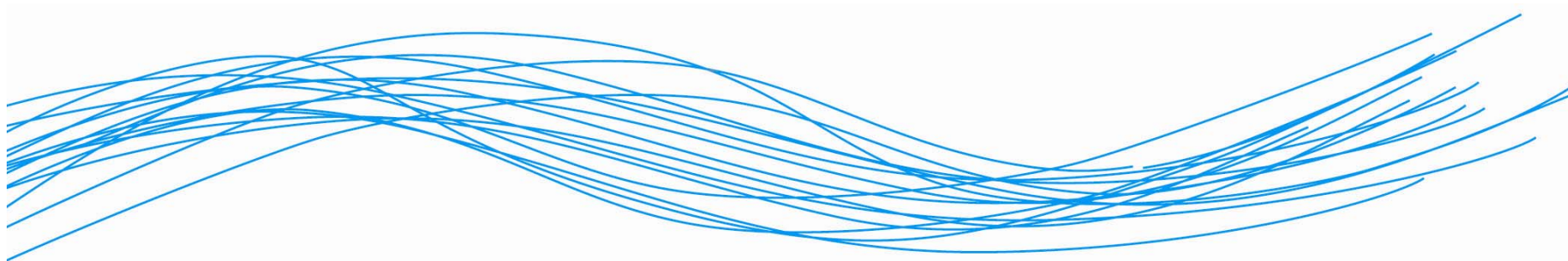


# The 2010 EU industrial R&D investment SCOREBOARD



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# 1. Background

## Understanding the dynamics of industrial R&D at the firm level

### Top R&D investors

**1000 EU and 1000 non-EU; €402.2 bn (~85% of world BERD)**

### Nominal data

**R&D and financial indicators from latest available companies' accounts (4 years)**

### Scoreboard vs BERD

**Different/complementary perspective: Company vs territorial**

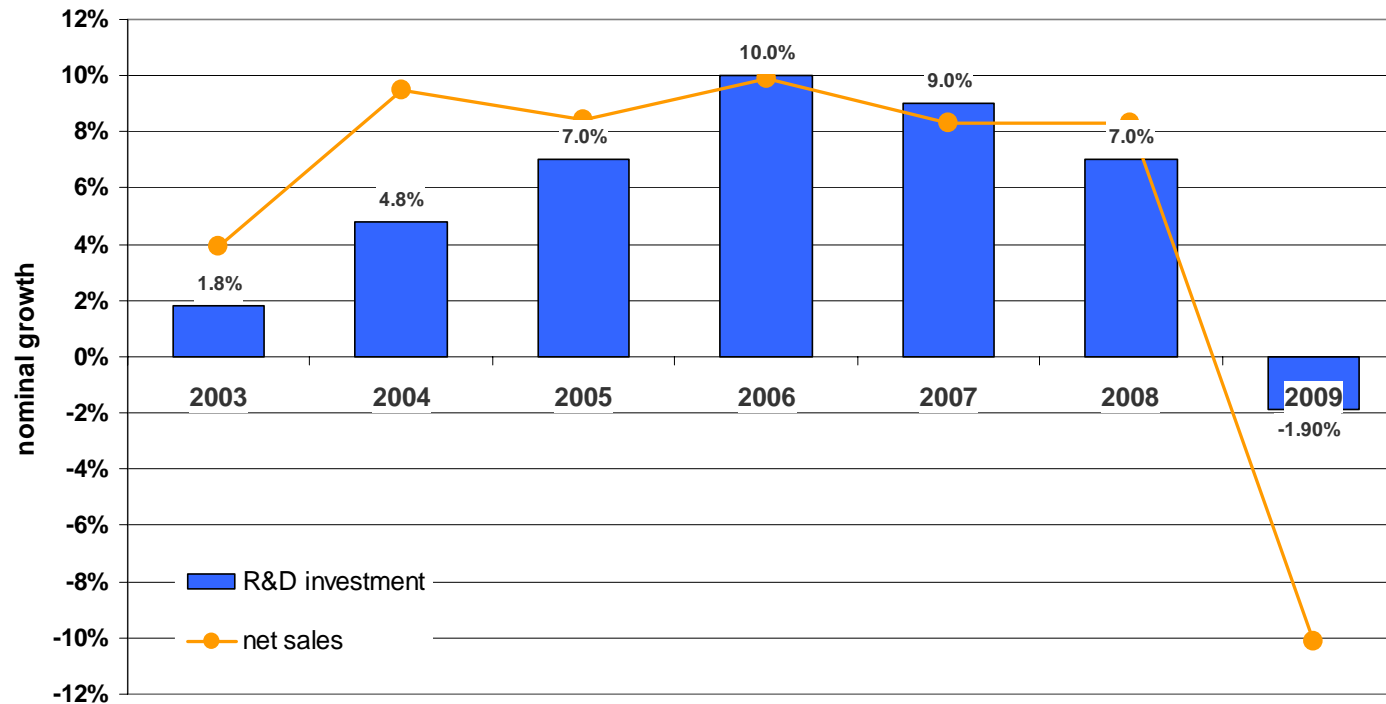
### Main limitation

**Undisclosed location of the R&D investment and technological profile**

## **2. Overall R&D trends**

## 2. Overall R&D trends (1)

One-year R&D investment and net sales growth of the *Scoreboard* companies.

