



# THE VALUATION EXPERTS

VALUING YOUR OPPORTUNITY –  
How industry and investors evaluate your  
project or company

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# Overview



- **Introduction**
- **Valuation of start-up companies**
- **Valuation of a therapeutic Product**

## Mission

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

**Company and Deals Database - Biotechgate.com**



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

# Valuation of what?



## 1. Valuation of a product

⇒ Licensing deal

⇒ Strategic development decision



## 2. Valuation of a company

⇒ Investment / Financing round

⇒ Merger / Acquisition

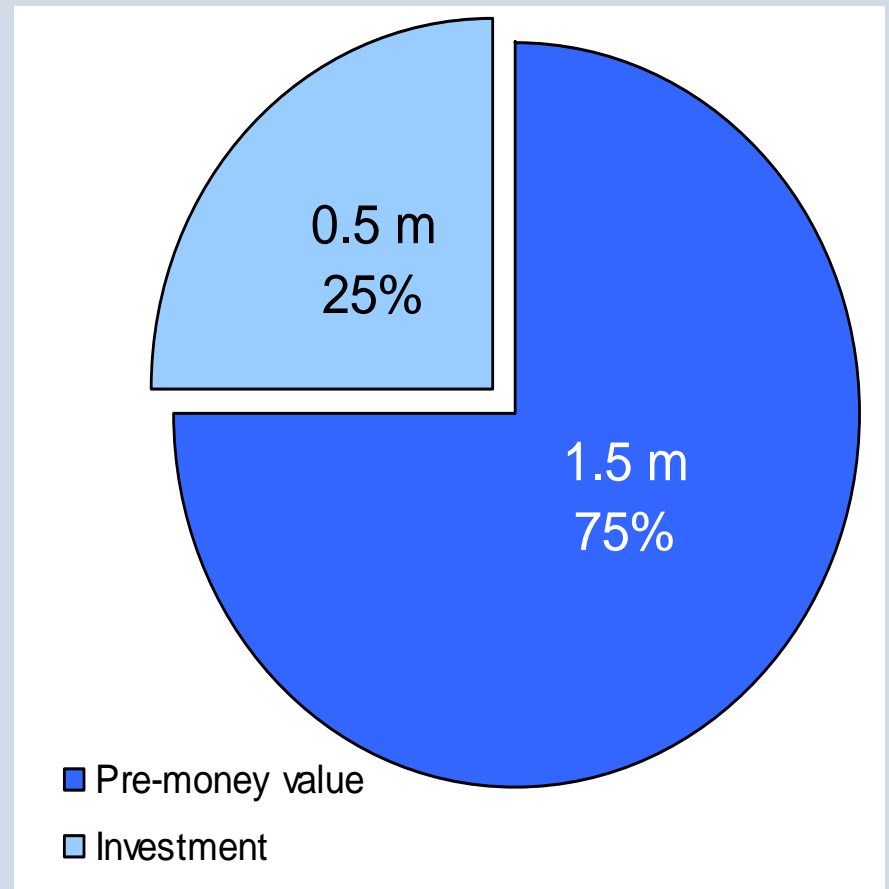
⇒ Measure success of company development



# Why Valuation



- Value before investment (pre - money value): USD 1,5 m
- Investment: USD 0,5 m
- Value after investment (post-money value): USD 2,0 m
- Share Investor:  
 $0,5 \text{ m} / 2 \text{ m} = 25\%$



# Why Valuation

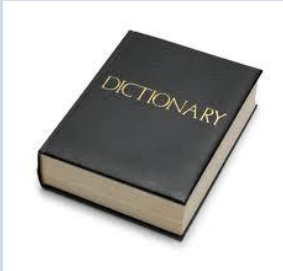


- Out-licensing of a phase II product
- Deal terms:

up-front	USD	1 m
milestones	USD	20 m
royalties		7%
- rNPV of product
- rNPV of deal
  
- ⇒ rNPV of product: USD 30 m
- ⇒ rNPV of deal: USD 10 m
- ⇒ Split Biotech / Pharma: 33% / 66%

rNPV: risk adjusted net present value

# Definitions



- **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

# IP/Biotech Valuation



- 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



# Mind-set of Investors



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

	Probability of failure	Return
Government Bond	0%	3%
Bonds	5%	5%
Blue Chip Company	10%	9%
Internet company (Nasdaq)	50%	20%
Biotechnology Company	80%	50%

