

# **Governments and industry use of data on biotechnology**

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# Methods

- **Experiential; Non-systematic**
  - Critical I direct experience
    - Projects commissioned
    - Discussions with regional/national representatives, and lobbyists
    - Participation in European MS forums
  - Other consultants' experience
    - Projects Critical I didn't win
    - Inference from published documentation
    - [Informal discussions]
- Australia, Austria, Canada, Germany, Italy, EU, France, Belgium, Netherlands, Spain, Sweden, New Zealand, UK, and/or regions within those countries
- Illustrated with European (versus US) data

# Government demand

<b>Snapshot</b>	<b>Understand national sector</b>	<b>+++</b>
	<b>Snapshot - boosterism</b>	<b>+++++</b>
	<b>Trends and relative standing</b>	<b>+</b>
<b>Policy</b>	<b>Data on investment - fiscal policy</b>	<b>+</b>
	<b>Impact of biotech on economy - planning</b>	<b>+</b>
	<b>Impact of policies on biotech - monitoring</b>	<b>+</b>
	<b>Scenario planning</b>	<b>+</b>
<b>Directory</b>	<b>National/regional lists</b>	<b>++</b>
<b>Action</b>	<b>Qualified FDI collaboration prospects</b>	<b>++</b>
	<b>Investment targeting</b>	<b>+</b>

# The implicit questions

<b>Snapshot</b>	Understand national sector	<b>How are we doing?</b>
	Snapshot - boosterism	<b>We're doing great!</b>
	Trends and relative standing	<b>..better/worse than them</b>
<b>Policy</b>	Data on investment - fiscal policy	<b>Can we channel money?</b>
	Biotech impact on economy - planning	<b>Is biotech worth it?</b>
	Policy impact on biotech - monitoring	<b>Are we helping?</b>
	Scenario planning	<b>Where are we going</b>
<b>Directory</b>	National/regional lists	<b>Who's out there</b>
<b>Action</b>	Qualified FDI collaboration prospects	<b>What can we steal?</b>
	Investment targeting	<b>Who's worth helping?</b>

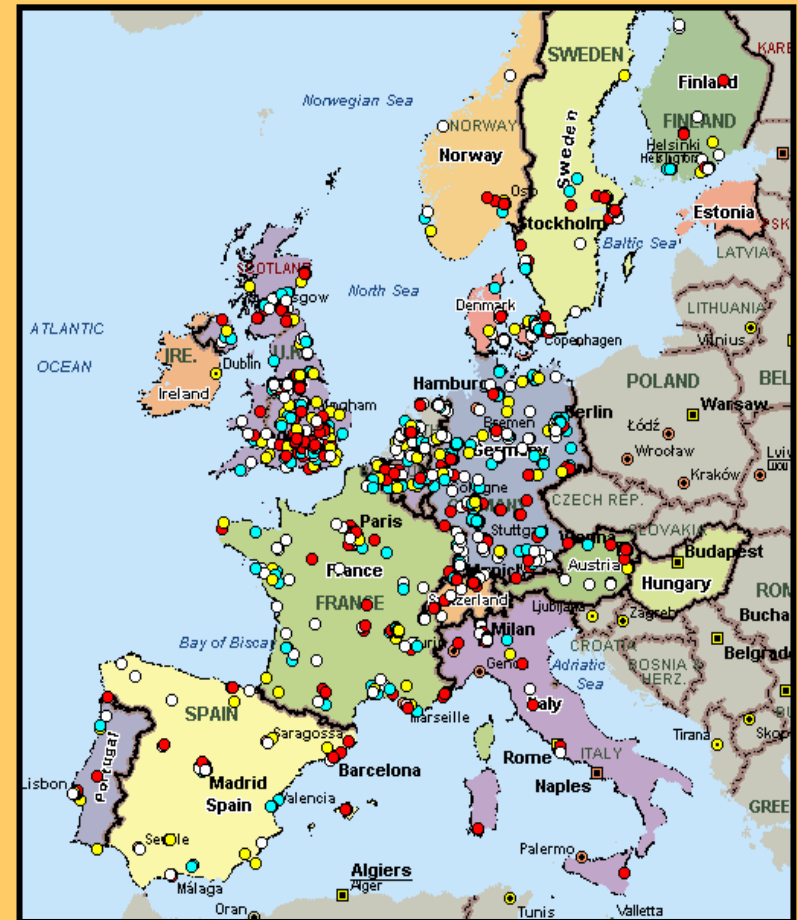
# The industry questions

<b>Snapshot</b>	Understand national sector	<b>How are we doing?</b>
	Snapshot - boosterism	<b>We're doing great!</b>
	Relative standing	<b>..better/worse than them</b>
	Private and public equity funding	<b>Where's the money going?</b>
<b>Timeline</b>	Trends	<b>How did we/they get here?</b>
<b>Productivity</b>	Revenue, R&D, products	<b>Biotech is worth it</b>
<b>Policy</b>	Policy impact on biotech - monitoring	<b>Should we adopt policies from elsewhere</b>
<b>Directory/portal</b>	National/regional lists	<b>Who's in the club?</b>
<b>Action</b>	Qualified M&A collaboration prospects	<b>Who can we buy?</b>
	Investment targeting	<b>How does the prospect stack up?</b>

Supply governments have  
sought

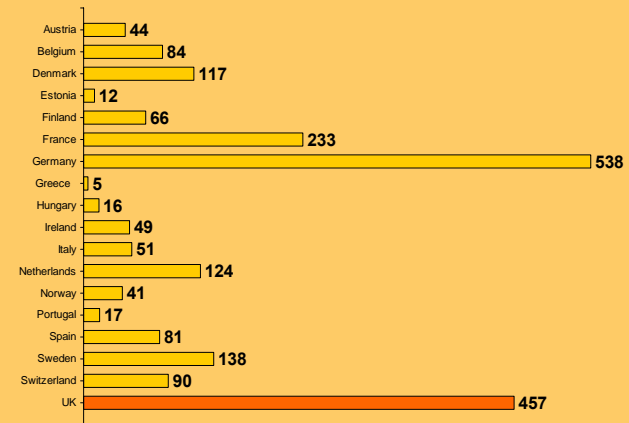
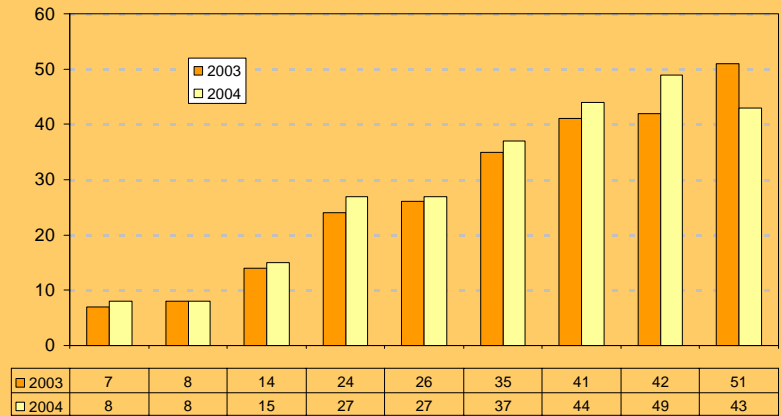
# European biotechnology 2003/4