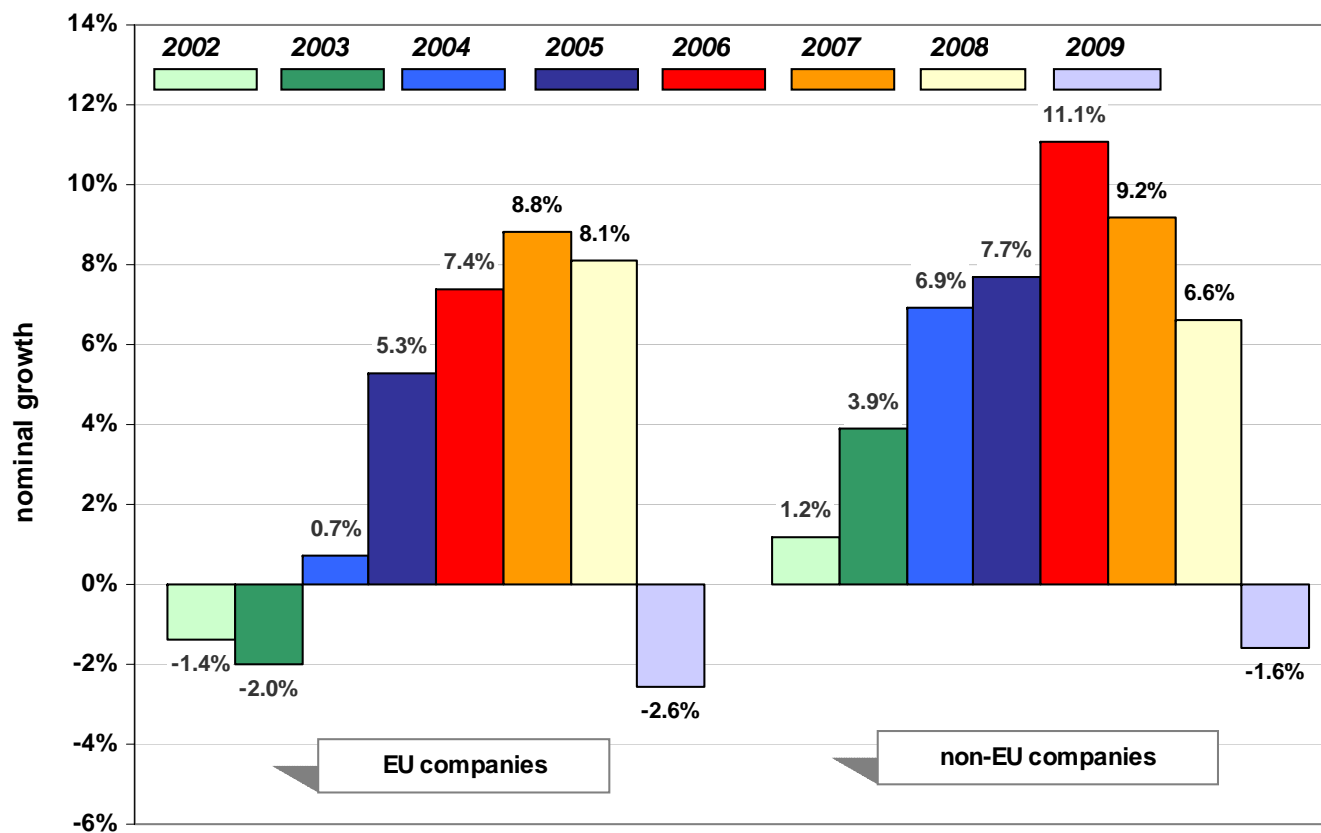


Note: The different *Scoreboards* are not directly comparable because changes in the sample composition.

Source: *The EU Industrial R&D Investment Scoreboards (of 2004, 2005, 2006, 2007, 2008, 2009, 2010)*  
European Commission, JRC/DG RTD.

