



THE VALUATION EXPERTS

Biotech Industry and Valuation

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June 2008 | Singapore

Overview

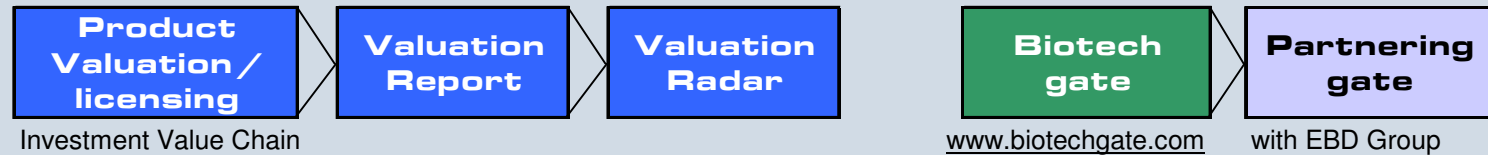
- 1. Biotech Industry Trends in Switzerland / EU**
- 2. Biotechgate, a chance for Singapore's Biotech Industry?**
- 3. Valuation of Biotech Companies/Products - Gold Standard Used by Big Pharma**

Venture Valuation



1. Independent, third party Valuations
2. Information Services: Biotechgate Database
 - Not a venture capitalist
 - Experts Finance & Biotech/Pharma Industry
 - International experience
 - Track record of over 140 valued companies
 - Clients such as Novartis Venture Fund, Fraunhofer Gesellschaft, European Investment Bank; VCs

Products & Services

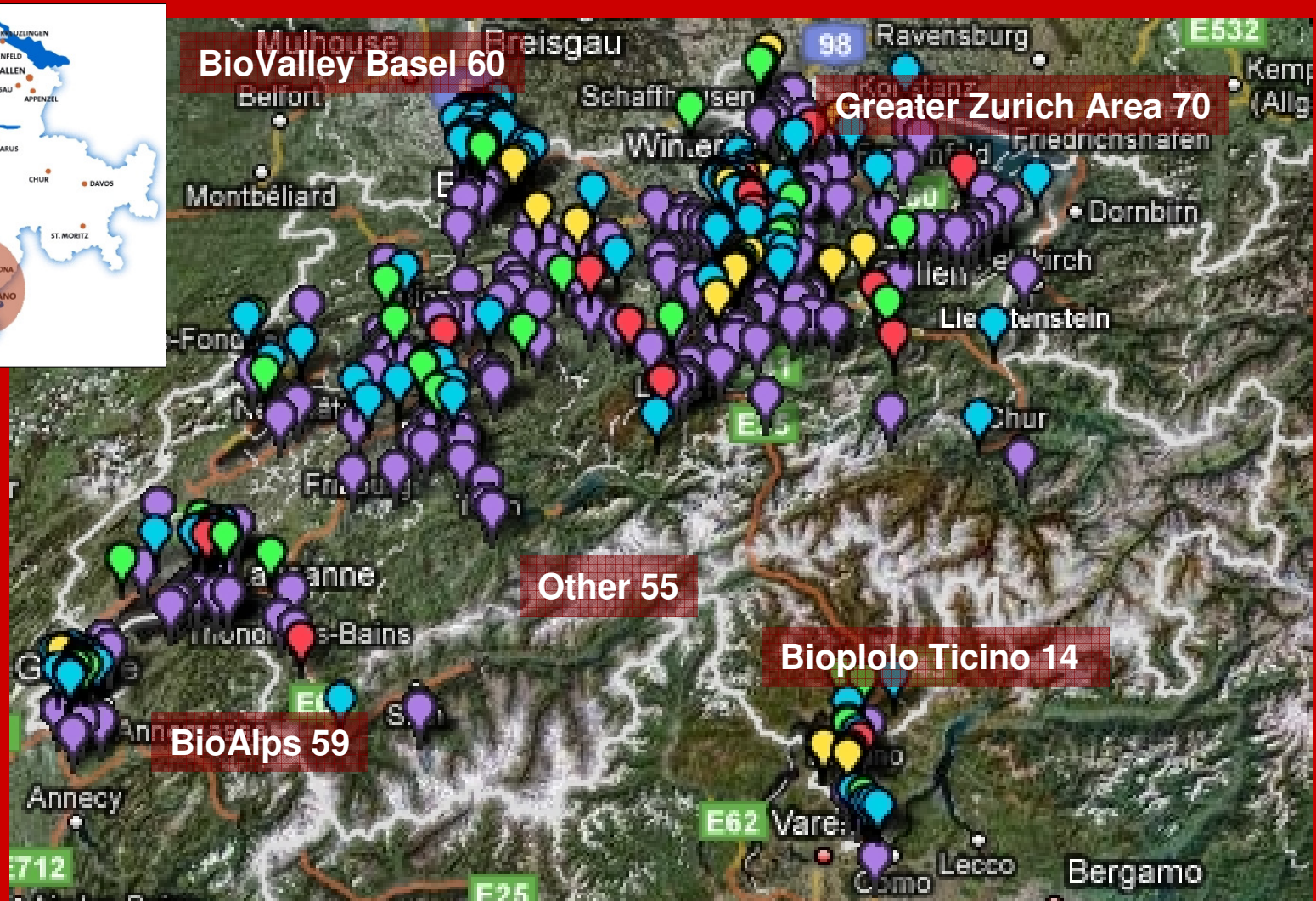
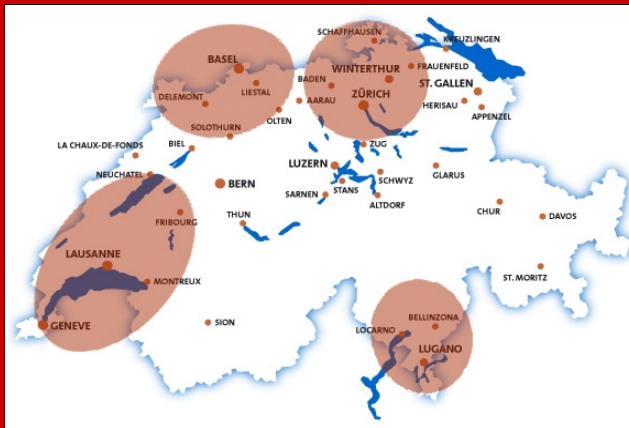


