



THE VALUATION EXPERTS

Biotech Industry and Valuation

Dr. Patrik Frei
June 2008 | Singapore

Overview

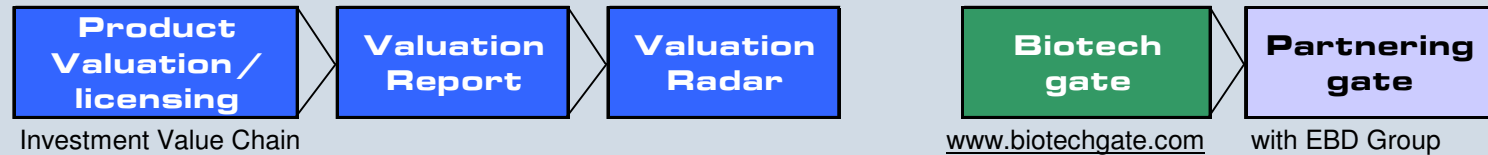
- 1. Biotech Industry Trends in Switzerland / EU**
- 2. Biotechgate, a chance for Singapore's Biotech Industry?**
- 3. Valuation of Biotech Companies/Products - Gold Standard Used by Big Pharma**

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



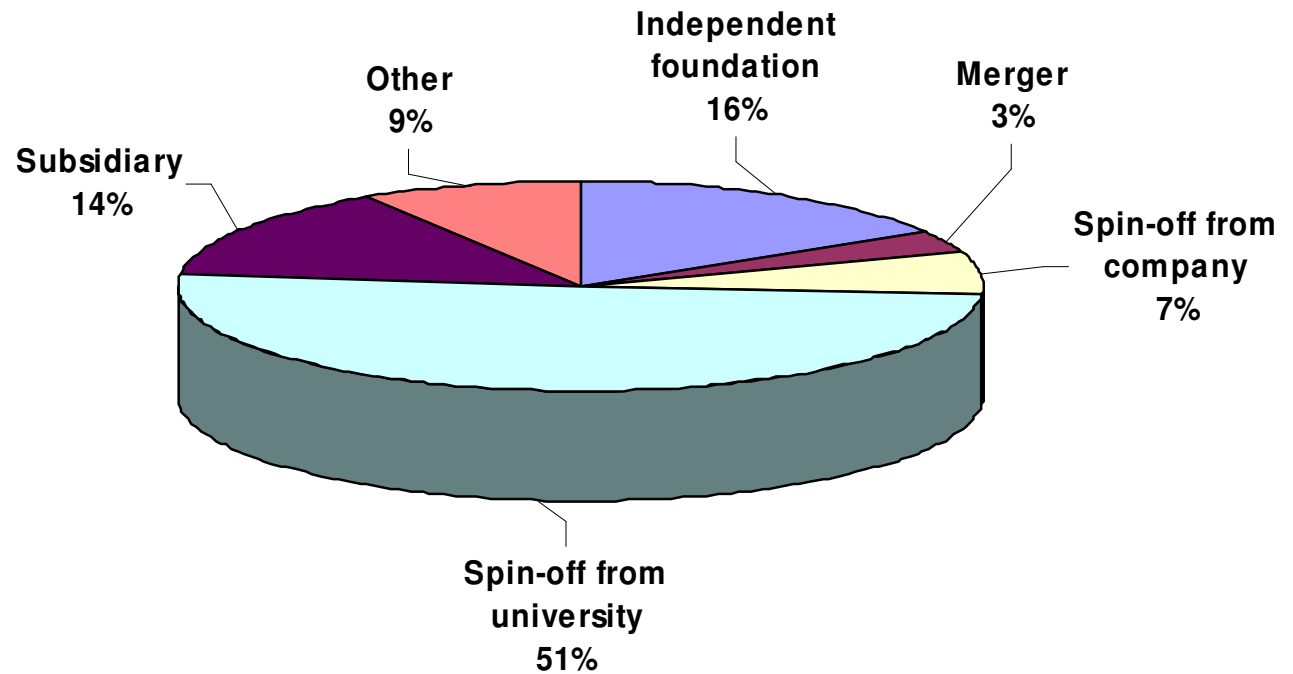
Economic Development					
Business Angels					
Non-Profit Organizations / Foundations					
Investors (VC, Corporate)	main customers	main customers	main customers		
Pension funds					
Companies	main customers	main customers			