# Assessment



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

## Assessment

## Company

## Product

1. Management



2. Market



3. Technology



# Overview



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# Valuation Approaches



## 1. Operations-based methods:

⇒ *business plan, fundamentals*

## 2. Market-based methods:

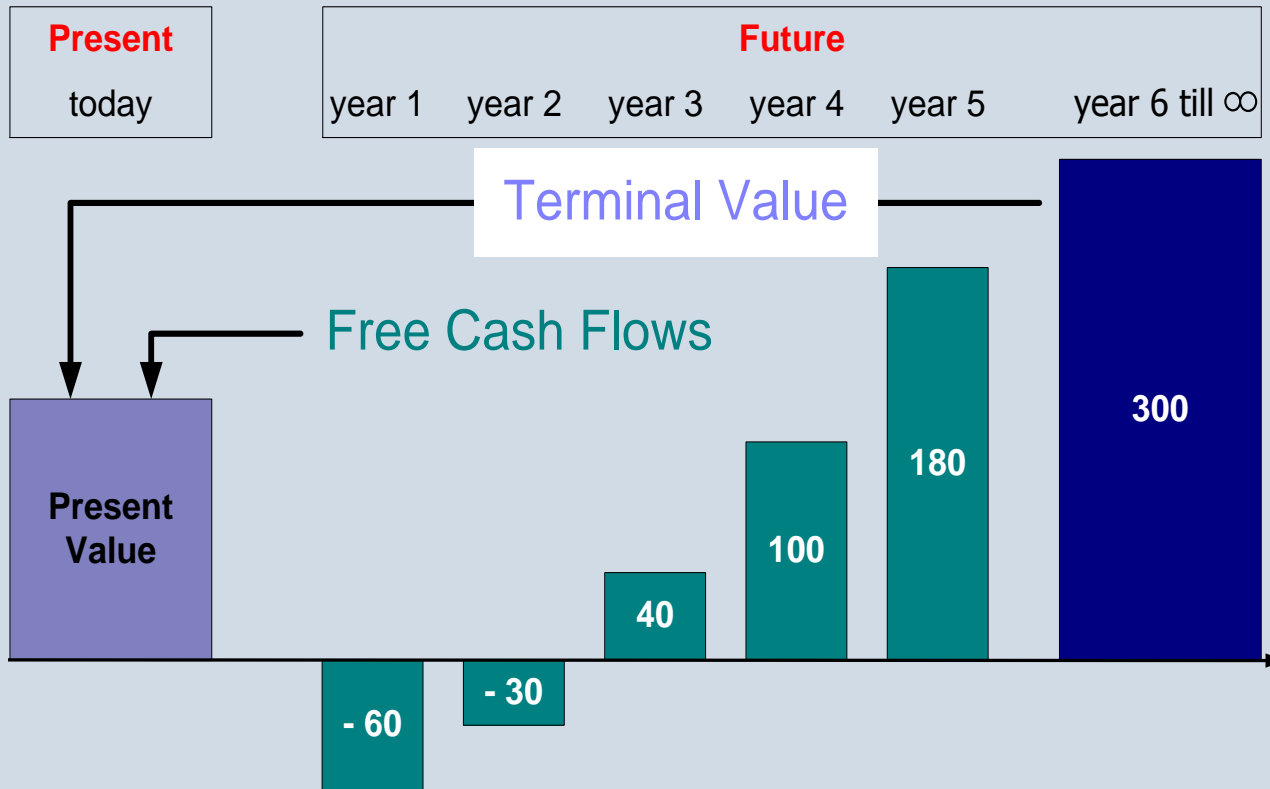
⇒ *price, trends, comparison difficulties*

- Discounted Cash Flows (DCF)
  - rNPV
  - Real Options
  - Venture Capital method
  - Market Comparables
  - Comparable Transactions
- } Operations methods
- ⇒ Mixed method
- } Market methods

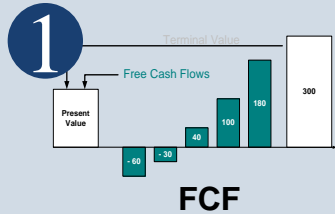
⇒ there is no “the right method”