| | | | | | |
|---|----------------|----------------|----------------|--|--|
| Economic Development | | | | | |
| Business Angels | | | | | |
| Non-Profit Organizations / Foundations | | | | | |
| Investors (VC, Corporate) | main customers | main customers | main customers | | |
| Pension funds | | | | | |
| Companies | main customers | main customers | | | |

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Swiss Biotech Clusters



Source: Swiss Life Sciences Database 2008 / (www.swisslifesciences.com)

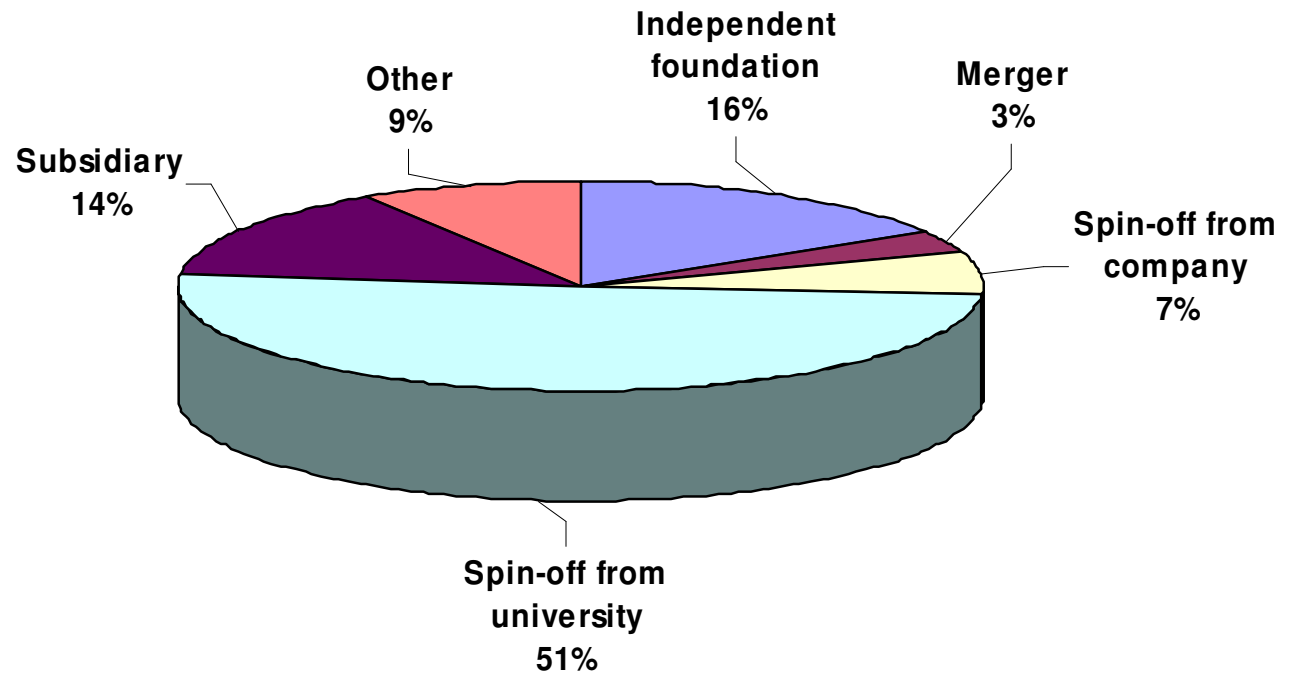
Legend for biotech clusters:

- Biotech - Therapeutics (Red pin)
- Biotech / R&D Services (Blue pin)
- Biotech - other (Green pin)
- Pharma (Yellow pin)
- Medical Technology (Purple pin)

Comments: Total of 258 companies.