Measure	2004		2003
Companies	2150	▼	2200
Employed	96500	▲	96000
... In R&D	42500	▲	41000
R&D Spend	€7.6 bn	≡	€7.6 bn
Revenue	€21.5 bn	▲	€20.5 bn
VC	€1.1 bn	▲	€0.8 bn
Equity fin.	€2.1 bn	▲	€1.5 bn
Debt finance	€1.8 bn	▲	€1.0 bn
New firms	119	▼	132



# Basic – numbers of companies

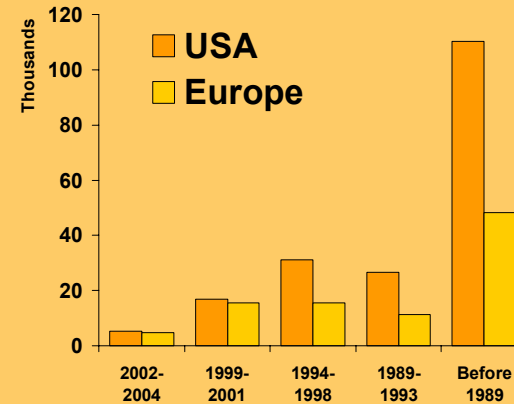
- How many companies have we got?
- More than previous years?
- More than competitors?
- Dynamism - more young companies?
- Subsector (red, white, green)





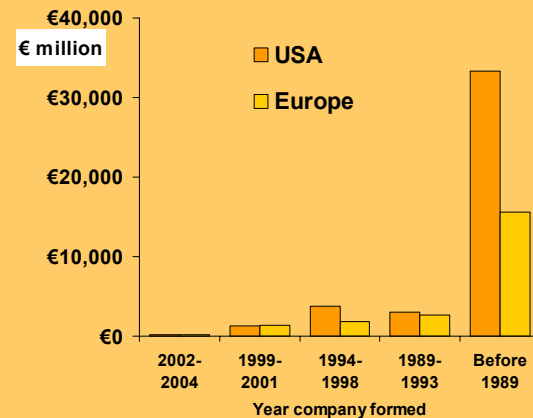
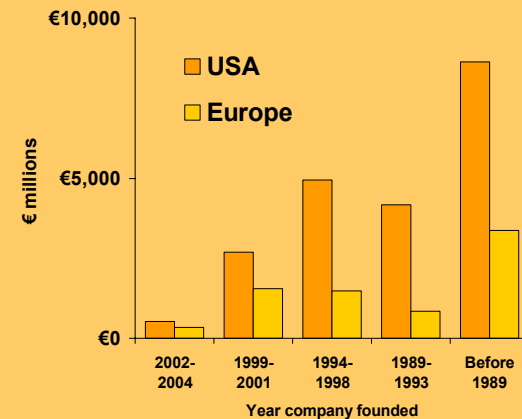
# Basic – employees

- How many employees?
- Increase over previous years?
- More than competitors?
- How many in R&D?



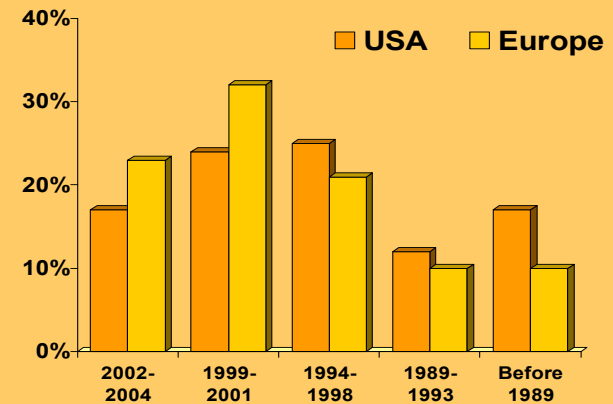
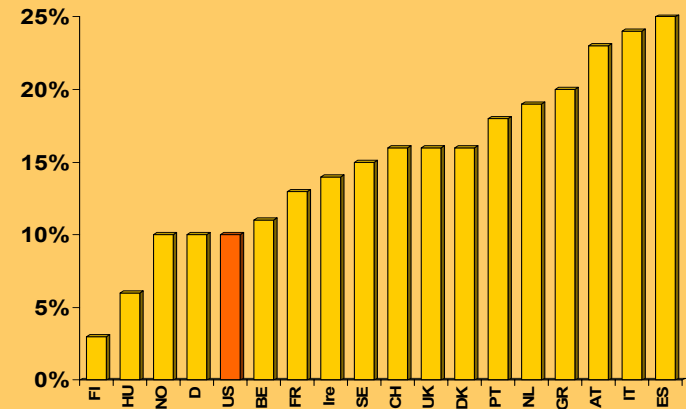
# Basic – Revenues and R&D Spend

- How much is earned/spent
- More than last year?
- More than competition?
- Which companies spend it?