⇒ combination of different methods

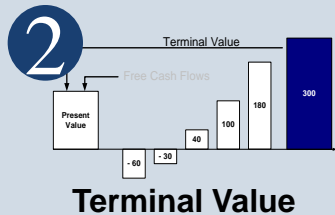
# Basic DCF



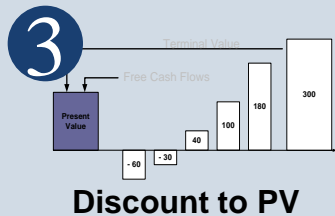
# Discounted Cash Flow



Determine Free Cash Flows for year 1 to 5 or 3/10



Calculate Terminal Value



Discount with Discount Rate



Sum of Free Cash Flows

# Comparable Methods

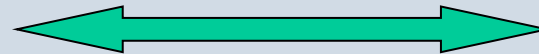


For most Biotechs you cannot use:  
P/E, EV/EBITDA, EV/EBIT, EV/Sales



Company Value:  
USD 50 m  
50 employees

Ratio



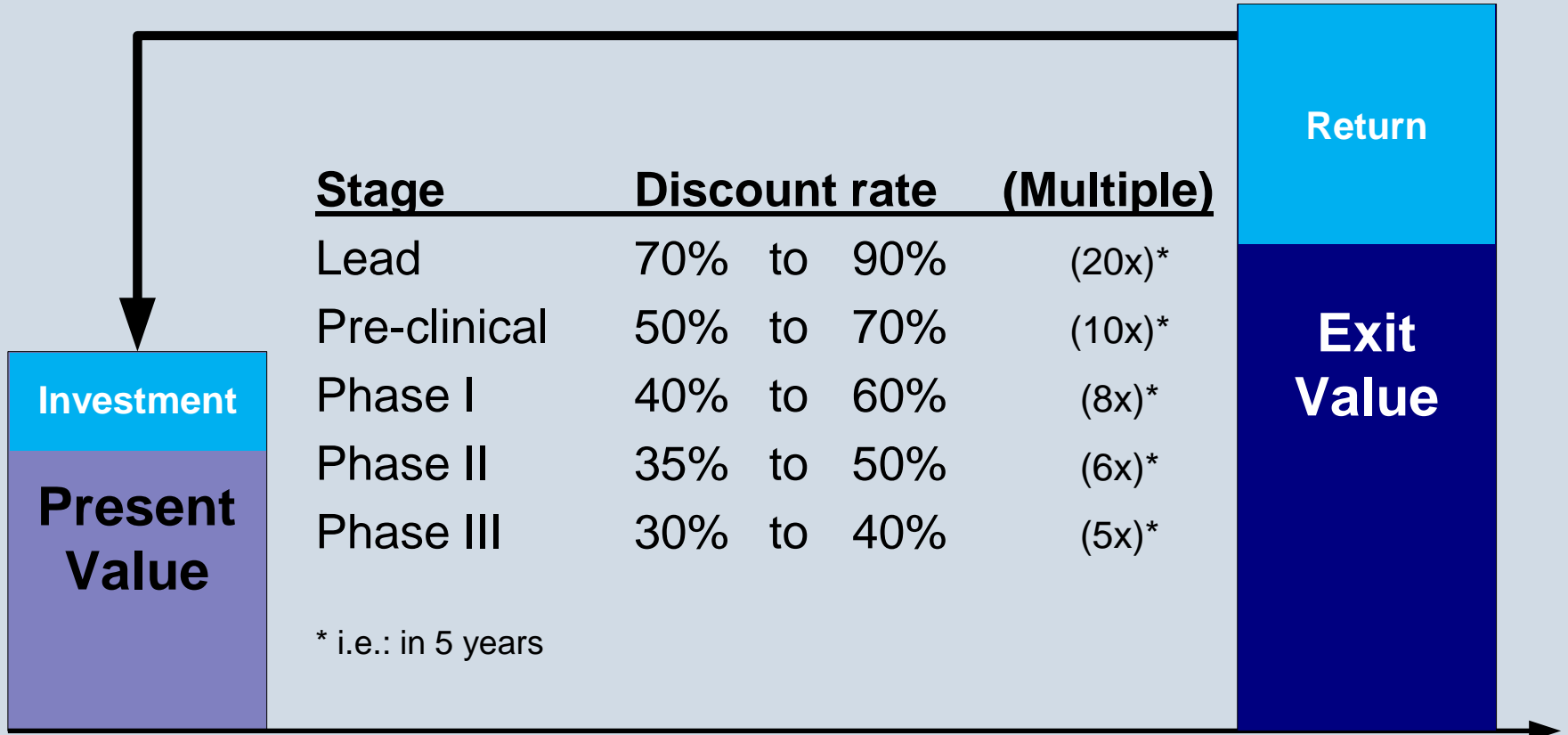
- R&D expenditure
- Employees
- Money raised
- Product in development (p I, p II, p III)