Source of Foundation

Source of Foundation Swiss Biotechnology Companies

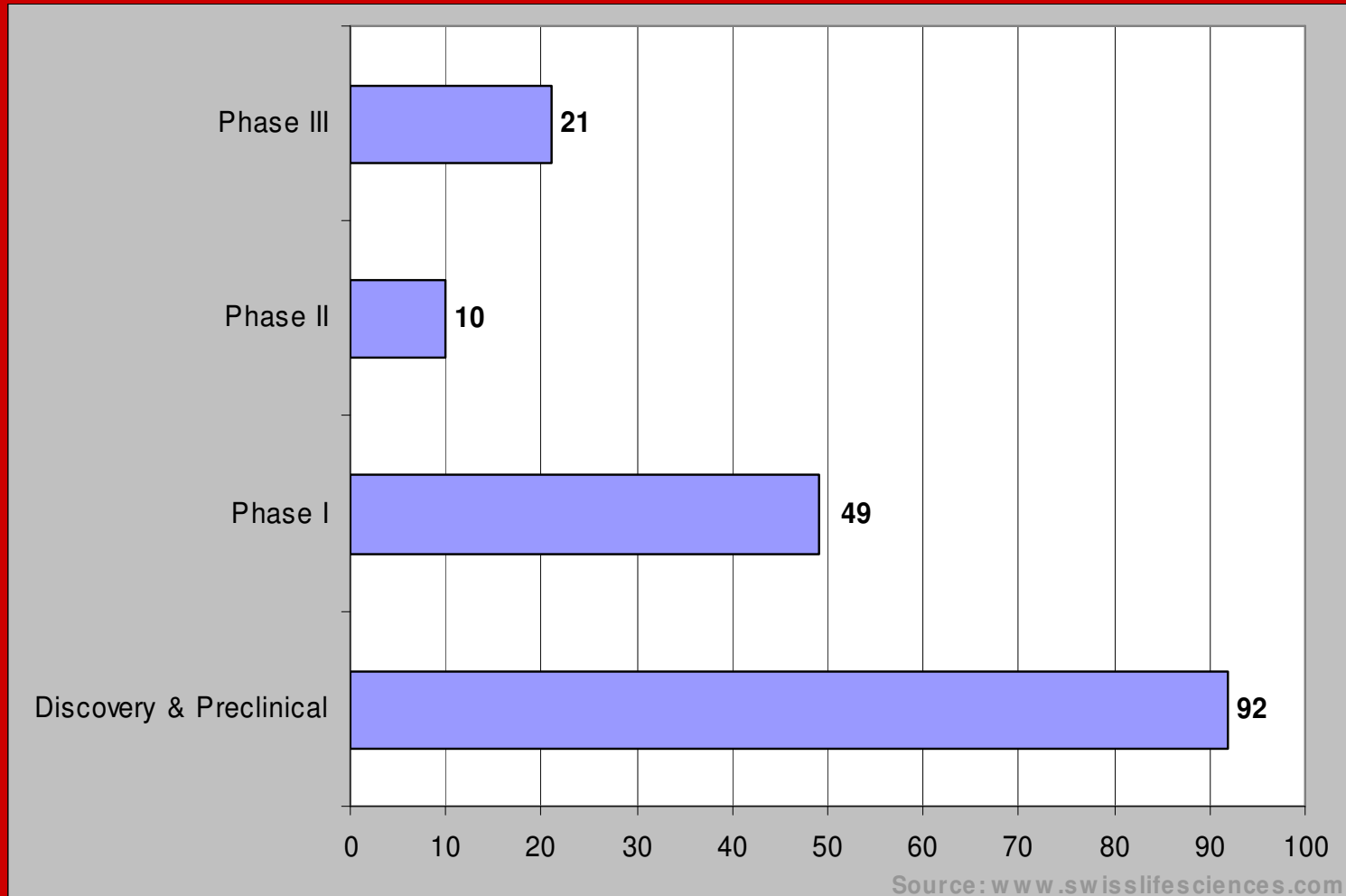


Source: Swiss Life Sciences Survey 2007 (www.biotechgate.com)

Source: www.swisslifesciences.com

Comments: Data available for 91 companies.

