THE VALUATION EXPERTS

Pharma-Biotech Company Valuation - an Introduction

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Overview

- **Company Valuation**

Break

- **Product Valuation**
Mission

Independent assessment and valuation of technology-driven companies/products in growth industries

Life Sciences Database Biotechgate.com
With Company profiles, licensing opportunities, investors and licensing deal information

- Experts Finance / Biotech-Pharma
- Not a venture capitalist
- International experience
- Track record of over 350 valued companies
- Clients such as NVF, Fraunhofer Gesellschaft, European Investment Bank; VCs; Arpida/Evolva
Why Valuation?

• **Value:** implies the inherent worth of a specific thing

• **Price:** depending on the market (supply / demand); whatever somebody is prepared to pay

“Price is what you pay. Value is what you get.”
By Warren Buffett

=> Provide basis for negotiation, investment decision, fair share price
- Value before investment (pre-money value): EUR 1.5 m
- Investment: EUR 0.5 m
- Value after investment (post-money value): EUR 2.0 m
- Share Investor: 0.5 m / 2 m = 25%
Why Valuation

- Out-licensing of a phase II product
- Deal terms:  
  up-front: CHF 1 m  
  milestones: CHF 20 m  
  royalties: 7%

- rNPV of product: ?
- rNPV of deal: ?

⇒ rNPV of product: CHF 30 m
⇒ rNPV of deal: CHF 10 m
⇒ Split Biotech / Pharma: 33% / 66%

rNPV: risk adjusted net present value
- Valuation is key issue in development
- Industry lacks transparency (private)
- Very difficult (high uncertainties)
- High potential for investors
- Long investment cycle
- Traditional valuation methods unsuited
- Complex technology and IP situations
Trends in Valuation

- Pharma companies have gap in pipeline
- Biotechs do not have resources for late stage development and distribution
- Licensing model: Biotech => Pharma
- Biotech compete with Pharma in-house R&D
- Pharma compete with investors

=> Licensing, M&A, IPO
Mind-set of Investors

- Take high risk, but expect high returns
- Pressure from investors
- Compete in capital market

<table>
<thead>
<tr>
<th>Probability of failure</th>
<th>Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government Bond</td>
<td>0%</td>
</tr>
<tr>
<td>Bonds</td>
<td>5%</td>
</tr>
<tr>
<td>Blue Chip Company</td>
<td>10%</td>
</tr>
<tr>
<td>Internet company (Nasdaq)</td>
<td>50%</td>
</tr>
<tr>
<td>Biotechnology Company</td>
<td>80%</td>
</tr>
</tbody>
</table>
Risk as a major factor

1. How can we capture risk?
   => Assessment of the company

2. How can risk be quantified?
   => rating of factors
Assessment

1. Understand the fundamentals
2. Assumptions drive the valuation
⇒ Assessment/assumptions are key

Assessment

<table>
<thead>
<tr>
<th>Company</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td><img src="image" alt="icon" /></td>
</tr>
<tr>
<td>Market</td>
<td><img src="image" alt="icon" /></td>
</tr>
<tr>
<td>Technology</td>
<td><img src="image" alt="icon" /></td>
</tr>
</tbody>
</table>
Management

1. Completeness skills
2. Track record / experience
3. Motivation / Incentive structure
4. Organization
5. Emotional intelligence / social competence
6. Composition and involvement of boards

1 2 3 4 5 6
none / very poor low / poor insufficient sufficient good high
Industry Structure: (Five forces by Michael Porter)

1. Threat of new Entry
2. Rivalry among existing competitors
3. Pressure from substitute products
4. Dependencies on customers
5. Dependencies on suppliers
6. Current and future market potential
7. Customers
8. Political / legal dependencies
9. Cost and Sales estimations
1. Intellectual Property (IP)
2. Unique selling proposition
3. Alliances/partnerships
4. Management of future discoveries
5. Time to market

1. None / very poor
2. Low / poor
3. Insufficient
4. Sufficient
5. Good
6. High
Assessment => Define risk

DCF*: Discount rate
- Non-therapeutic company
- Technology platform

rNPV**:
- a. Discount rate
- b. Success rate
- Therapeutic product company

* DCF: Discounted Cash Flow
** rNPV: risk adjusted Net Present Value
Valuation Approaches

- Operations-based methods:
  \( \Rightarrow \text{business plan, fundamentals} \)

- Market-based methods:
  \( \Rightarrow \text{price, trends, comparison difficulties} \)

- Discounted Cash Flows (DCF)
- rNPV
- Real Options
- Venture Capital method
- Market Comparables
- Comparable Transactions

\( \Rightarrow \) there is no “the right method”
\( \Rightarrow \) combination of different methods
Basic DCF

Present Value today

Future
year 1  year 2  year 3  year 4  year 5  year 6 till ∞

Terminal Value

Free Cash Flows
- 60  - 30  40  100  180  300
Discounted Cash Flow

1. Determine Free Cash Flows to year 5 or y3 / y10

2. Calculate Terminal Value

3. Discount with Discount Rate

4. Sum of Discounted Free Cash Flows
Calculate Terminal Value

a) Normalized Free Cash Flow (nFCF):