Overview

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Source of Foundation

Source of Foundation Swiss Biotechnology Companies

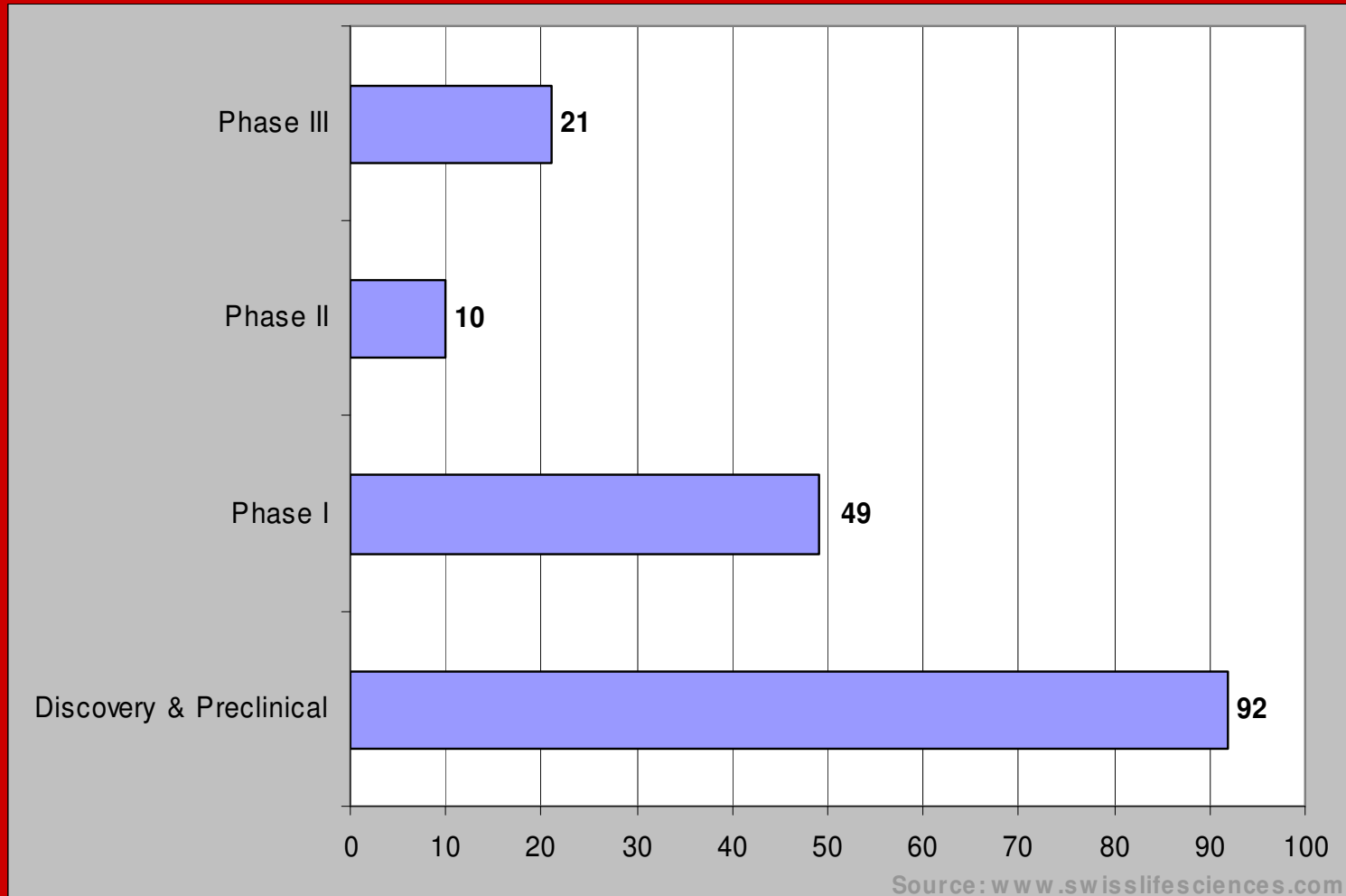


Source: Swiss Life Sciences Survey 2007 (www.biotechgate.com)

Source: www.swisslifesciences.com

Comments: Data available for 91 companies.