Swiss Products in Development

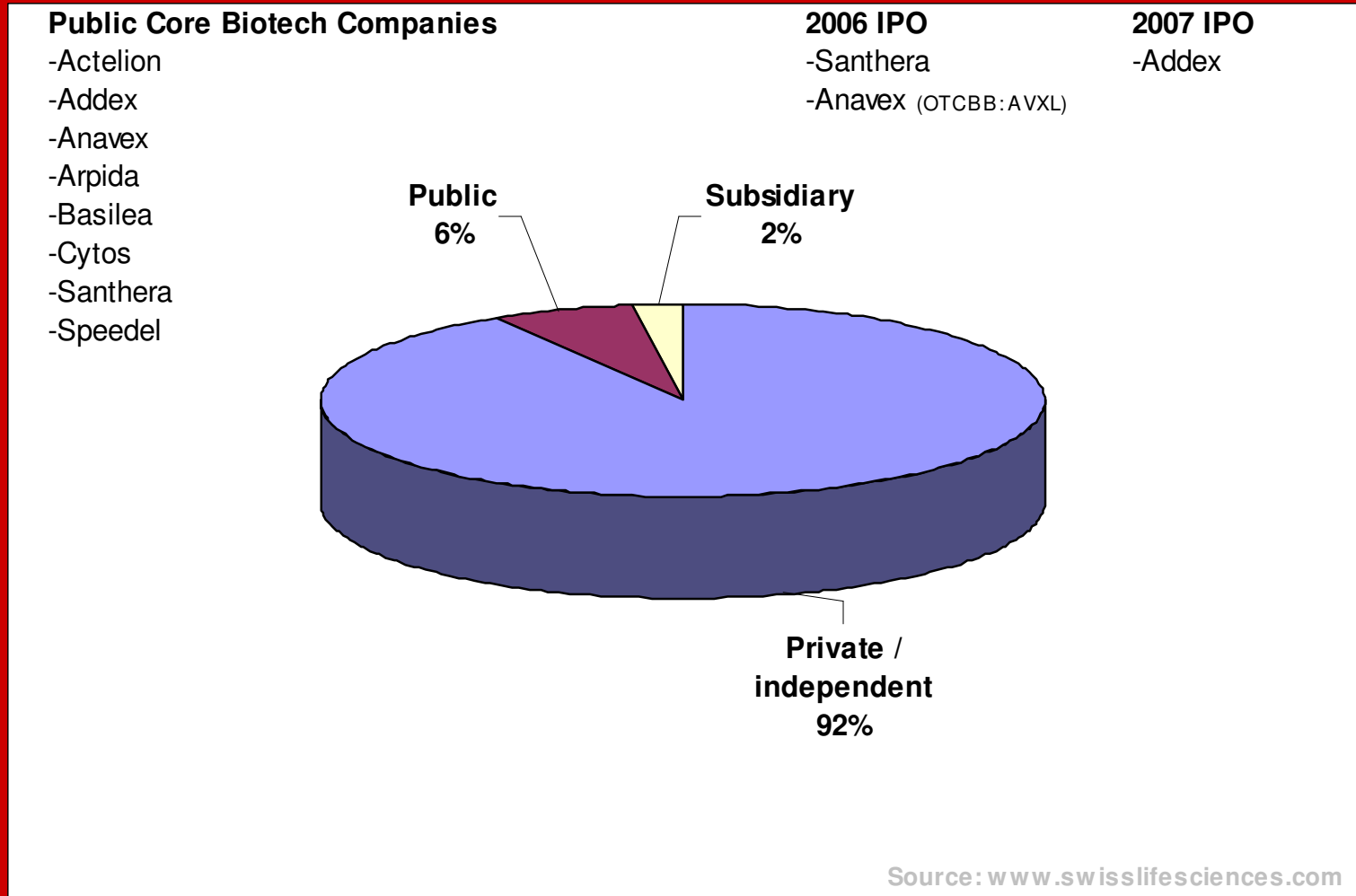


Source: Swiss Life Sciences Survey 2007 (www.biotechgate.com)

Comments: Based on the company profiles categorized as „Biotechnology - Therapeutics“ (73 companies).

Ownership of Swiss Biotech

Ownership of Swiss Biotech Companies - Breakdown Public / Private



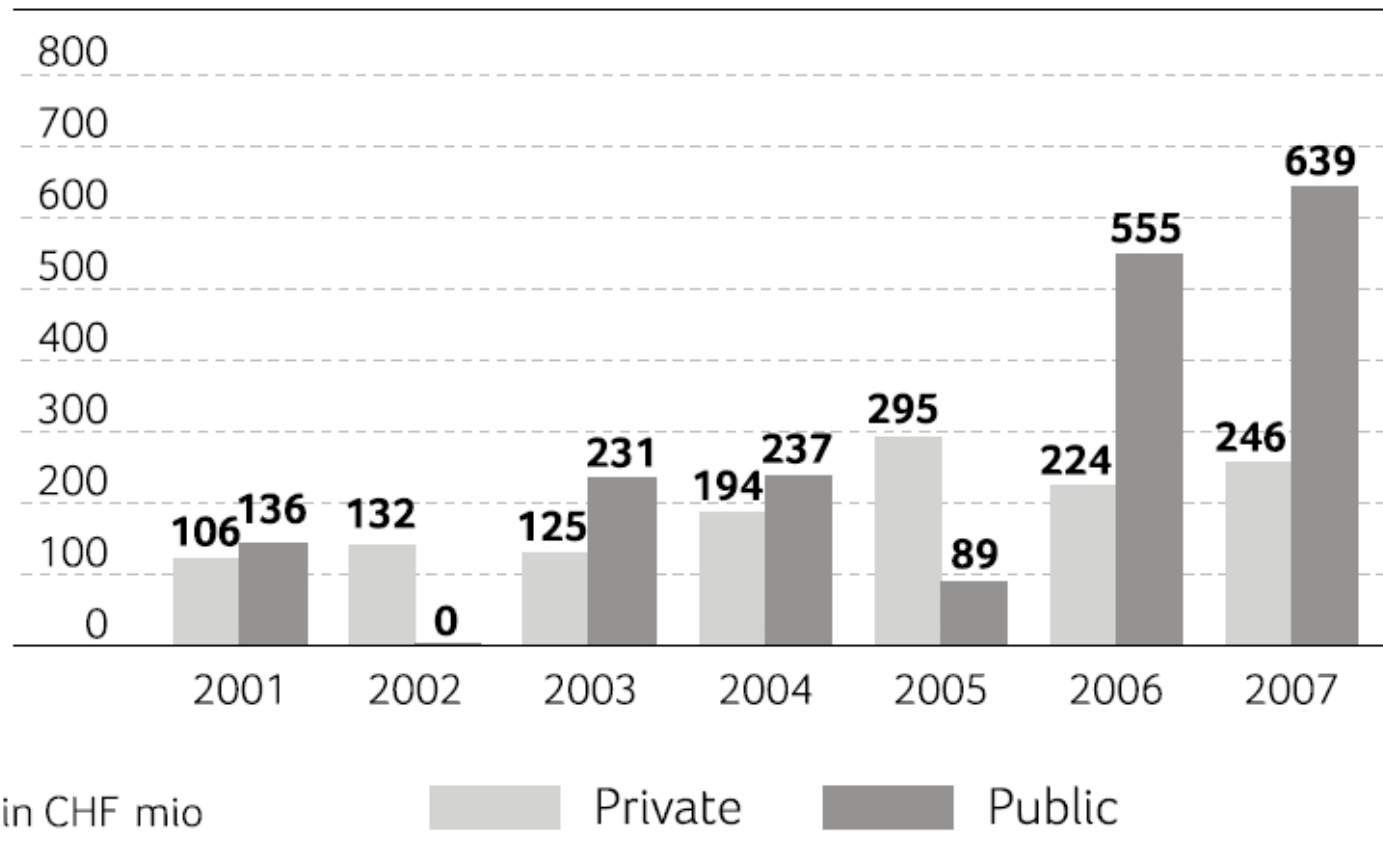
Source: Swiss Life Sciences Survey 2007 (www.biotechgate.com)