10 employees  
⇒ Company Value:  
USD 10 m\*

\*  $(50/50) \times 10 \text{ m} = 10 \text{ m}$

# Venture Capital Method



**Present**  
today

**Future**  
year 1 —————> Exit year



# 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



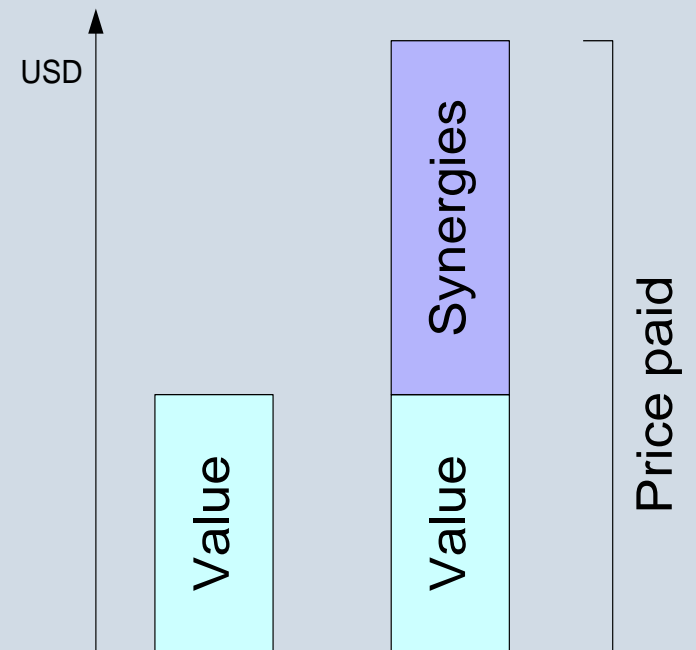
Valuation:

⇒ Pre-clinical compounds USD 180 m?

⇒ Technology Platform?

⇒ Keeping control?

⇒ Value enhancement for own products?



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# Product Valuation



## Valuation of a product / IP

- Licensing deal
- Strategic development decision
- Expenses included are only those relevant to the product
- Management risks not taken into account



# Introduction



## Input

- Development cost and timelines
- Production / Marketing cost
- Market / expected sales
- Success rate based on historical data

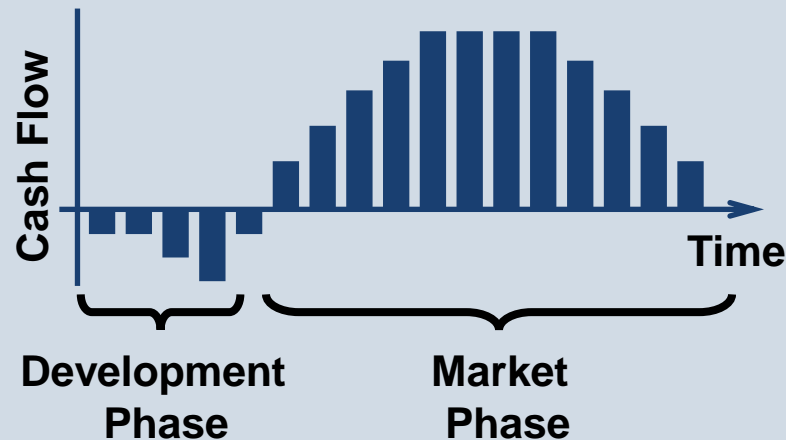
## Output

- Expected annual discounted cash flows

# rNPV Valuation



1. Development phase => investment  
Product Risk ( $r$ ) => success rate
2. Market phase => revenues  
Patent expiry => end of revenues  
(often no terminal value)
3. Discount => non-specific risk (General Risk)