Swiss Products in Development

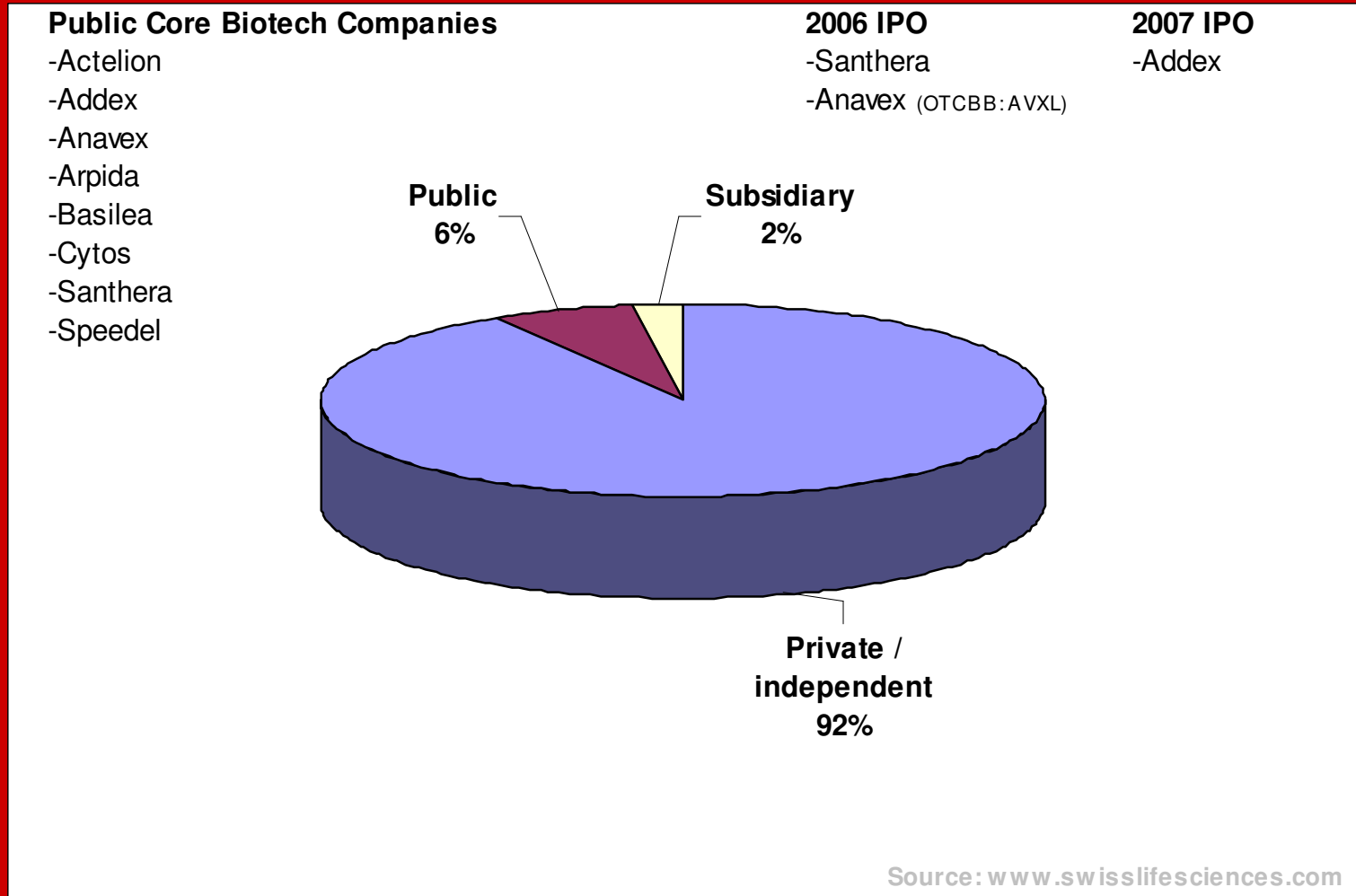


Source: Swiss Life Sciences Survey 2007 (www.biotechgate.com)

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