Comments: Total 258 companies.

Financing of Biotech

Private and Public Swiss Biotech Companies

Capital Investments



Source: Swiss Biotech Report 2008

Comments: including convertible bonds

Biotech Comparision

Biotechnology in selected countries

| | France | Switzerland | Germany | Austria | Canada |
|---------------------------------------|------------|-------------|------------|------------|------------|
| Biotech Companies | 294 | 275 | 874 | 58 | 468 |
| Core Biotech Companies | 80 | 73 | 175 | 19 | 148 |
| New Companies (2000-2007) | 94 | 100 | 219 | 25 | 80 |
| Up to 20 employees | 62% | 58% | 49% | 61% | 47% |
| # of biotech clinical products | 65 | 80 | 111 | 8 | 112 |

Source: Swiss Life Sciences
Survey 2007
(www.biotechgate.com)

Comments: Based on information available on www.biotechgate.com

Trends – EU / Swiss Biotech

- Maturing Biotech Industry in Europe
 - Emerging countries like Spain and Italy
 - Earlier deal making (pre-clinical); pharma – pharma deals
 - Asia becoming more active
 - Finance is available
-
- Switzerland is a main Biotech cluster in central Europe (Pharma Spin-offs; strong Universities; Pharma Venture Funds)
 - Some European Flagship companies are in Switzerland

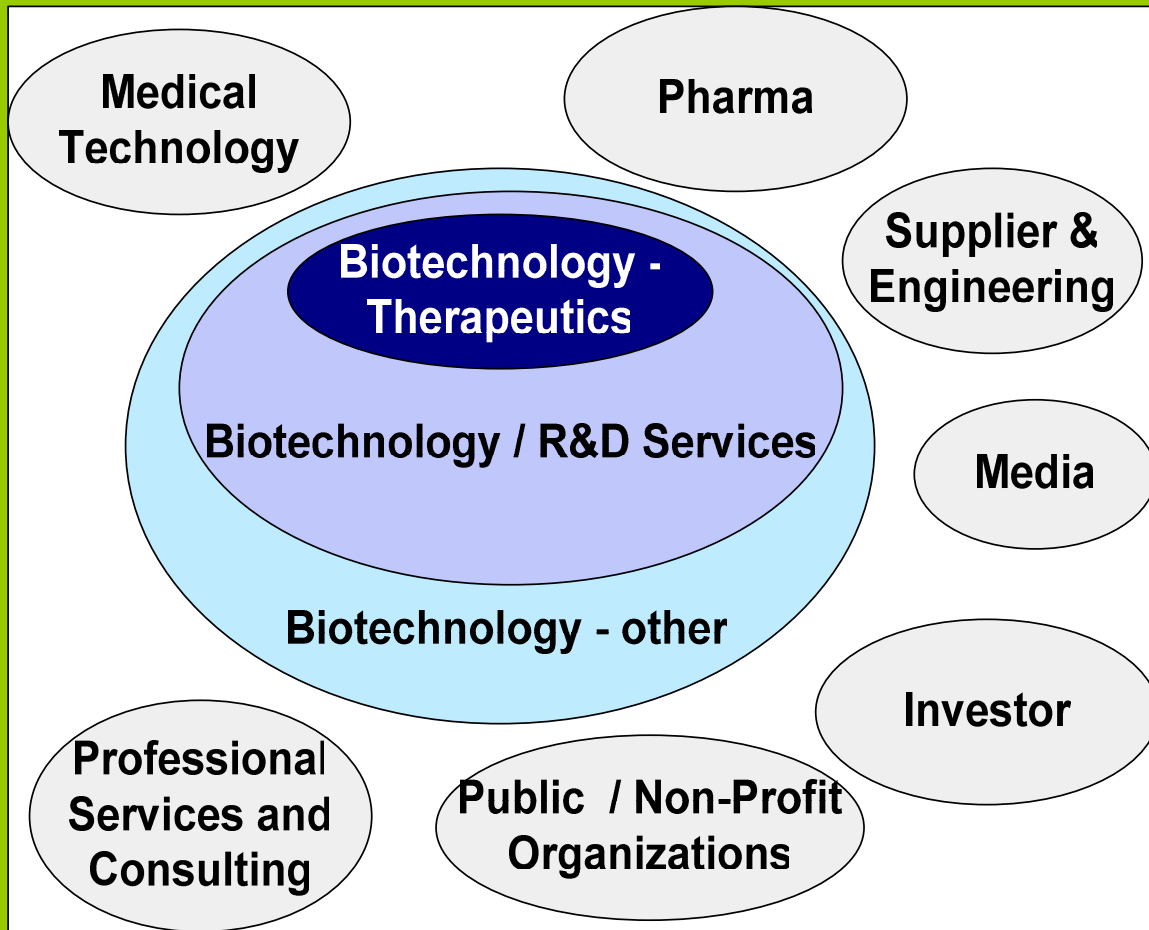
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Biotechgate.com numbers