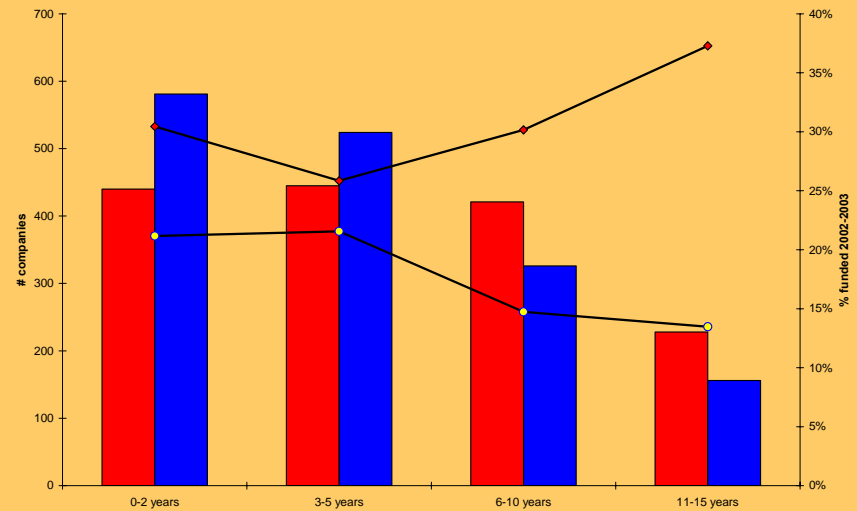
# Basic – age of companies

- HQ or subsidiaries?
- Dynamism - more young companies?
- Subsector (red, white, green)



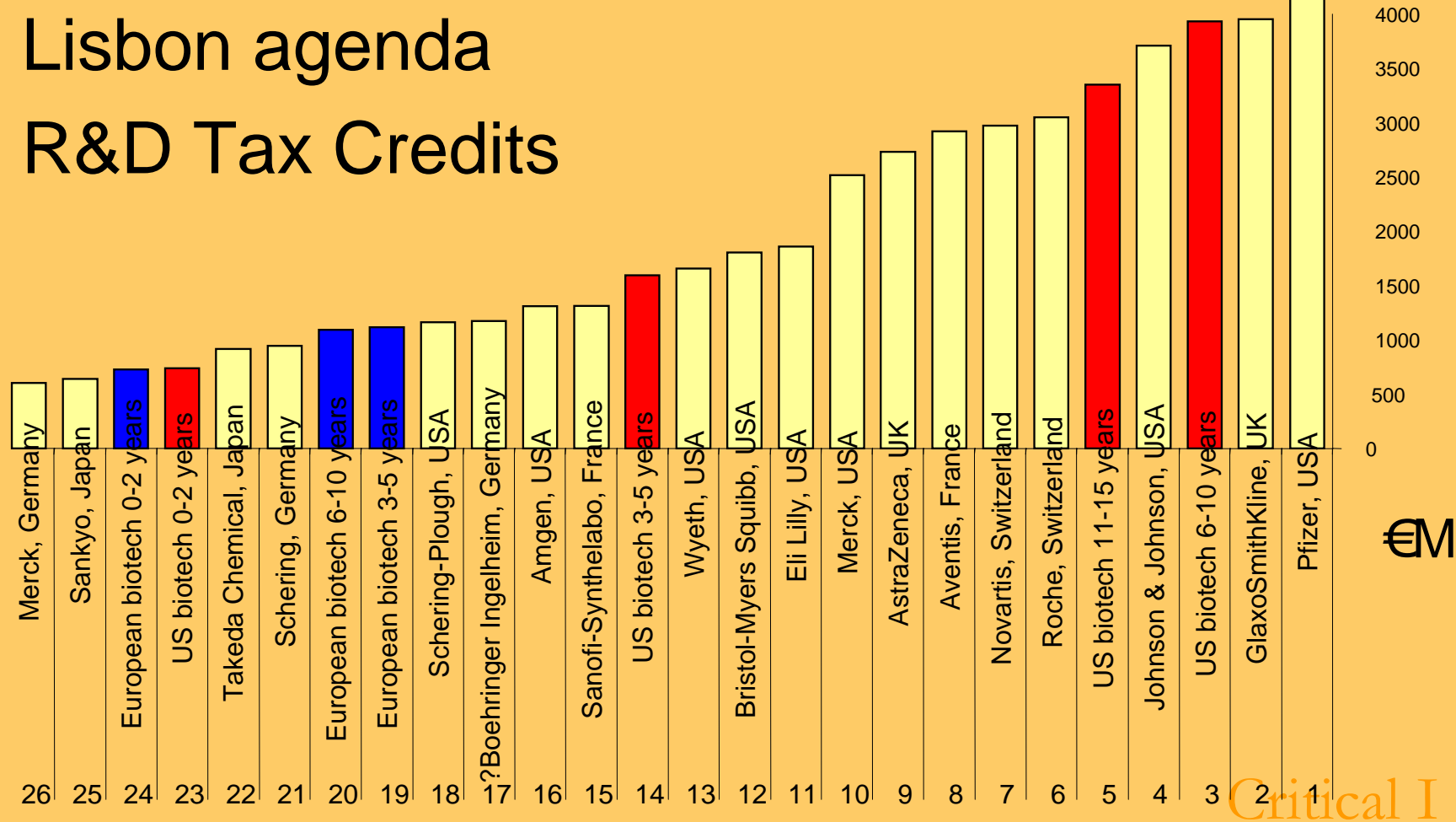
# Investment data

- How much money to start up young companies?
- How much to keep some of them going?
- Investment bottlenecks?
- Can we change fiscal regimes to free up investment?
  - Seed capital, venture, institutional, industrial



