction provided a very nice return to investors including BioMedInvest, and it also provided Roche with important assets: (i) the GlycArt team – which Roche not only maintained in Schlieren as a fully integrated part of the Roche Pharma Research organization, but also grew in the meantime to about 100 people; and (ii) three monoclonal antibodies which were in pre-clinical development in 2005, and one of which, Gazyva (obinutuzumab; GA101; with Breakthrough Therapy Designation label from the US FDA), has recently been launched by Roche as an important new product for the therapy of chronic lymphatic leukemia (CLL).

A more recent and highly successful exit relates to Okairos AG. Okairos, a vaccine company located in Rome but established as a holding in 2007 in Basel by BioMedPartners as one of two founding investors and co-financed through its BioMedInvest-I fund, was sold to GlaxoSmithKline (GSK) in May 2013 for CHF 325 million in cash based on positive early clinical data achieved in important viral diseases and malaria. Okairos provides an excellent example for how fast and sometimes unexpectedly technological opportunities and medical need can converge in today’s environment: one of the early projects of Okairos, a vaccine against Ebola, had provided very promising proof-of-concept results in non-human primates. With the recent outbreak of an Ebola epidemic in West Africa, this vaccine candidate suddenly received highest interest as a potential commercial product, and GSK together with the WHO, has accelerated the development of an Ebola vaccine based on the former Okairos technol-

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ogy and may be able to deliver on such a product by 2015.

By contributing to economic growth and welfare of today's and future societies through creation of innovative high-value (bio)pharmaceutical and medtech products, venture capital investors also play an important role in the creation and preservation of jobs in these key technology fields in Switzerland.

Venture Capital in Switzerland: A Key Motor but Scarce Resource

As already mentioned, there is a clear consensus that Switzerland is strongly dependent on innovation. However, in today's 'innovation ecosystem Switzerland' the necessary means and structures required for the transformation from mere innovation into value-generating products and services are not available in sufficient amounts. This is particularly evident and painful for the (bio)pharmaceuticals sector, where the clinical testing and development of a single product candidate can easily cost double-digit millions. While this transformation function lies on the shoulders of different stakeholders/contributors, it is largely carried by venture capital funds.

According to a recent position paper (October 10, 2013) by SECA (Swiss Private Equity & Corporate Finance Association) and CTI (Commission for Technology and Innovation) on the Swiss Investment Fund (SIF) a total of CHF 390 million went into Swiss start-ups, whereby CHF 180 million came from Swiss venture capital funds or investors, CHF 30 million from Swiss Angel investors and further CHF 180 million from foreign venture capital funds. 80% of the investments went into the life science sector. The life sciences sector thus *prima vista* seems to represent a welcome exception within the Swiss venture capital environment. However, despite this exceptional situation there is a clear lack of private sector investors in venture capital. While the Swiss venture capital ecosystem still comprises a number of professional venture capital firms which actively invest in the biotech and medtech sectors, including (ranked according to their funds under management): Aravis, Emerald Technology Ventures, BioMedPartners/BioMedInvest, Neomed, Endeavour Vision, BB Bioventures, VI Partners and redalpine, the number of these professional venture capital firms and the volume of their funds are decreasing, and there are no new entrants.

Corporate venture funds including Novartis Venture Fund, Roche Venture Fund and Merck Serono Venture Fund play an important role, but their geographic

scope is a global one. The role and contributions of experienced and successful industry entrepreneurs who now act as private investors here in Switzerland including (in alphabetical order) Messrs. Bertarelli (Ares Ventures), Maag (Varuma), Mueller, Rhis and Wyss therefore become increasingly important and in 2012 these investors were the second major source of funding in the Swiss biotech space.

Furthermore, as already mentioned above, there had been no new initial public offering (IPO) in Switzerland since 2003 until the IPO of Molecular Partners mentioned above. According to SECA/CTI (personal communication Jean-Philippe Tripet), one of the reasons for this squeeze may be that the funds which came from institutional investors have been more than halved over the last 12 years, from CHF 500 million in 2001 to below CHF 200 million in 2012. This already resulted in a reduction of activities or complete withdrawal from the venture capital market of several managers with a focus on early stage investing, including Lombard Odier Immunology Funds and Pharma Vision. The formation of Swiss financing syndicates, which would be needed for risk mitigation, is becoming increasingly difficult. As mentioned above, the gap which opens here is only partially filled by foreign syndication partners. Finally, compared to the EU space where up to 40% of venture capital investments come from governmental sources, *e.g.* from the European Investment Fund (EIF) of the European Investment Bank (EIB), there are no such vehicles in Switzerland at the federal level, and the contributions of the cantons are also very limited.

Somewhat disturbing is the fact that Switzerland has become a 'net importer' of venture capital. The lead investors in the 20 largest financing transactions in 2012 were mostly foreign professional investors.