| Country | Biotech Therap. | Biotech - R&D | Biotech related | Pharma | Med-tech |
|--|-----------------|---------------|-----------------|------------|-------------|
|  www.Austrianbiotech.com | 18 | 33 | 3 | 10 | 13 |
|  www.Canadianlifesciences.com | 136 | 147 | 132 | 67 | 35 |
|  www.Frenchbiotech.com | 70 | 183 | 27 | 8 | 37 |
|  www.Germanbiotech.com | 166 | 569 | 133 | 40 | 187 |
|  www.Indianbiotech.com | 11 | 122 | 168 | 45 | 8 |
|  www.Italianbiotech.com | 74 | 155 | 245 | 109 | 154 |
|  www.Scandinavianlifesciences.com | 117 | 202 | 63 | 40 | 228 |
|  www.Swisslifesciences.com | 58 | 143 | 51 | 51 | 329 |
|  www.Usalifesciences.com | 337 | 314 | 107 | 49 | 377 |
| Total (www.biotechgate.com) | 1067 | 1966 | 931 | 435 | 1386 |

In total there are over **10'000 companies** in the database.

Categorization



- Main focus on Biotechnology
- Organizations active in the Life Sciences area
- Cluster approach

Goal of Biotechgate

- Overview of the Life Sciences and Biotech Industry (region/country/state)
- Transparency, nationally as well as internationally
- Have accurate statistics available
- Comparable Categorization:
 - Sector, Sub-sector
 - Targeted disease areas (according to WHO)

Partner

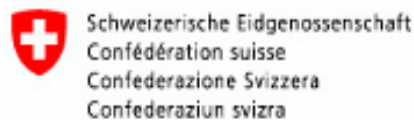


Canada's Voice for Biotechnology
Le porte-parole canadien de la biotechnologie



SI SviluppoItalia

Italian Institute for Foreign Trade



Singaporelifesciences.com

- Provide overview of Biotech / Life Sciences Cluster
- Partnership with key stakeholders in Singapore
- Transparency, nationally as well as internationally
- Have accurate statistics available
- Companies can register company for free

www.biotechgate.com => Add Company

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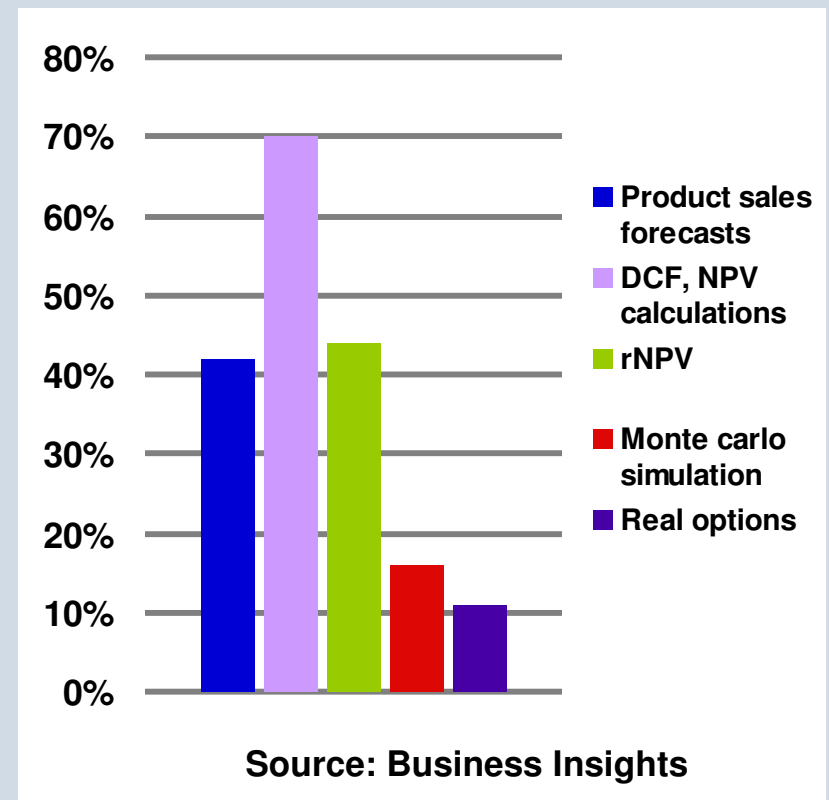
Valuation Methods