Ownership of Swiss Biotech

Ownership of Swiss Biotech Companies - Breakdown Public / Private



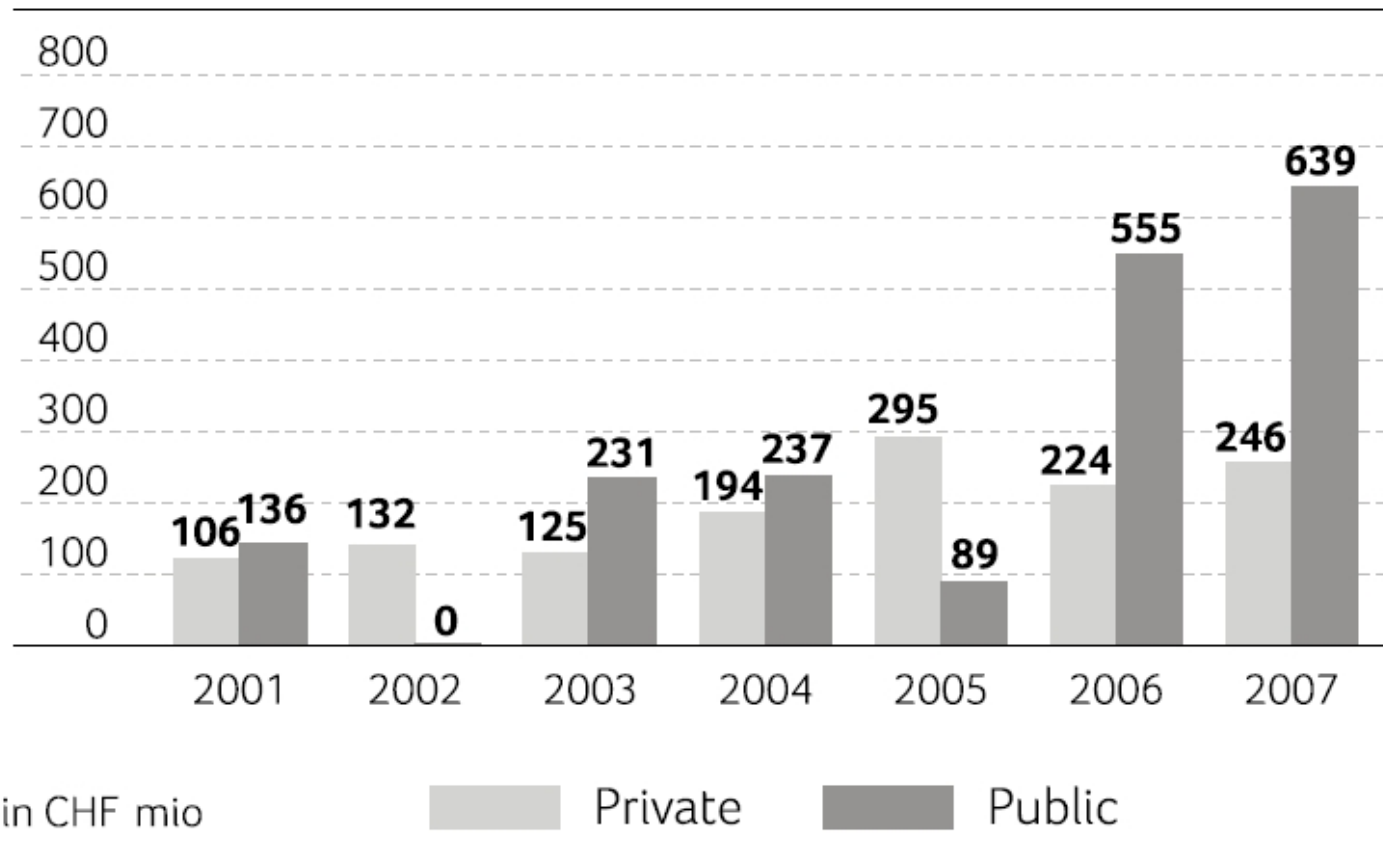
Source: Swiss Life Sciences Survey 2007 (www.biotechgate.com)