# Five Step Process



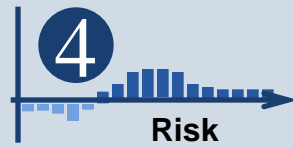
Determine Cash Flows in **Development** Phase



Determine Cash Flows in **Market** Phase



Discount with **Discount rate**



Adjust for **Risk** (success rates)



Sum up risk adjusted net present cash flows



# rNPV – Example

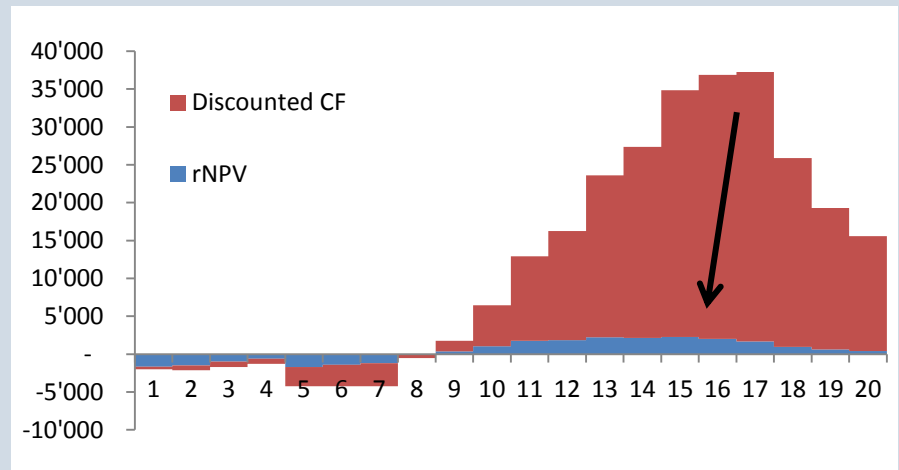
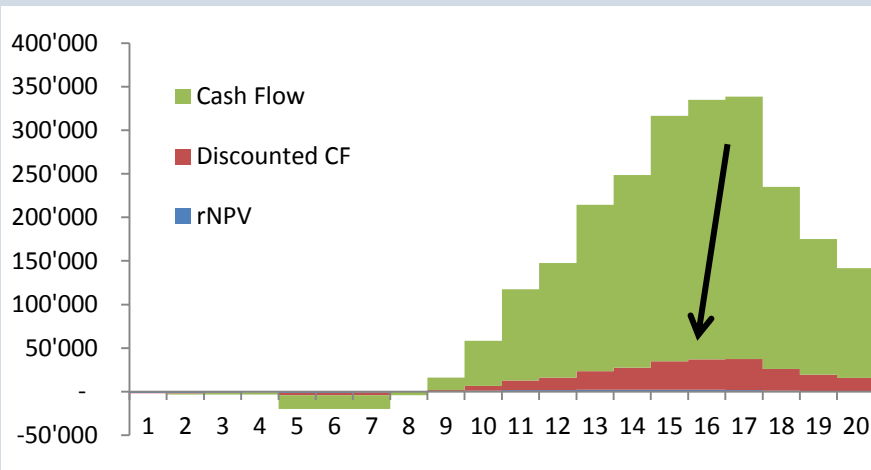


- Phase 1, single product company
- 20% discount rate
- 11% Probability of success (p1 to market)

⇒ CF: USD 2'269m

⇒ DCF: USD 127m

⇒ rNPV: USD 8m



# Bottom up approach



## Sales Forecast

Western EU		2018	2019
Population (000's)		300'000	306'000
Incidence rate (%)	0.020%	60.000	61.200
Diagnosed population	70%	42.000	42.840
Population treated with drugs	80%	33.600	34.272
Compliance rate	90%	30.240	30.845
Addressable population		30.240	30.845
Market penetration rate (%)		18%	34%
Patient population		5.443	10.487
Market share	12%		
Price (EUR)	2000		
<b>Sales Western EU (EUR 000's)</b>		<b>1'306</b>	<b>2'517</b>
<b>USA Sales</b>		<b>2'540</b>	<b>4'798</b>
<b>Japan Sales</b>		<b>392</b>	<b>755</b>
<b>Rest of the World (RoW) Sales</b>		<b>1'270</b>	<b>2'399</b>
<b>Total sales (EUR 000's)</b>		<b>5'508</b>	<b>10'469</b>