complexity ↓

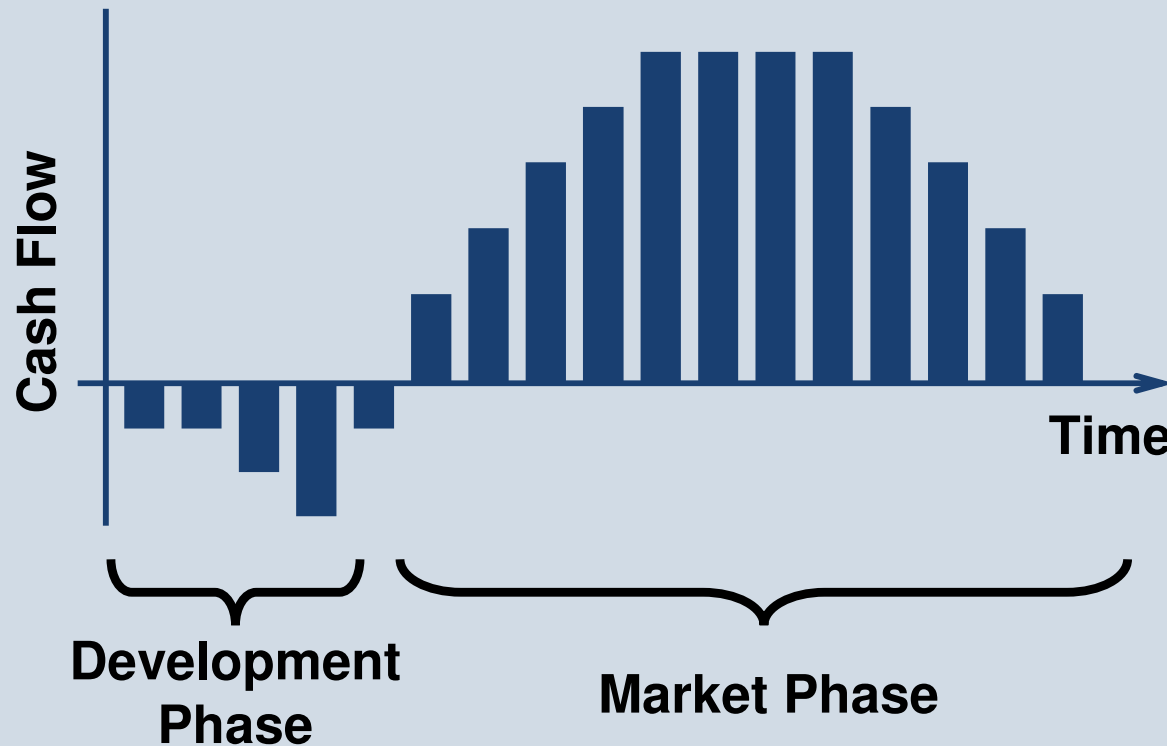
- Simple sales forecasts
- Discounted cash flows
- rNPV (eNPV)
- Real options

- Monte Carlo Analysis

Industry use



Valuation components



- **Determine timelines and cash flows in each phase**
- **Develop solid assumptions for all key variables**

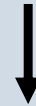
Five Step Process



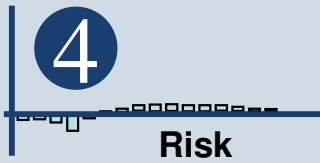
Determine Cash Flows in **Development** Phase