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

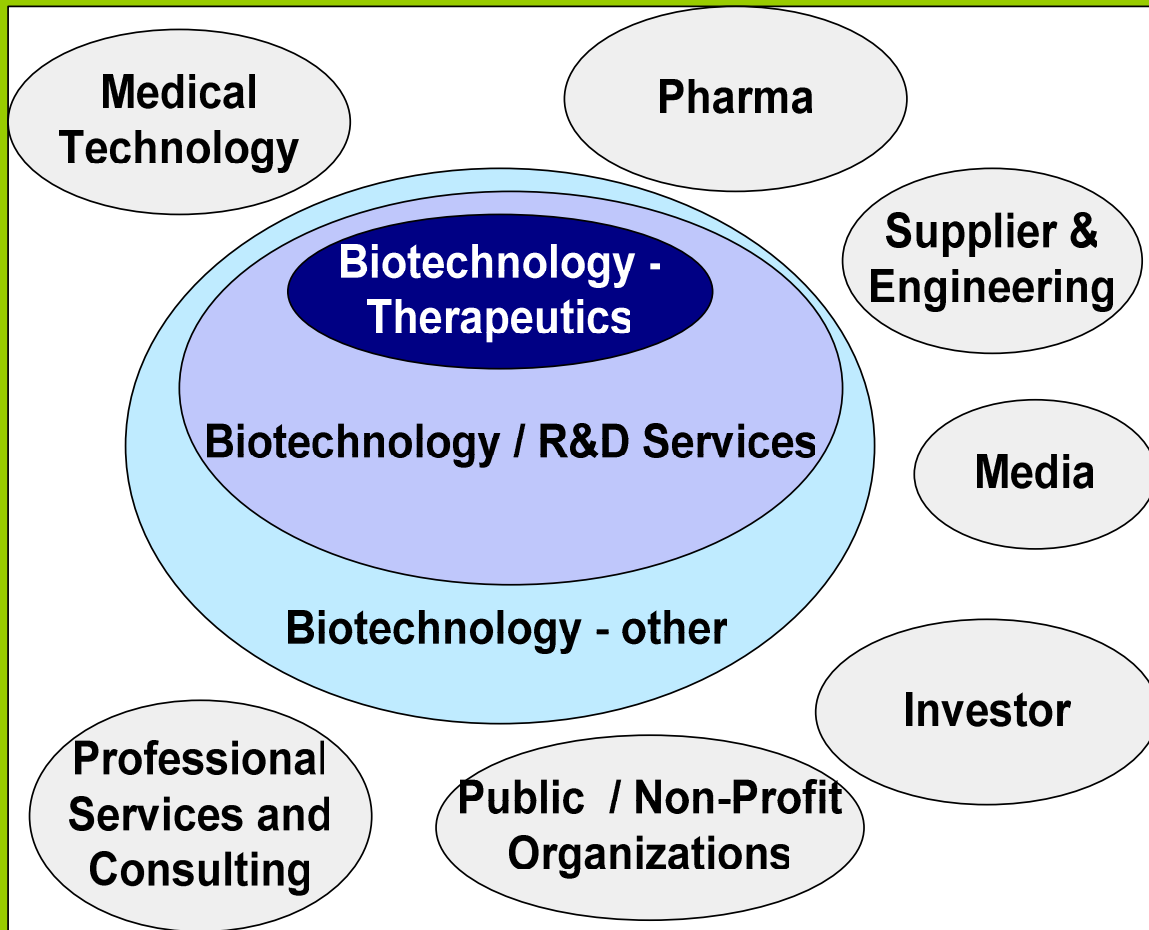
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Biotechgate.com numbers