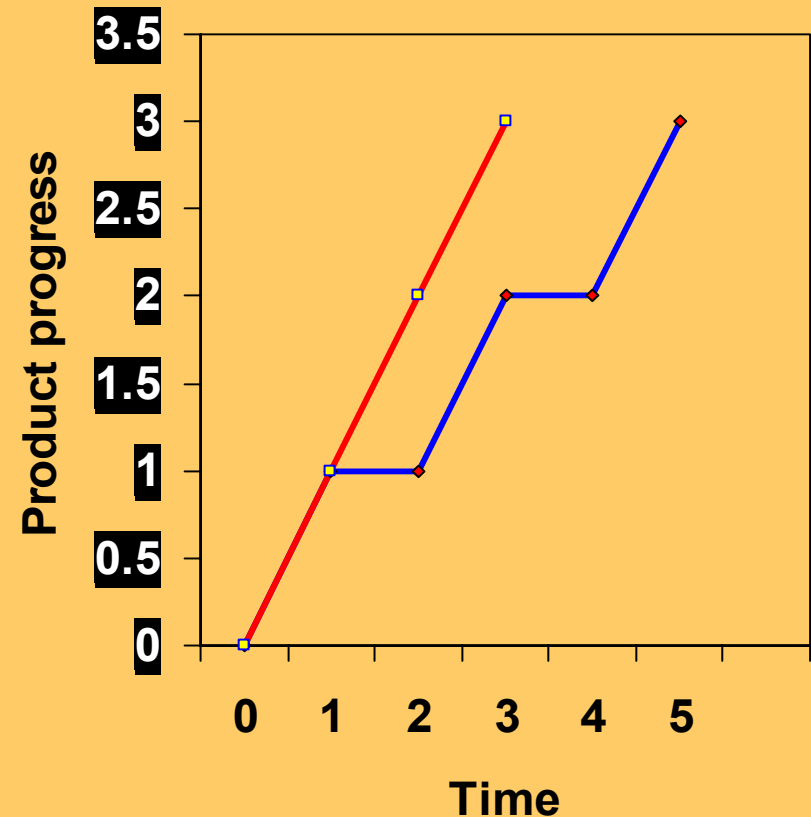
# R&D metrics

- Lisbon agenda
- R&D Tax Credits

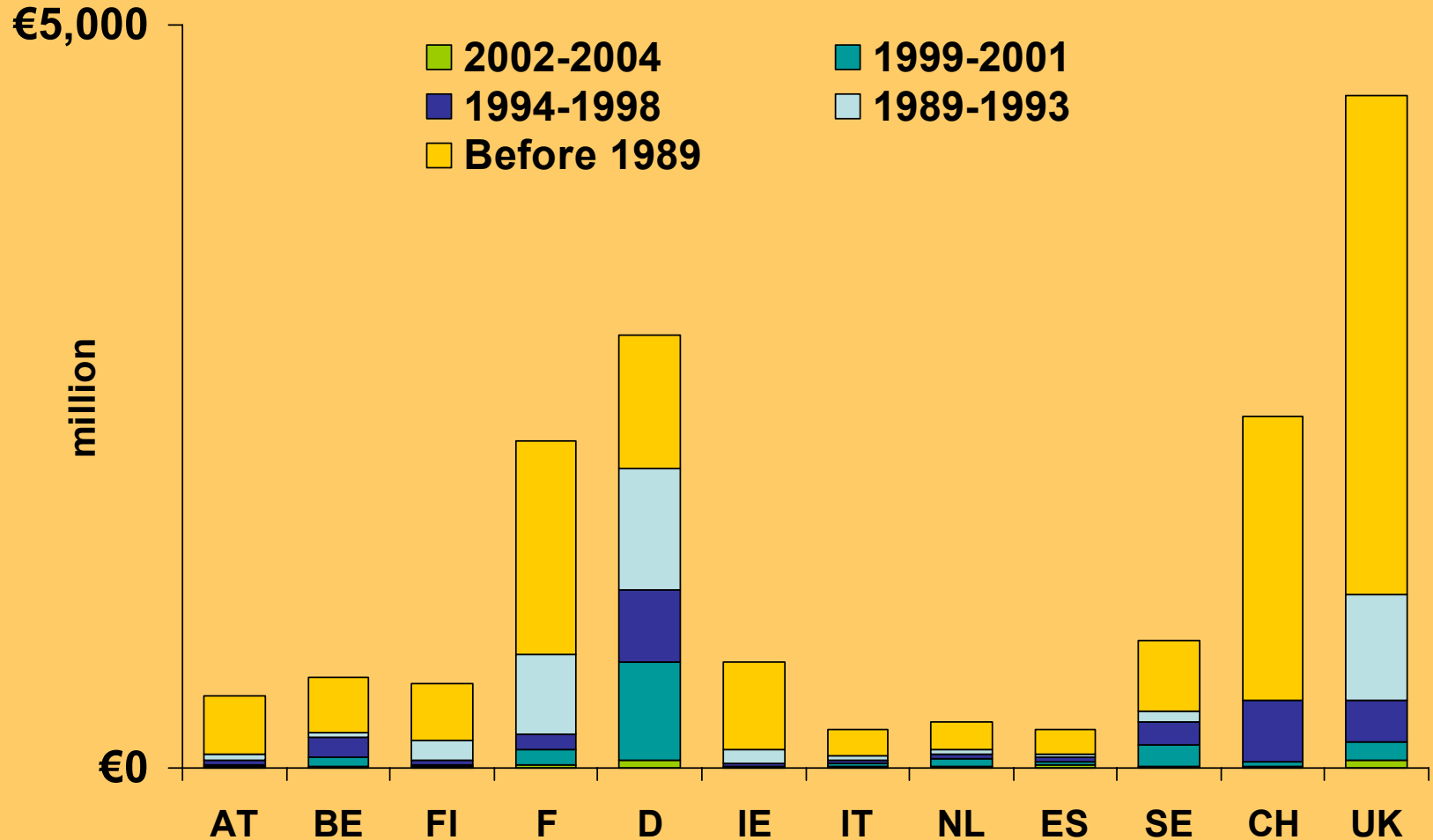


# Sustainability through efficiency

- PROBLEM: Stop-go product development (trial success triggers search for finance)
- SOLUTION: Develop contingent finance structures; smooth transitions; clear value creation



# Revenue - who makes money?



# Providing a deeper analysis



# Avoiding preemptive aggregation

## AGGREGATE APPROACHES

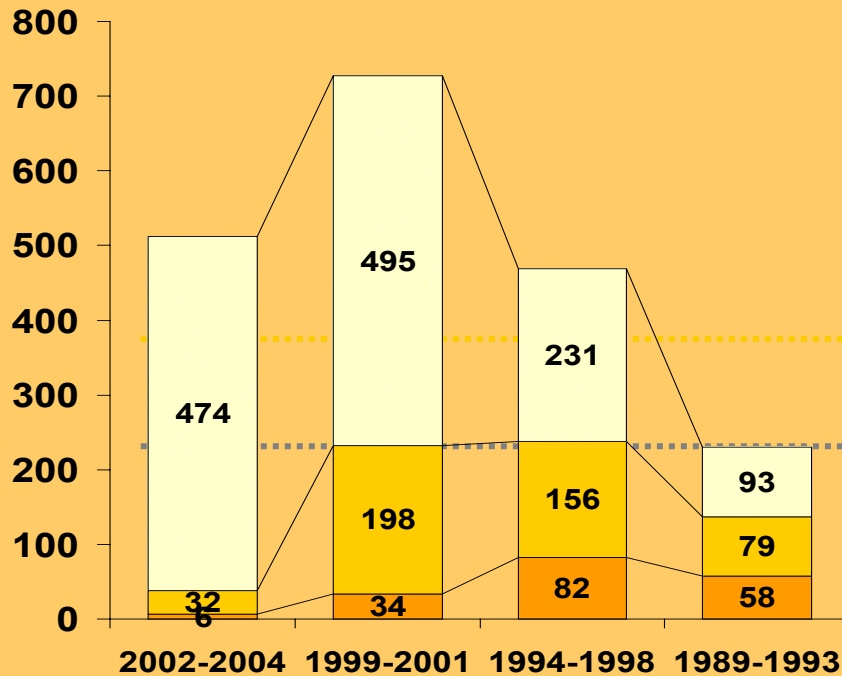
- Collect data
- Focus on sector
- Aggregate by country, differentiation by nation
  