Determine Cash Flows in **Market** Phase



Discount with Discount Rate



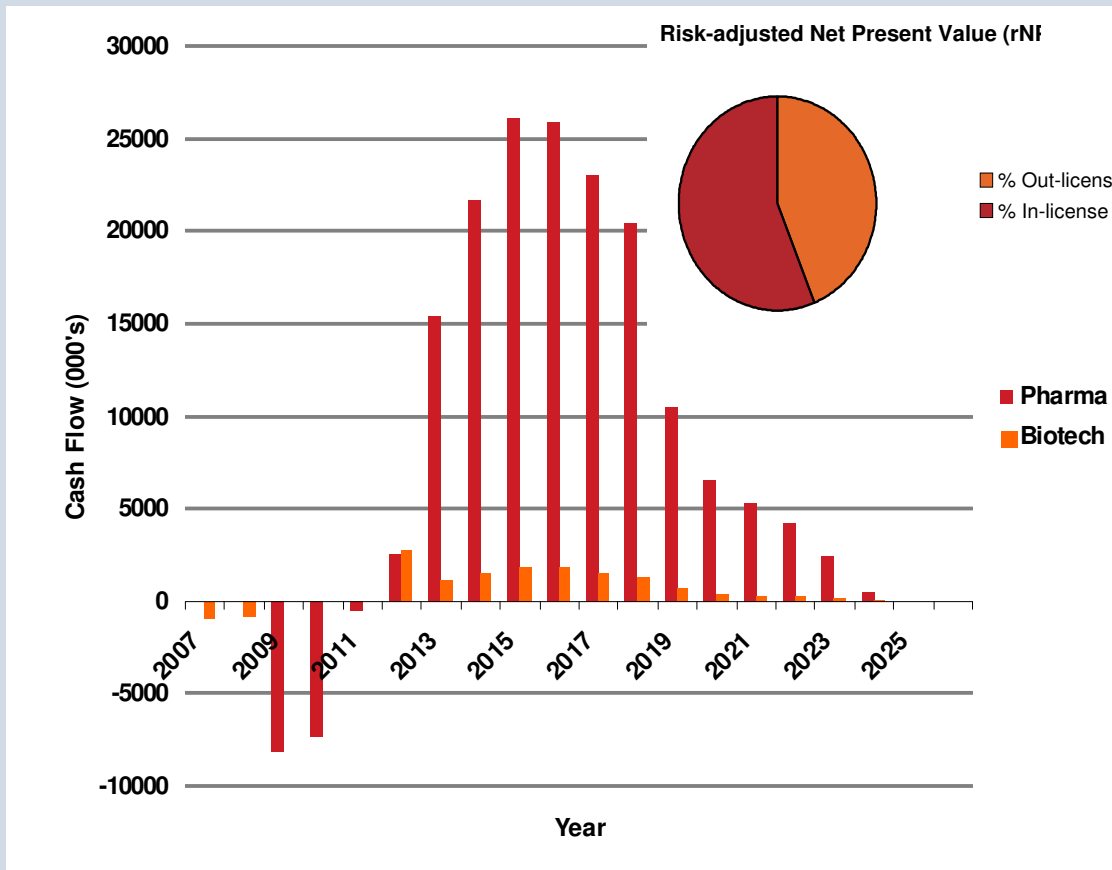
Adjust for **Risk**



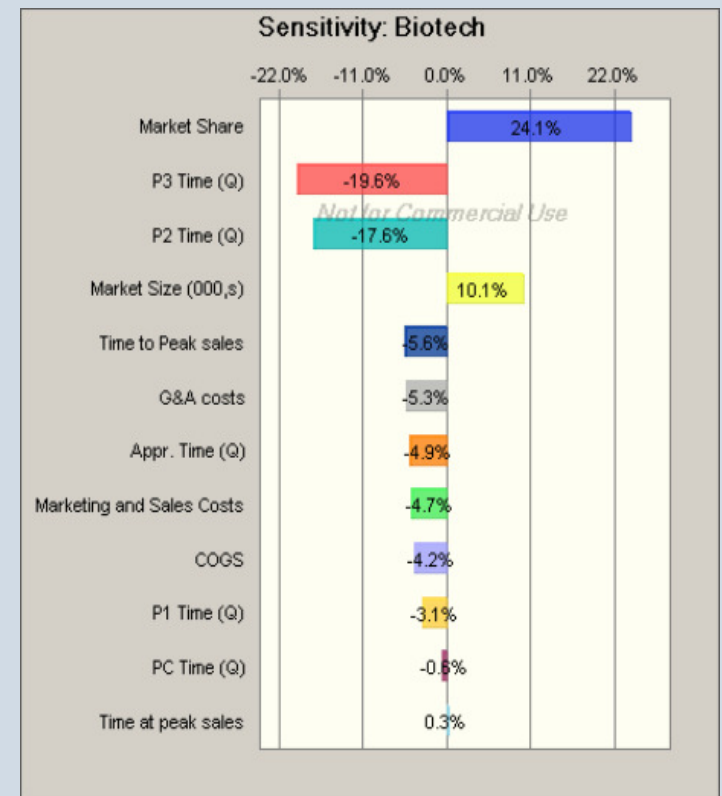
Sum cash flows

Deal Terms / Sensitivity

Product Valuation



Cash flow splits for license negotiation



Monte Carlo based-risk analysis

Timing of payments



- Front/ back-loading a deal can heavily influence deal structure
- Deal terms dependent on needs of both parties

| In USD m | Payment of | rNPV (or up-front) |
|--------------------------------|------------|--------------------|
| Up-front | 1 m | 1 m |
| Finish Pre-clinical | 1 m | 0.44 m |
| Finish Phase I | 1 m | 70'000 |
| Finish Phase II | 1 m | 17'000 |
| Finish Phase III | 1 m | 8'000 |
| Approval / Enter market | 1 m | 5'000 |
| Royalties | 1% | 0.70 m |

Risk-adjusted NPV (rNPV)

$$\sum_{i=1}^7 \rho_i \sum_{t=1}^T \frac{DCF_{it}}{(1+r_d)^t} + \rho_7 \sum_{j=1}^5 q_j \sum_{t=1}^T \frac{CCF_{jt}}{(1+r_c)^t}$$

Risk adjusted Net Present Value

- Method of choice for Big Pharma
- Adjusts value for Development Risk and Cost of Capital
- Helps understand accurate value and maximises deal options
- Better knowledge gives better negotiation position



Thank you for listening!

Presentation:

www.venturevaluation.com => Information / downloads

Resources:

Biotechgate => www.biotechgate.com

Swiss Biotech Report => www.swissbiotech.org

Swissnex => www.swissnex.org

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