### Peak Sales

USD 1bn =>

### Value

USD 8m

USD 0.7bn =>

USD 3m

USD 2bn =>

USD 25m

# Discount rate



Used discount rate in rNPV:

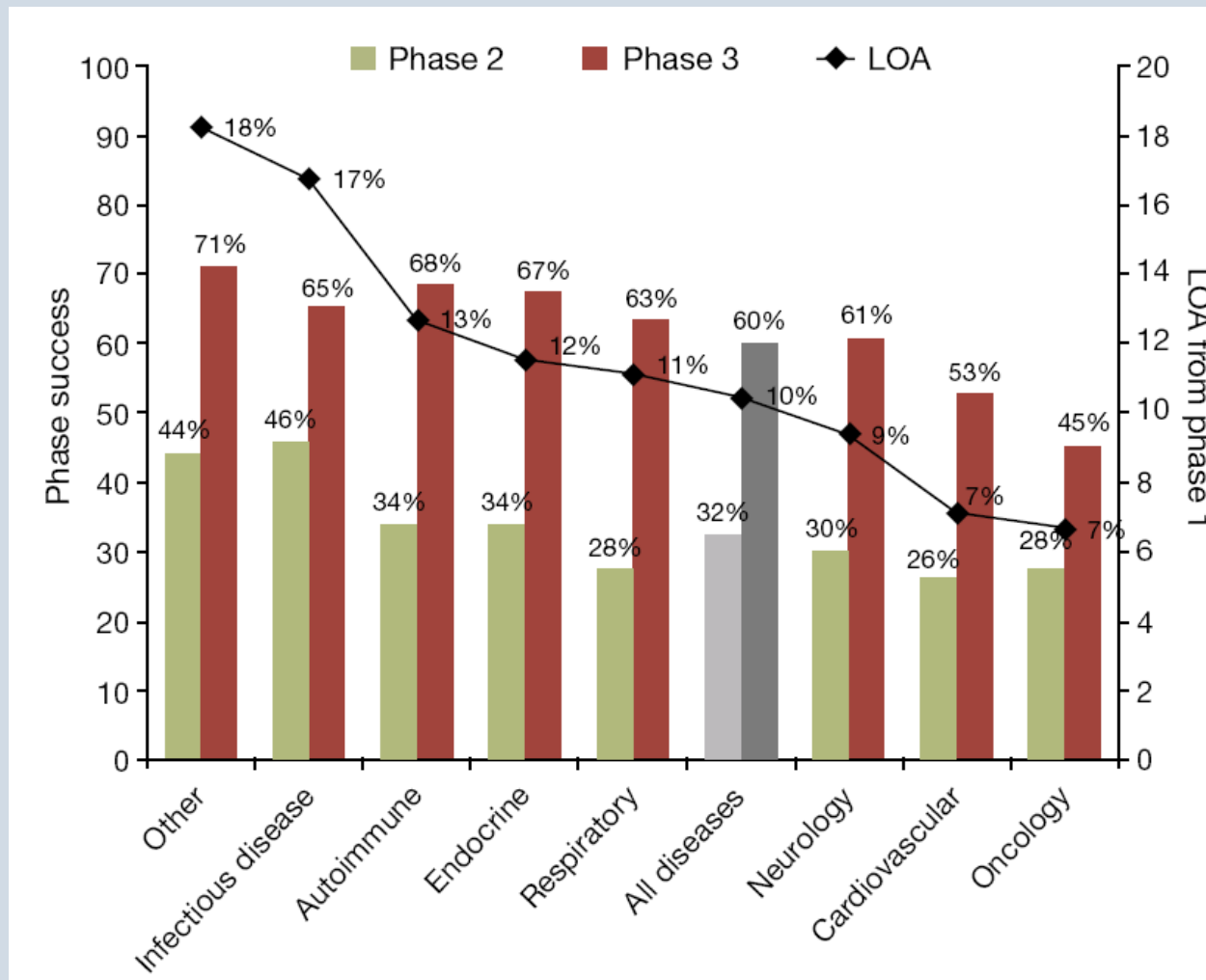
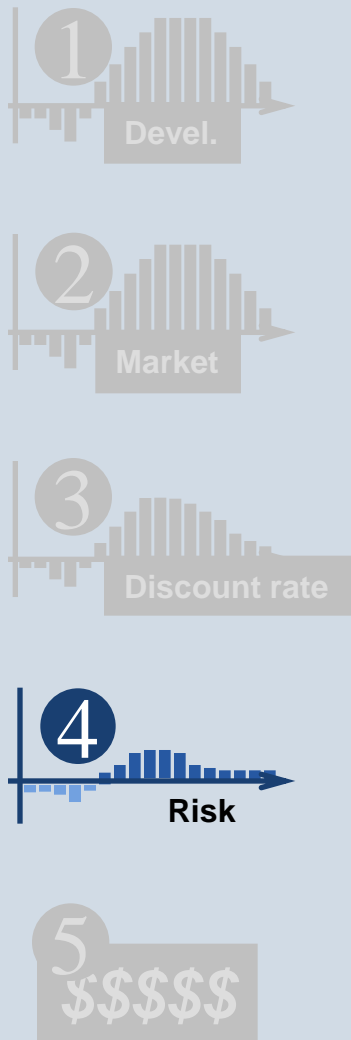
- Early stage                    12% - 28%
- Mid stage                        10% - 22%
- Late stage                        9% - 20%