- Denominators – GDP, population, science base, # companies
  
- Compare national performance
  - Country to country
  - Year to year
  - Aggregate finance

## HYPOTHESIS-FREE

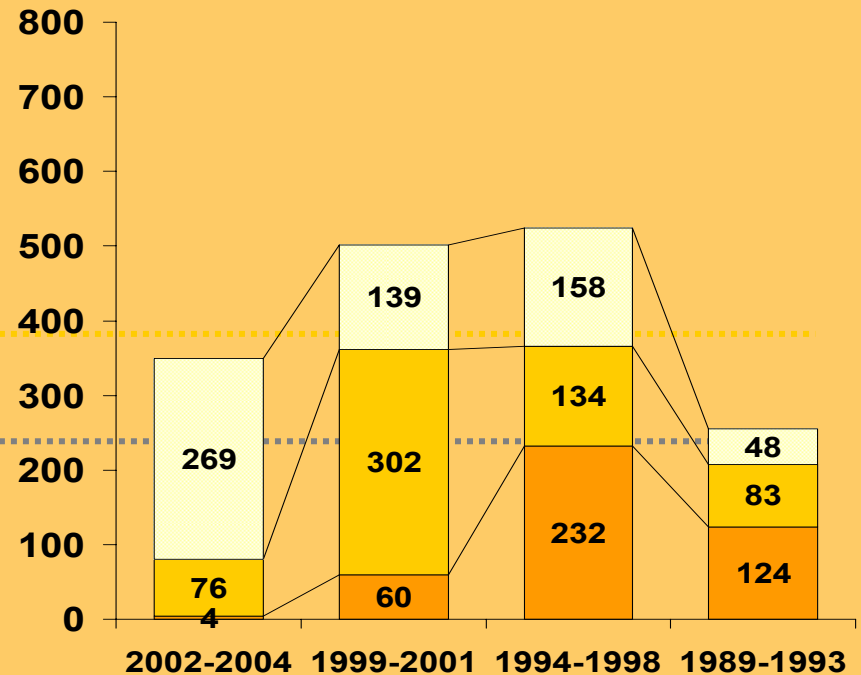
- Collect data
- Focus on **company**
- No assumptions needed (e.g. cross-national, by size, funding level, subsector, age, national)
- Numbers of companies that ...
  - Grow, die, get VC, have XX employees, spend a % of revenue ...
- Fates of companies that ...
  - Get VC, spend on R&D, generate revenue, increase revenue, are of a certain size ...

