

Venture capital investments in life sciences



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The availability of venture capital is crucial for the life sciences sector. Fortunately, the industry has become the key destination for start-up firm investment in Switzerland. Most external financing is cyclical but this sector not only attracts most funds in the early stage but the largest average amounts of investment overall.

In the past decade life sciences have emerged as the most important destination for early-stage investments in Switzerland. Since 1999 over CHF 3.1 billion of venture capital have reportedly been invested in the areas of life sciences (of which 85% or CHF 2.6 billion for biotechnology alone, i.e. without medtech). This amount by far exceeds the combined early-stage investments in other innovative sectors such as ICT, energy and environment, chemicals and materials, and others during this period.

However, little has so far been known about the features of this impressive development at an overall level. Although widely acknowledged, the importance and range of investment in life sciences enterprises were virtually impossible to assess quantitatively until recently. Information about venture capital investments in Switzerland was not only scarce generally but also aggregate data on the industrial and regional distribution of such capital flows in Switzerland, let alone detailed patterns of external financing for the life sciences, were inexistent.

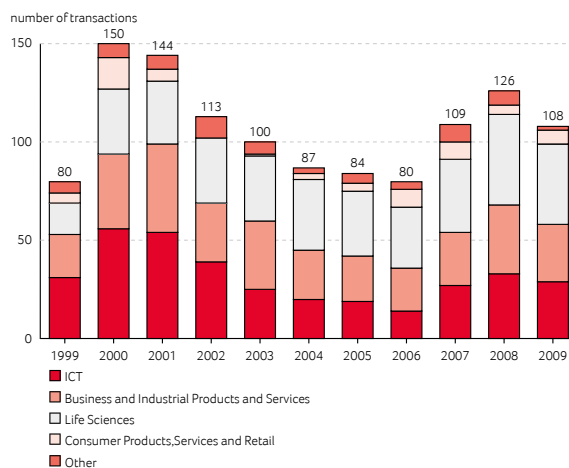
The Swiss Venture Capital Database at the University of Basel

The Swiss Venture Capital Database at the University of Basel aims to fill this gap. As of January 2011, the database covered 1,012 startup firms in innovative sectors and 1,277 venture financing transactions from 1999 until 2010. Based on this data set, it is now possible to analyze both early-stage financing in general and capital flows in life sciences in particular. In our analysis for the life sciences sector in Switzerland, five findings deserve to be highlighted.

Life sciences are the dominant start-up industry

In the past decade this sector has emerged as the dominant investment field among innovative start-up firms both in numbers of transactions and in total amounts of investment. After the dot-com bubble burst in 2001 life sciences raced ahead of all other sectors in terms of venture capital investment. Its share has risen from about 20% to over 70% since 2004. Even in such a well developed entrepreneurial ecosystem as Switzerland's life sciences have become the most important destination for venture capital.