Source. [www.biostrat.dk](http://www.biostrat.dk)

Cost of equity and non-development associated risks.

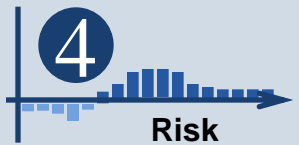
20% => USD 8m  
25% => USD 2m  
15% => USD 21m

# Adjust for risk (I)



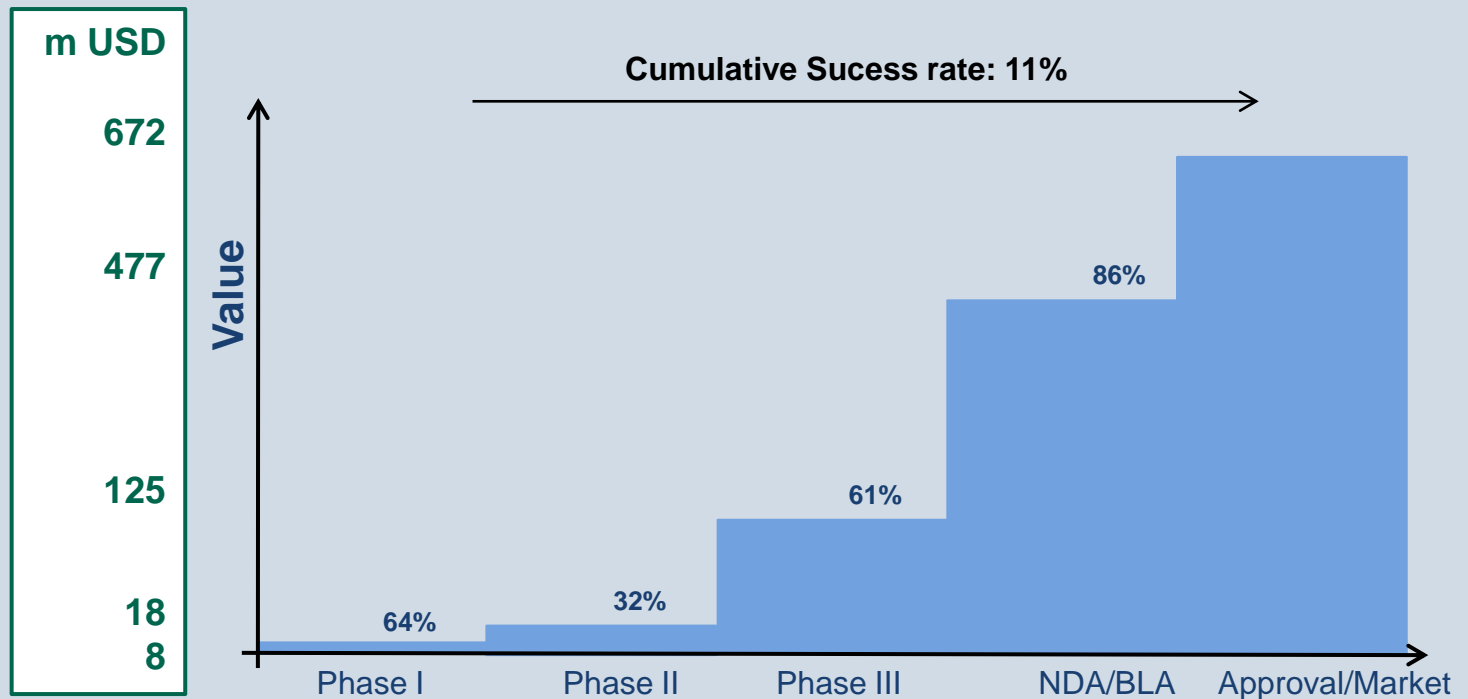
Source: Nature Biotechnology; Clinical development success rates for investigational drugs; January 2014  
 LOA: Likelihood of approval