# Europe's companies tend to stay small ...

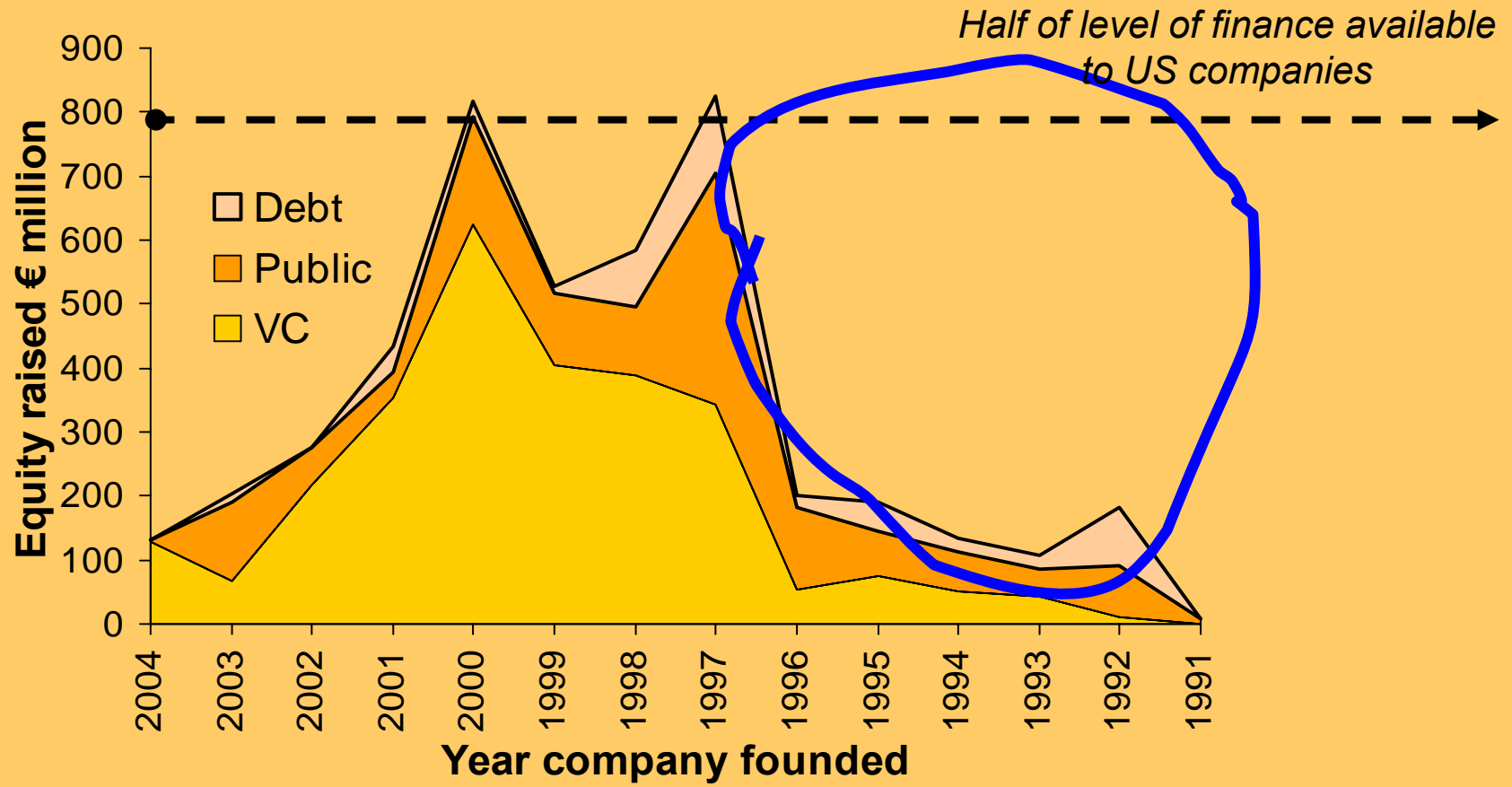
Europe



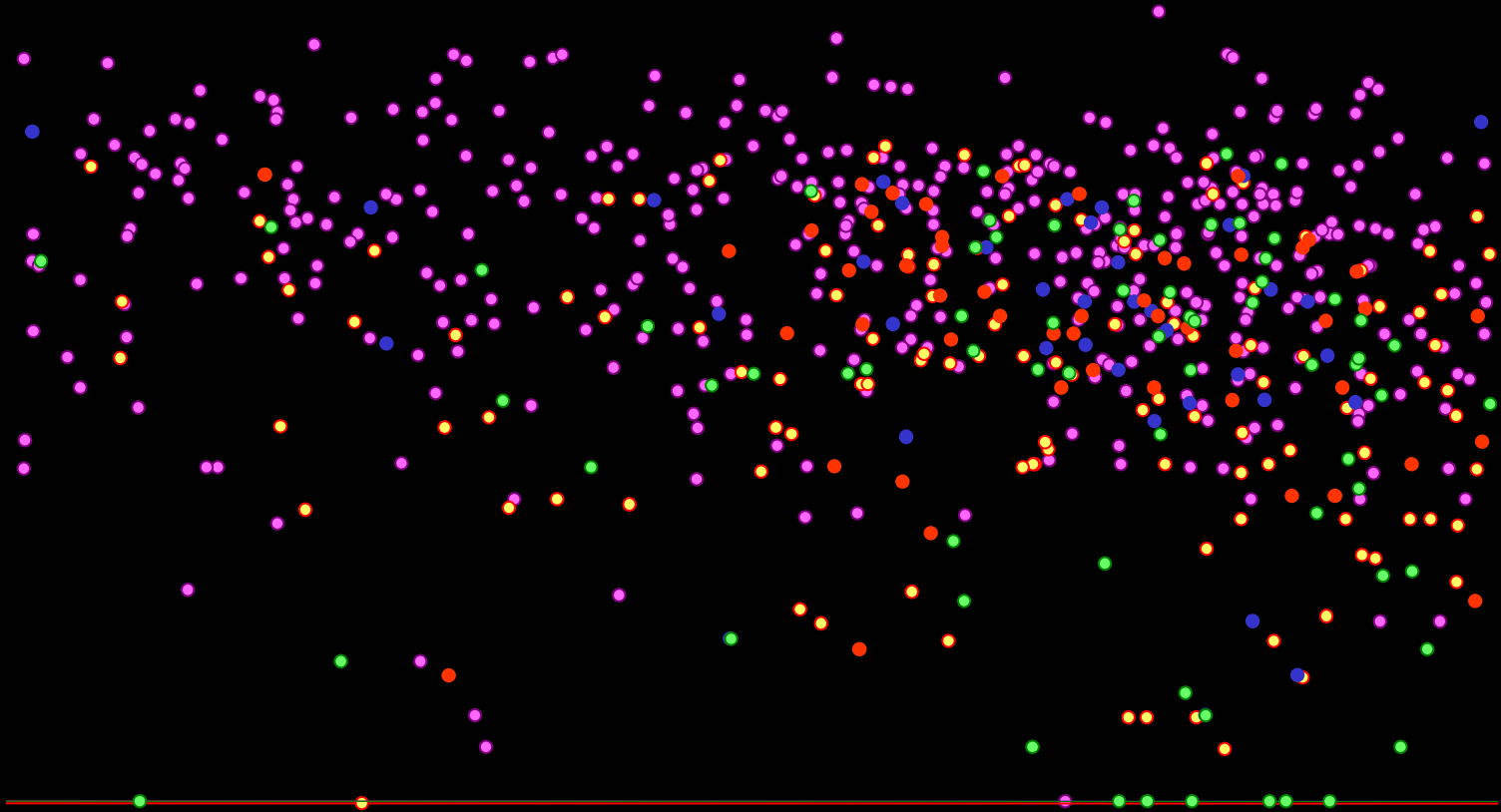
USA



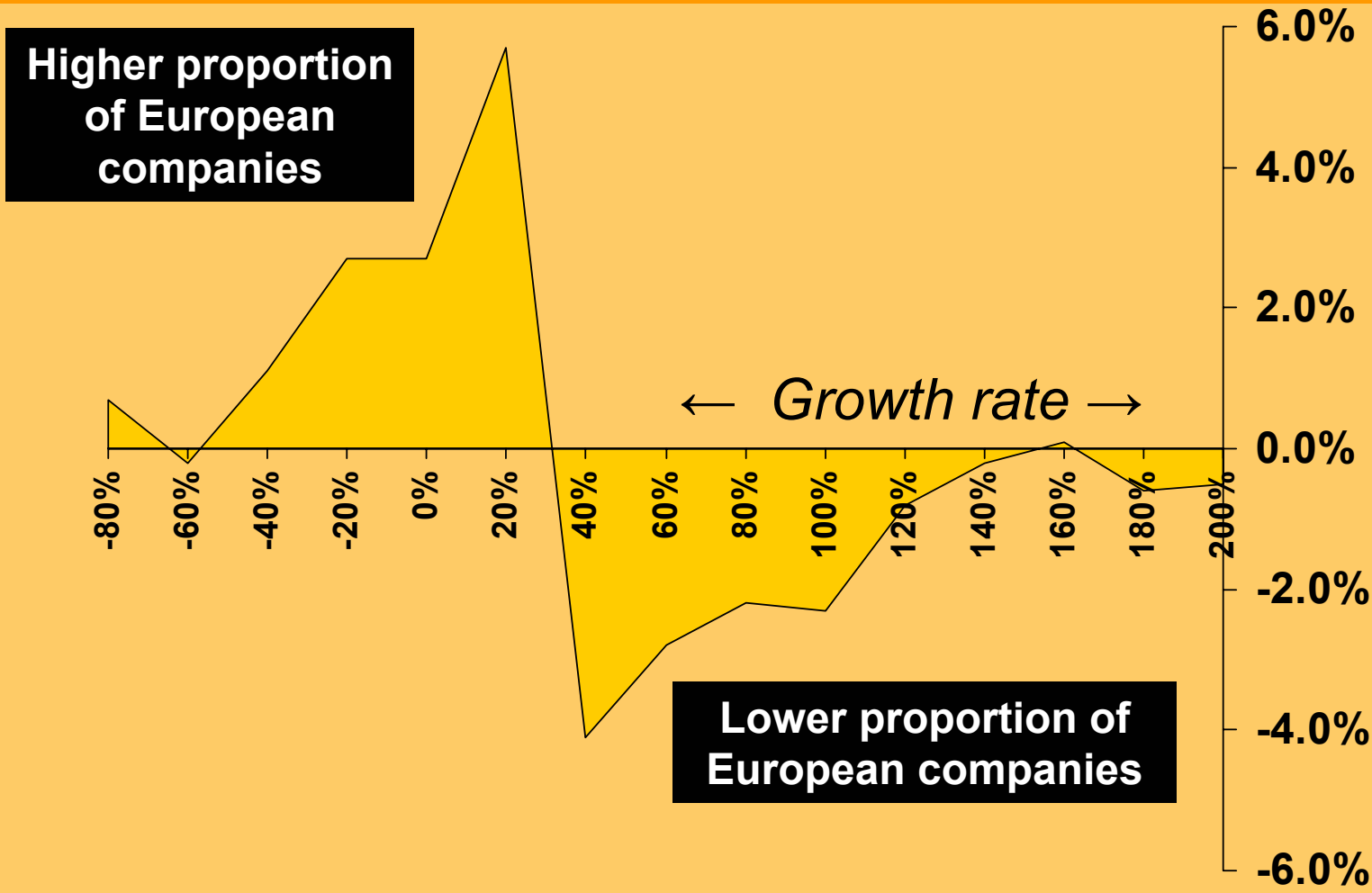
# European finance



# Investment firmament



# Compare company growth rates



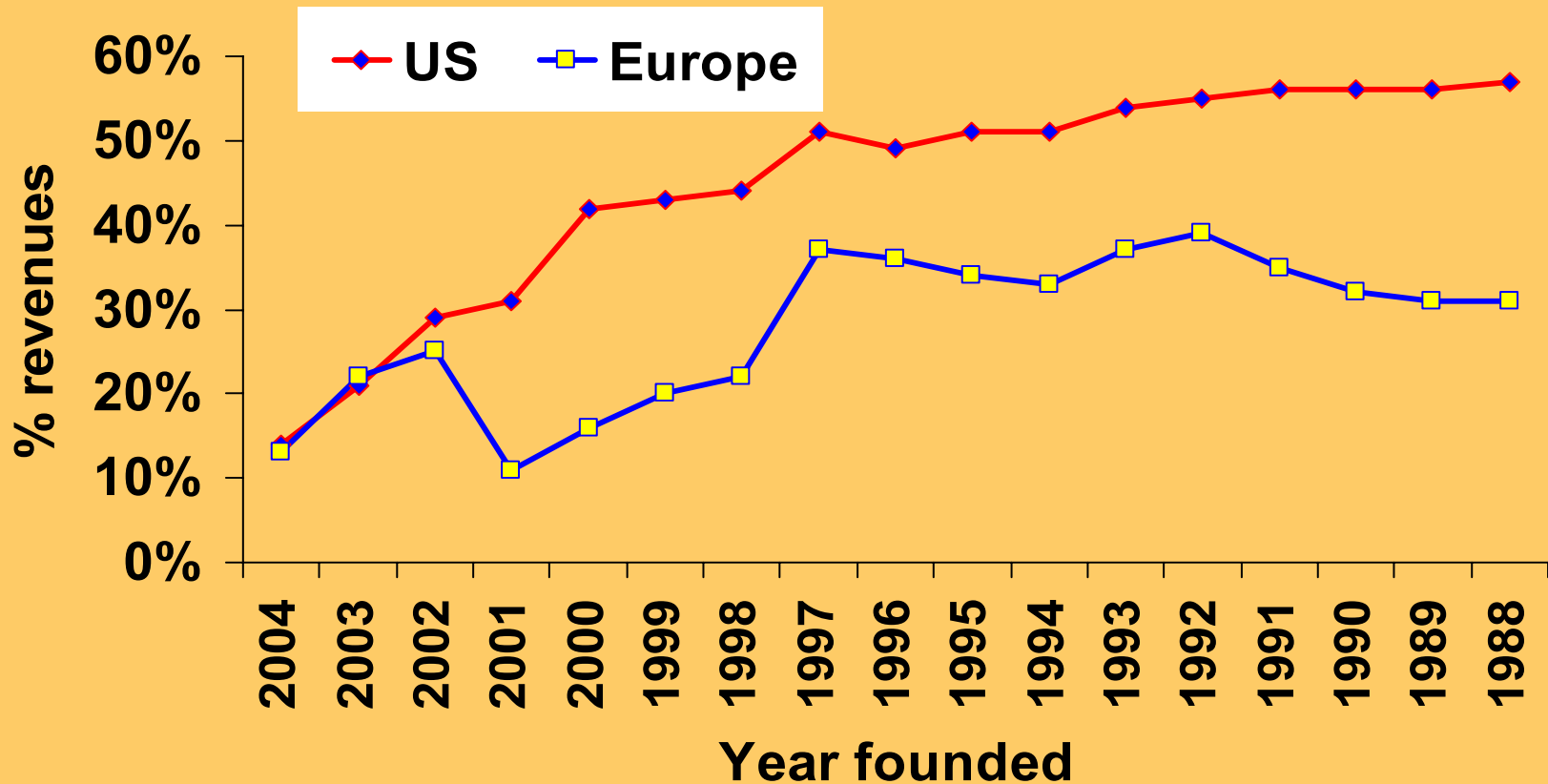
# Consequences of investment

# Growth attracts investment

- Growing companies receive a disproportionate amount of investment

Country	% expanding	% of finance to those companies
F	47%	63%
D	41%	44%
CH	45%	96%
UK	40%	62%
USA	39%	76%
Overall	40%	74%
Europe	42%	62%