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



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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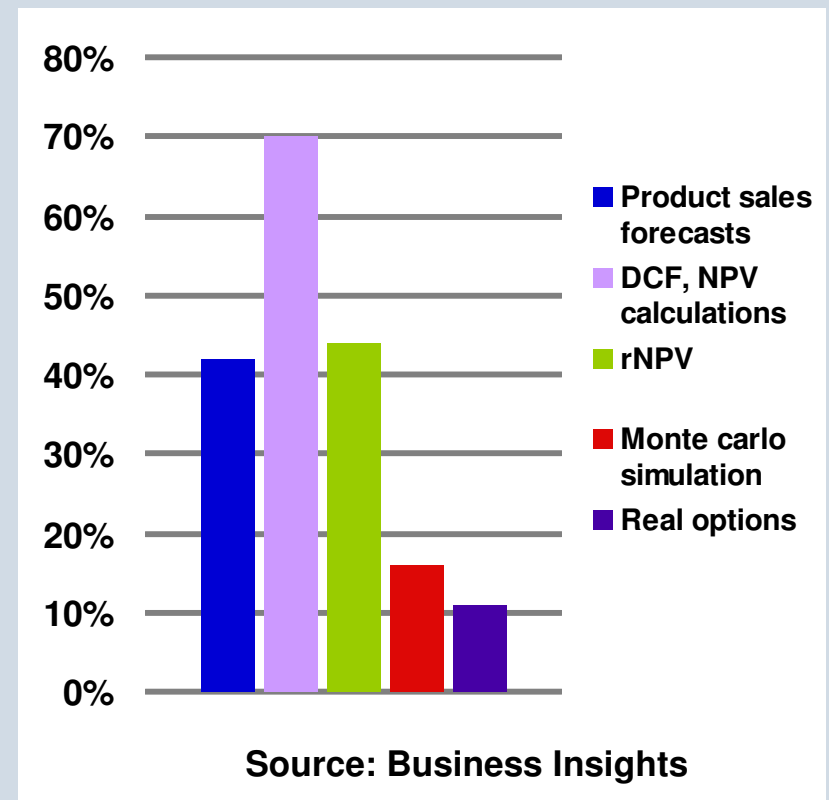
Valuation Methods