- last year as basis plus growth rate
  (estimate: \( nFCF = FCF_5 *(1+g) \))

b) Terminal value (TV):

- perpetuity based on nFCF & growth rate
  \[ TV = \frac{nFCF}{d-g} \]
  \( d: \) discount rate
  \( g: \) growth rate

- **Growth rate (g):** industry long-term growth
Assumptions: interest rate $i = 10\%$

**today** ($K_0$) | **future** ($K_1$) (n=5 years)
---|---
1.00 EUR | 1.61 EUR \( K_0(1+i)^n \)
0.62 EUR | 1.00 EUR \( K_1/(1+i)^n \)

Content of the discount-rate:
- Depreciation of currency and
- Risk $\Rightarrow$ Qualitative analyzes

\[ \Rightarrow = 1.6 \times \]
Discount rate:
- 1) Time value of money (risk free rate)
- 2) Risk of getting the money back
  - Risk of Equity ≠ Risk of Debt
Discount rate

a) Company stage

1 Seed Stage leads 70% to 90% (20x)*
2 Start-up Stage pre-clinical 50% to 70% (10x)*
3 First Stage phase I 40% to 60% (8x)*
4 Second Stage phase II 35% to 50% (6x)*
5 Later Stage phase III 30% to 40% (5x)*

*X-times the investment in 5 years necessary => (1+80%)^5 = 19x

b) Rating based

⇒ Determine area within range
WACC - Discount rate

WACC: weighted average cost of capital

Cost of equity: 50%  (discount-rate)
Cost of debt: 15%  (interest rate)

Equity ratio: 0.8
Debt ratio: 0.2

WACC: 0.8*50% + 0.20*15% = 43%

Biotech with no debt:
1.0*50% + 0.00*15% = 50%
## Sum of FCF (NPV)

### Step 1: Present Value
- Sales: FCF
- Terminal Value (TV)

### Step 2: Terminal Value
- Present Value: PV
- FCF
- Year 1 to Year 5

### Step 3: Discount to PV
- Discount factor: \((1.45)^n\)

### Step 4: Add FCF
- Total (sum)
- TV

### Table

<table>
<thead>
<tr>
<th>In 1'000 EUR</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>TV</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCF</td>
<td>-50</td>
<td>45</td>
<td>120</td>
<td>155</td>
<td>163</td>
<td>512*</td>
</tr>
<tr>
<td>formula</td>
<td>(-50) ((1.45)^1)</td>
<td>(45) ((1.45)^2)</td>
<td>(120) ((1.45)^3)</td>
<td>(155) ((1.45)^4)</td>
<td>(163) ((1.45)^5)</td>
<td>(512) ((1.45)^5)</td>
</tr>
<tr>
<td>PV</td>
<td>-73</td>
<td>42</td>
<td>51</td>
<td>41</td>
<td>30</td>
<td>109</td>
</tr>
</tbody>
</table>

| Total (sum)  | 167    |

*TV = \(169 / (0.45 - 0.12) = 512\)
Comparable Methods

For most Biotechs you cannot use: P/E, EV/EBITDA, EV/EBIT, EV/Sales

- R&D expenditure
- Employees
- Money raised
- Product in development (p I, p II, p III)

Company Value: USD 50 m
50 employees

10 employees
⇒ Company Value: **USD 10 m**

* (50/50) x 10 m = 10 m
# Venture Capital Method

## Present Value

<table>
<thead>
<tr>
<th>Stage</th>
<th>Discount rate</th>
<th>(Multiple)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>70% to 90%</td>
<td>(20x)*</td>
</tr>
<tr>
<td>Pre-clinical</td>
<td>50% to 70%</td>
<td>(10x)*</td>
</tr>
<tr>
<td>Phase I</td>
<td>40% to 60%</td>
<td>(8x)*</td>
</tr>
<tr>
<td>Phase II</td>
<td>35% to 50%</td>
<td>(6x)*</td>
</tr>
<tr>
<td>Phase III</td>
<td>30% to 40%</td>
<td>(5x)*</td>
</tr>
</tbody>
</table>

* i.e.: in 5 years

## Future

- Year 1
- Exit year

## Exit Value
Example Glycart

- Glycart acquired by Roche
- For USD 180 m
- Swiss company; founded in 2000 spin-off from ETH in Zurich
- Technology platform to enhance the activity of therapeutic antibodies (cancer / autoimmune diseases)
- Pre-clinical products
- Existing collaboration with Roche (1 year)
- 30 employees
Example Glycart

- Raise USD 31 m in the past
- Planned to raise another USD 35 m ⇒ valuation too low
- Acquisition offer by mid-sized Pharma
  ⇒ auction process / parallel fund raising
Example Glycart

Valuation:

⇒ Pre-clinical compounds USD 180 m?
⇒ Technology Platform?
⇒ Keeping control?
⇒ Value enhancement for own products?