**Worldwide, R&D investment did better than net sales ...**

## 2. Overall R&D trends (2)

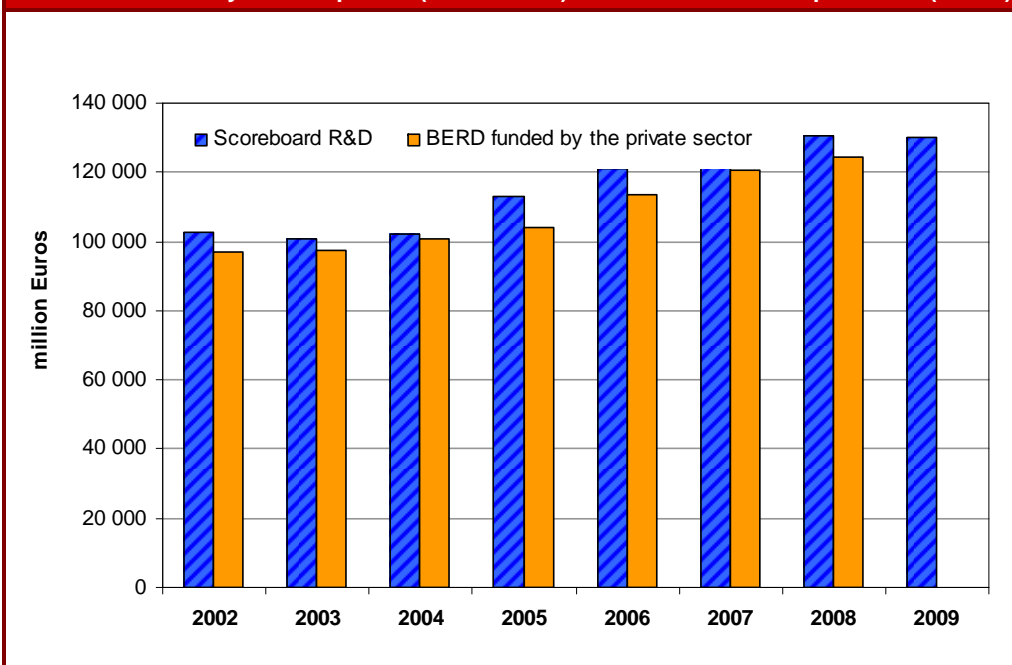


Source: The EU Industrial R&D Investment Scoreboards, EC, JRC/DG RTD.

**but, R&D may have not yet reached the bottom.**

## 2. Overall R&D trends (3)

R&D investment by EU companies (Scoreboard) vs. Business R&D expenditure (BERD)