complexity ↓

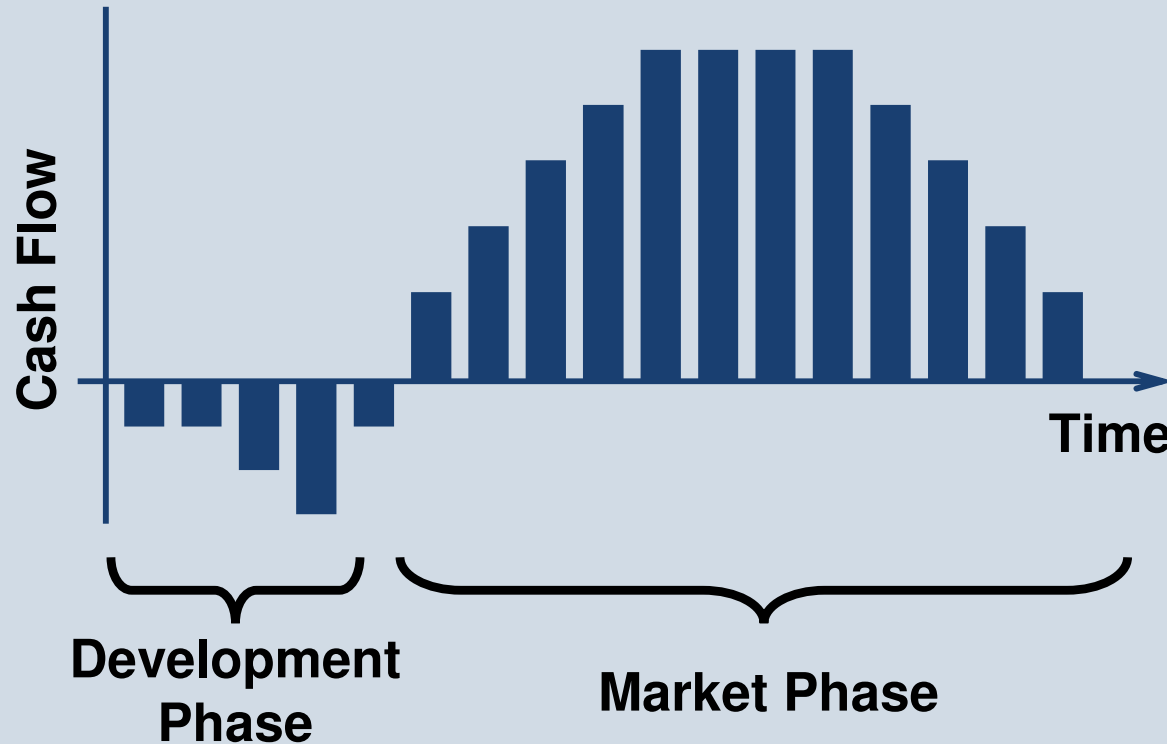
- Simple sales forecasts
- Discounted cash flows
- rNPV (eNPV)
- Real options

- Monte Carlo Analysis

Industry use



Valuation components

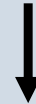


- Determine timelines and cash flows in each phase
- Develop solid assumptions for all key variables

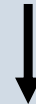
Five Step Process



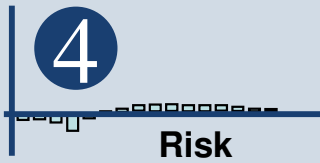
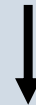
Determine Cash Flows in **Development** Phase



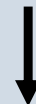
Determine Cash Flows in **Market** Phase