# Proportion of revenue from invested companies





# Impact of investment on R&D spending

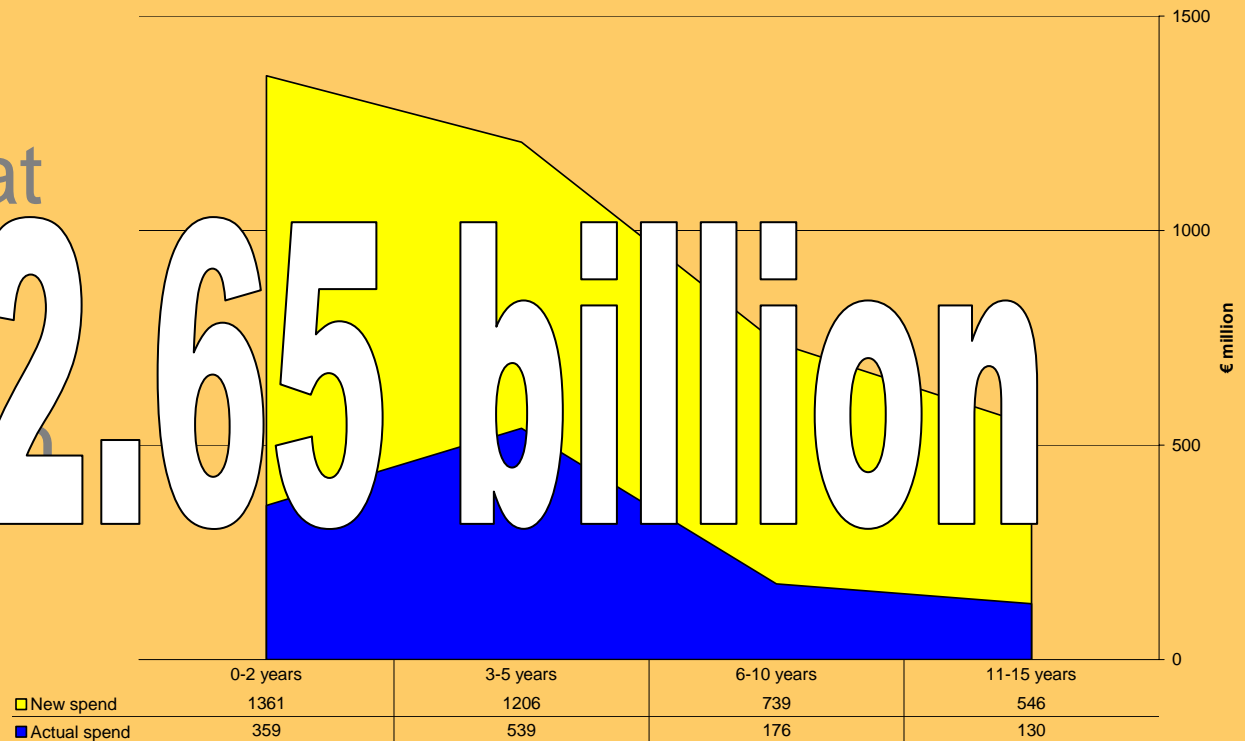
Stage	Y-o-Y Growth rate WITH funding	Y-o-Y Growth rate WITHOUT funding	Difference
I	1.31	1.01	+30%
II	0.89	0.73	+16%
III	0.76	0.73	+3%
IV	0.91	0.83	+12%

# Funding companies US-style

- Fund current invested companies at US levels

– If its worth backing, back it properly

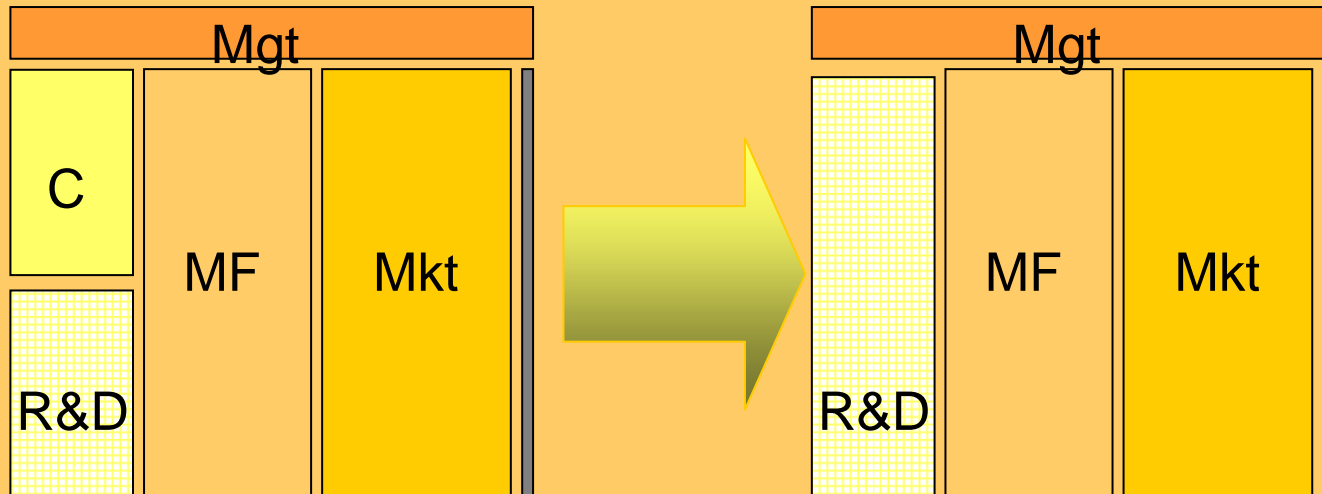
€2.65 billion



# Things that haven't been sought

- Sustainability of companies/sector
- M&A activity
- Alignment with public research base
- Financial resource (revenue and equity investment)
  - Impact of fiscal provisions
- Objective assessment of sector maturity (e.g. balance between enterprises and investment)
- Value of products
- Regulatory/government intervention
  - Enhance attractiveness to foreign investors

# Data and strategy solve the life sciences, the universe, and everything



- Encourage industry through R&D tax relief or credits
- Highlights/isolates cost of compliance burden
- Government incentive to rebalance regulatory burden/tax loss
- Doubles R&D spend in industry – Lisbon targets achieved

# Policy thoughts

- National
  - Don't adopt a “national biotech sector” mind-set
  - Reconsider policies encouraging only the formation of start-ups
  - Put IP into biotech-experienced economic environment
- European
  - Encourage cross-border IP bundling
  - Harmonise financial market rules in order to provide liquidity (this will attract US investors, *inter alia*)

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thinking allowed