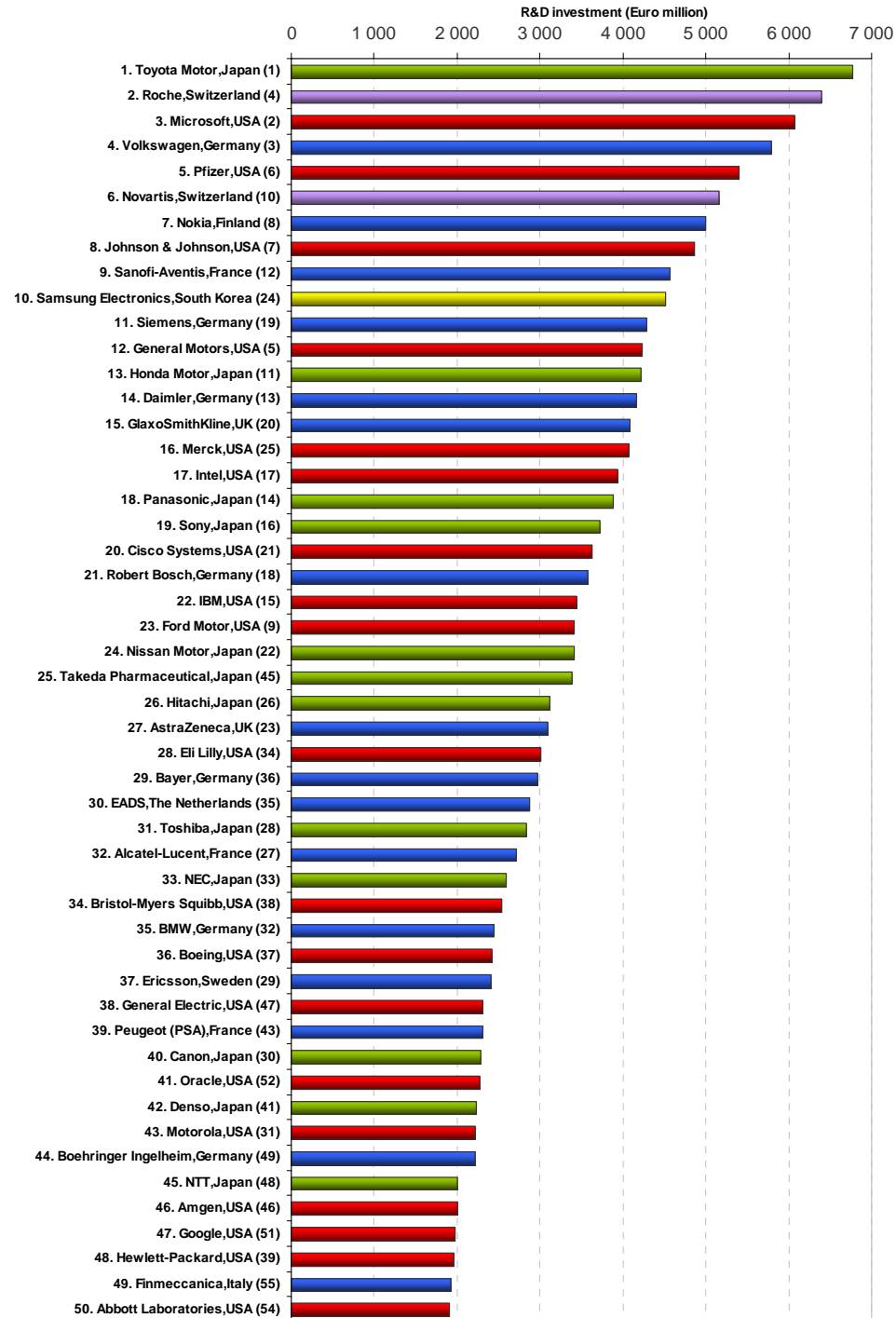
Note: 1. Scoreboard and BERD address industrial R&D in the EU through different concepts. Scoreboard refers to companies' R&D investment, with their own funds, independently of the location of execution. BERD refers to R&D expenditure, regardless the source of funds, executed within the EU.  
2. The reporting periods of the Scoreboard and BERD are different. Scoreboard data are based on the accounting periods of the companies and BERD is based on the calendar year.  
Source: The EU Industrial R&D Investment Scoreboards; European Commission, JRC/DG RTD and Eurostat.