Discount with Discount Rate



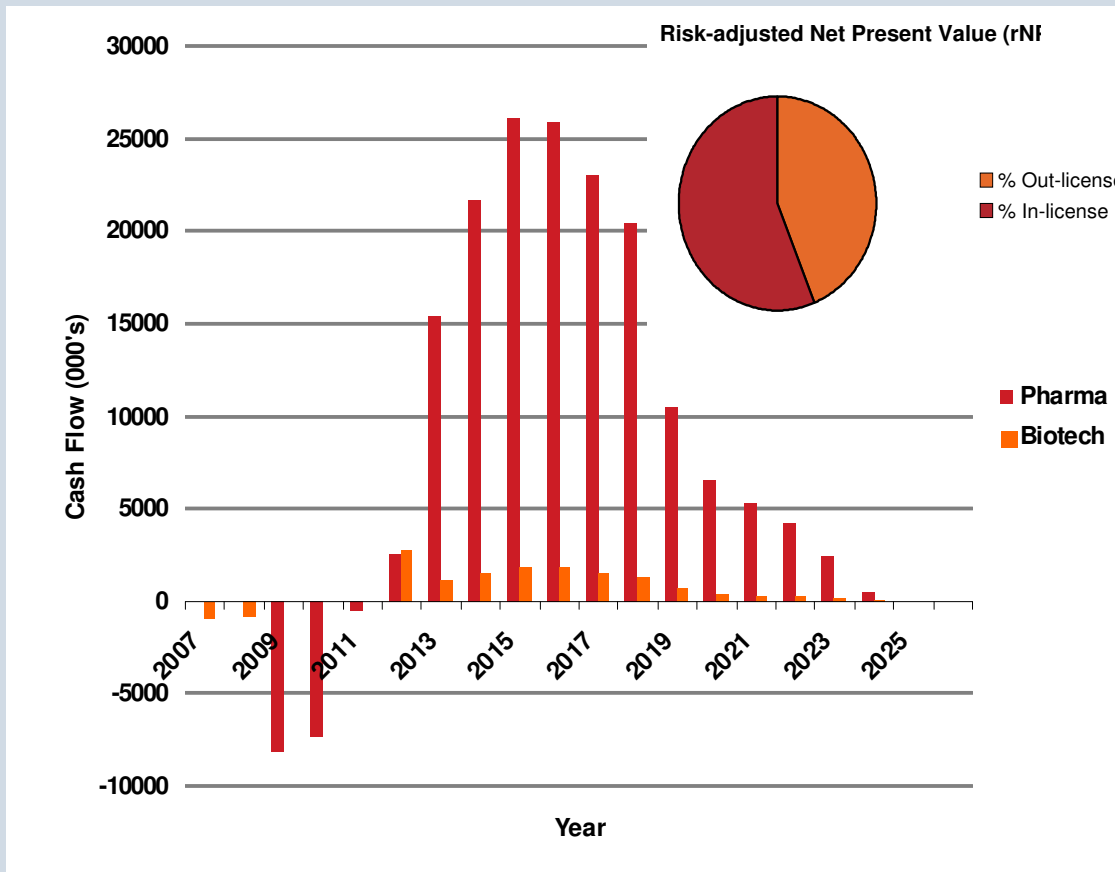
Adjust for **Risk**



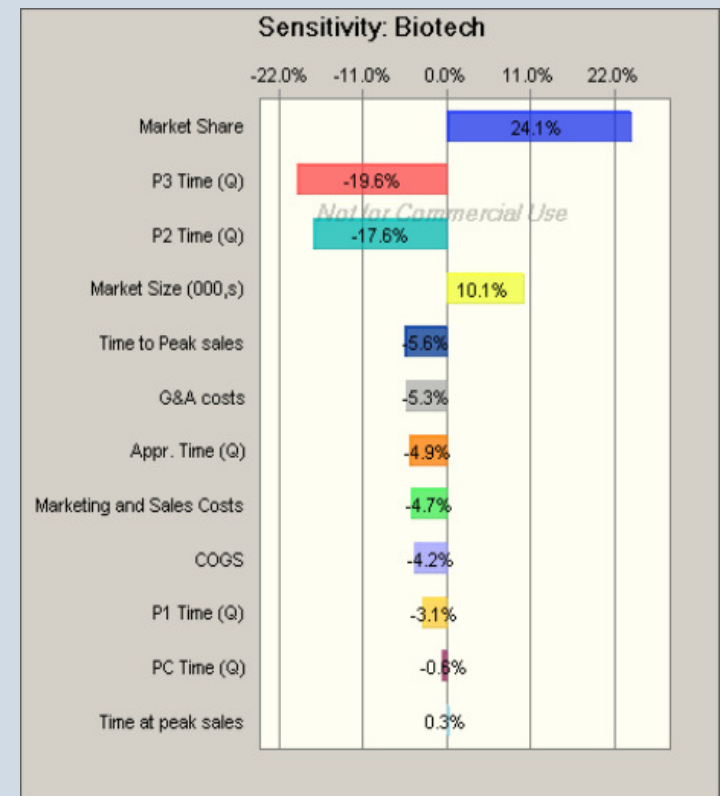
Sum cash flows

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

Tel.: +41 43 321 86 60

Fax: +41 43 321 86 61

www.venturevaluation.com

p.frei@venturevaluation.com

Venture Valuation AG

Kasernenstrasse 11

8004 Zürich