Ways out

In order to render Switzerland and its biotech and medtech industries fit for the future, it takes firstly more highly specialized intermediary vehicles (venture capital firms) whose purpose is the systematic provision of venture capital. Secondly sufficient financial means have to be directed into and through these vehicles, in order to build a strong(er) and more effective pipeline of venture capital needed to finance the development of the most innovative companies and their product portfolios in Switzerland. These funds should not come from government's tax revenues monies, but should be based on the principles of economy. Given the fact that the financing needs are high, the product development

usually takes a very long time to market (10–15 years) and encompasses a high uncertainty until the goal (=market) can be reached, only institutions which dispose of substantial long-term means qualify as sources of such funds. Ideally suited for this purpose are pension funds (with 40-year investment horizons) or life insurance companies. In order to channel an initially small portion of the huge funds that are currently 'parked' within these institutions into forward-looking investments at the edge of technological progress, concepts like the 'Zukunftsfonds Schweiz' have recently been developed. This fund will enable and permit these pension funds and insurance companies to bundle those resources which they have reserved for future-oriented investments by generating a joint vehicle which is specialized in venture capital. As a fund-of-fund investor, the 'Zukunftsfonds Schweiz' will invest in highly specialized, privately organized and managed venture capital funds that will themselves invest in promising companies active in the life sciences and other high-tech sectors (*e.g.* nanotechnologies, ICT, new energies).

Comparable to this are activities of the US and Israeli governments in the venture capital space: the US government, in the presence of a professional lead investor, participates directly in a venture investment through its Small Business Investment Act. In Switzerland the government is not active in this area, but has established rules and regulations with impact on *e.g.* life insurance companies. These and other institutions with 'deep pockets', such as pension funds, could be expected to step in here, given these regulations were to be relaxed. It is therefore very important that State Counselor Konrad Graber has launched the 'Zukunftsfonds Schweiz' on the political level as a motion that has been passed by the Swiss Parliament in fall 2014.

Outlook

The majority of the key fundamentals for successful future venture capital investment in life sciences, globally and in Switzerland in particular, are and will continue to be right: (i) the global megatrends 'ageing societies' and 'access of emerging markets to healthcare' will substantially drive the sustainable growth of the life sciences/healthcare sector; (ii) in order to fill their pipeline gaps the large pharma and medtech companies will continue to rely on novel technologies and product candidates developed by smaller biotech and medtech companies; (iii) The DACH region, with Switzerland in its core, is one of the most productive regions in biopharmaceuticals and medical technologies

worldwide. International large companies with substantial marketing and sales capabilities who are also important potential acquirers of smaller companies as well as potential sources of interesting spin-outs are located here. The scarcity of monies available for investment will remain a challenge. According to SECA up to CHF 380 million, which would be required to support current development of existing Swiss biotech and medtech companies, may be lacking. This and the fact that there is only

a small number of experienced professional investor teams left in Switzerland will have to be solved. The 'Zukunftsfonds Schweiz', a fund-of-funds, the concept of which is currently being discussed by the Swiss parliament, will hopefully provide new capital to venture capital funds in life sciences and other key technologies. Furthermore, it is hoped that, based on further success stories, investors will regain confidence in the private biotech and medtech sectors as high-potential invest-

ment opportunities and that the Swiss IPO market, which a couple of years ago had a successful position in Europe, recovers, and thereby provides another dearly needed exit route for venture capital investors.

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[1] S. Arvanitis, T. Stucki, 'The Impact of Venture Capital on the Persistence of Innovation Activities of Swiss Start-ups', KOF Working Papers No. 332, February 2013.

“ “ The founding of a start-up company would have been inconceivable for someone of my generation and background 20 years ago: it was simply not something a 'serious' academic would engage in. But times have changed as this is one among a number of activities, such as teaching, mentoring, research, publishing, lecturing, consulting, and influencing public policy, around which the modern academician can build a successful career and fulfill his/her responsibility to society. I am fortunate as a professor in Switzerland to have access to various tools, programs, and people that enable entrepreneurial, spin-off activity. A transformative idea, even if somewhat inchoate, can be fashioned into the reality of a start-up company thanks to human and financial resources available from a number of different sources. These include the KTI/CTI federal entrepreneurship program; the Pioneer Fellows Award as well as the Spark Award of the ETH Zurich and ETH Tech Transfer Office, respectively; Venture Kick; as well as a number of private foundations and corporations. What I find particularly satisfying is that the funding does not come at the expense of other more traditional, proven and successful funding mechanisms for science. Consequently, the diversity of funding opportunities ensures a continued commitment to efforts within the core activities of academia. This is an extremely important point, because institutions of higher learning offer a unique setting in which a number of different activities are pursued with the aim of teaching and mentoring the young. I believe this kindles a special kind of innovative spirit that ensues from the melting pot of ideas, dreams, and aspirations that constitute the modern university. ” ”

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