# Adjust for Risk (II)

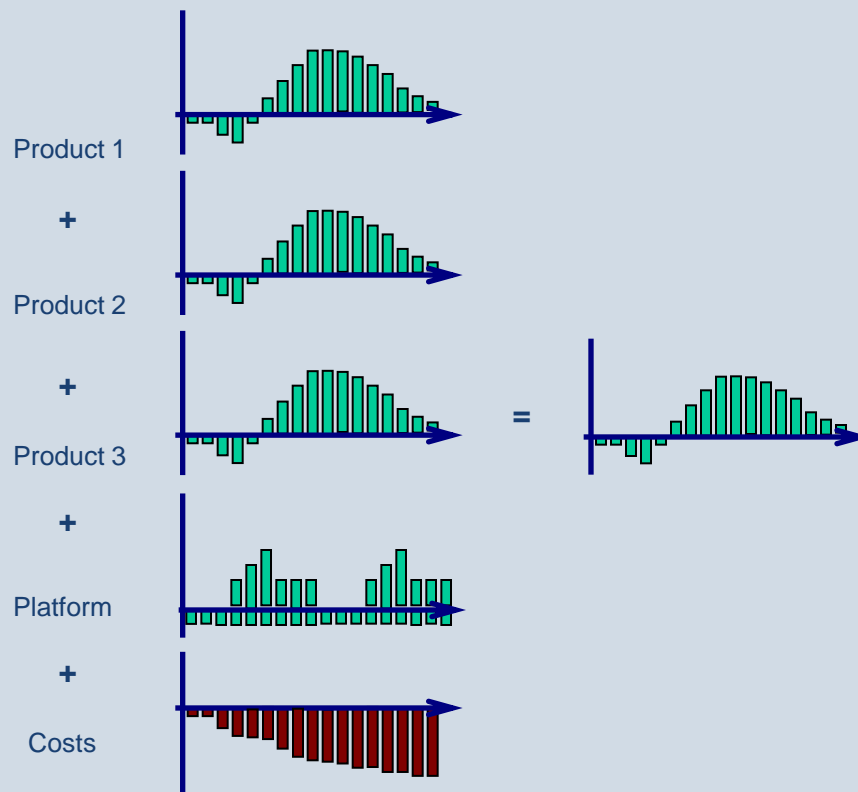


## The relation between Risk and Value

- Completion of a phase → Direct value increase



# Company Valuation



## Early stage company

Sum-of parts valuation

Total value of project

# Deal terms



- 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)
<b>Up-front</b>	1 m	1 m
<b>Finish Pre-clinical</b>	1 m	0.44 m
<b>Finish Phase I</b>	1 m	70'000
<b>Finish Phase II</b>	1 m	17'000
<b>Finish Phase III</b>	1 m	8'000
<b>Approval / Enter market</b>	1 m	5'000
<b>Royalties</b>	1%	0.70 m

\* Time value of money and Risk adjusted

# Timing of payments (II)



- Two very different deal structures can look identical

Cash Flow



- Non-discounted, non-risk adjusted

1

rNPV



- 25 million upfront
- 300 million milestones
- 5% royalties

2

rNPV



- 5 million upfront
- 50 million milestones
- 12% royalties



# Conclusion



- Valuation is key in the development of a start-up
- Valuation is not easy
- Value  $\neq$  Price
- Its all about the assumptions
- Deal  $\neq$  Deal
- Be prepared



# THE VALUATION EXPERTS

Thank you for listening!

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