Figure 1: Venture capital transactions in Switzerland



Note: Number of early and later stage capital transactions per year and sector

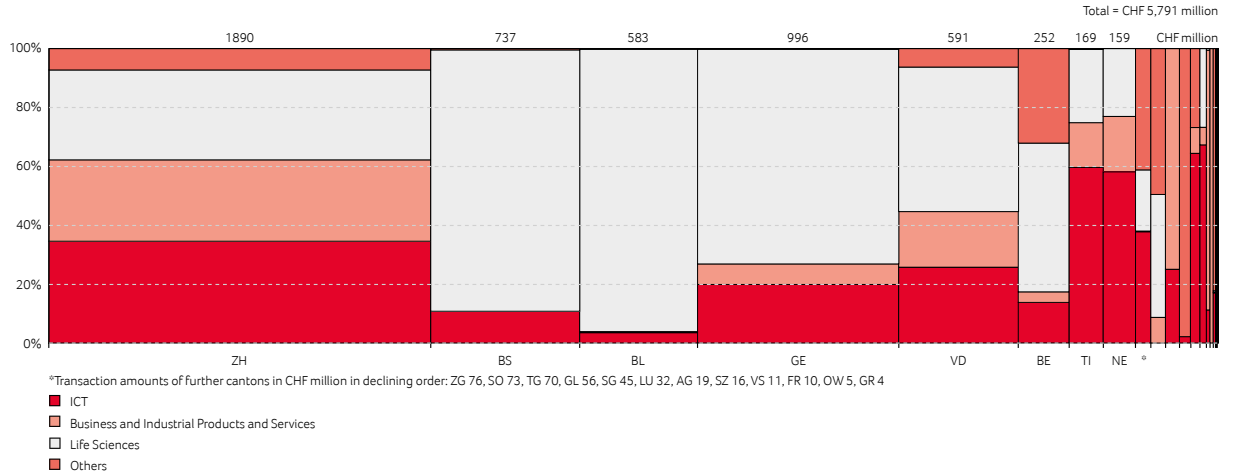
Cyclicality of external funds

Nevertheless, venture capital flows are highly sensitive to the economic cycle. As the period between 1999 and 2001 showed, although ICT was hit hardest, start-up firms in all industries were negatively affected by market decline. In general, declines affected both the amounts and the types of investment. In a downturn not only does the overall volume of invested venture capital fall, but it shifts from high risk early-stage investments to lower risk later-stage investments. In the most recent crisis, for example, it was notable that early-stage investment broke down, resulting in extremely limited first round investment and illiquidity risks among start-up firms. Furthermore, cyclicality impacts on the demand as well as the supply side, as business development behaves cyclically overall.

Largest investments are in life sciences

Biotechnology accounts for the highest proportion of R&D expenditure in the industries in our sample by far. Moreover, due to their business model, life sciences transactions also involve the largest amounts per single investment. In general, the distribution of investments across all industries is highly skewed. 27% of all transactions are under CHF 200,000 while more than

Figure 2: Transaction landscape 1999–2009 per sector and canton



half of investments involve less than CHF 1.5 million. However, the largest transactions mostly take place in life sciences. After all, 9% of the transactions in our sample top the amount of CHF 25 million per single transaction. As a result, the average transaction value in the life sciences is by far the largest (CHF 6.4 million). A key factor behind this is that R&D expenses in biotechnology are sizable. This underlines just how important venture capital is to life sciences, as the R&D expenses of their venture-backed companies are much higher than in the rest of the sample. Other significant features of life sciences investment include greater involvement of international investors and of industrial business partners and corporate venture capitalists.

Clustering

In terms of firm behaviour the landscape of investment activity among all start-ups shows that firms tend to gather around knowledge clusters and economic centres such as Zurich, Basel, and Geneva/Lausanne, benefiting from strong universities, innovative entrepreneurs, more high net worth individuals and a balanced economic structure. These centres provide young firms with knowledge, networking opportunities, financial and entrepreneurial expertise and a broad customer base. This clustering behaviour can also be observed in the life sciences. At the same time, the distribution of start-up firms shows some specific regional biases. Zurich, for instance, historically has had, and still has, a relatively stronger focus on ICT, business and industrial products and services, whereas in Basel life sciences enterprises dominate among the start-up firms in the region.

Life sciences make the highest employment contribution

In the first years of their existence life sciences firms make the highest employment contribution. Within six years of starting up, firms in life sciences employ about 50% more FTE staff on average than other industry. This reflects the level of their R&D activity and their growth expectations. And these expectations are not incorrect: firm growth is also highly concentrated in this sector.

In conclusion

The Swiss Venture Capital Database at University of Basel shows the success stories in the Swiss biotech sector. It is a powerful tool to scan the universe of start-up companies with respect to capital flow, success factors, and employment effects. The database reveals that life sciences have evolved as the most important sector among start-ups in Switzerland. They lead the field with respect to the number and the total amount of financial transactions. Although investments, especially in the early phase, are highly cyclical, life sciences show the highest average and absolute investment amounts. This is due especially to the costs of R&D. Furthermore, start-ups in life sciences tend to cluster around knowledge and business centres and display the highest employment contribution in the first years of business life. Finally, we also find that venture capital is highly important for this industry. For future economic growth in Switzerland venture capital and life sciences are vital.