**R&D by EU Scoreboard companies slightly higher than BERD.**

## **3. Top R&D companies**



### 3. Top R&D companies (1)



Source: The 2010 EU Industrial R&D Investment Scoreboard, EC, JRC/DG RTD, ranks in previous years in brackets

### 3. Top R&D companies (2)

## Ranking of the Scoreboard top 50 in 2004 and 2009

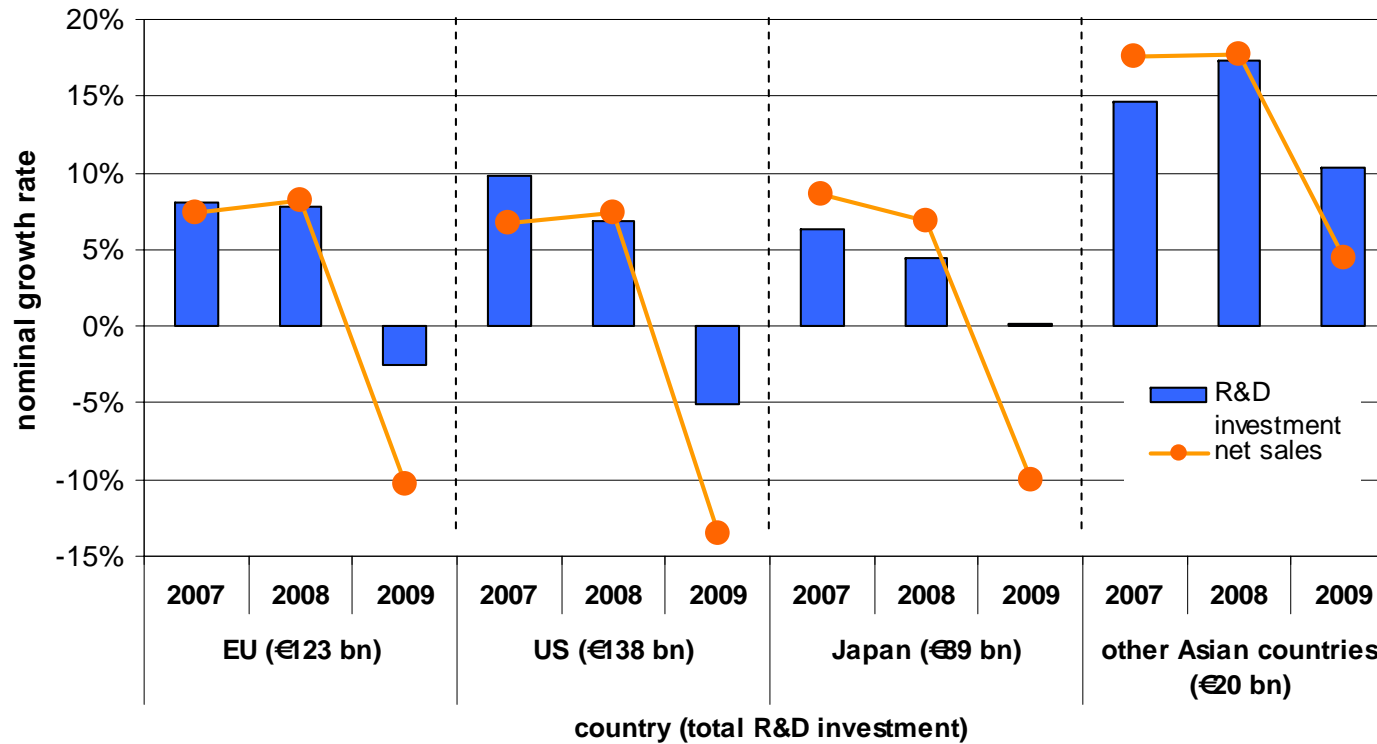
Source: The EU Industrial R&D Investment Scoreboards 2004-2009. EC, JRC/DG RTD.

Rank 2010	Company name (sector)	Ranking change compared to 2004
1	Toyota Motor (Automobiles & parts)	up 4
2	Roche (Pharmaceuticals & biotechnology)	up 16
3	Microsoft (Software & computer services)	up 10
4	Volkswagen (Automobiles & parts)	up 4
5	Pfizer (Pharmaceuticals & biotechnology)	down 3
6	Novartis (Pharmaceuticals & biotechnology)	up 14
7	Nokia (Technology hardware & equipment)	up 3
8	Johnson & Johnson (Pharmaceuticals & biotechnology)	up 4
9	<b>Sanofi-Aventis (Pharmaceuticals &amp; biotechnology)</b>	<b>up 46</b>
10	<b>Samsung Electronics (Electronic &amp; electrical equipment)</b>	<b>up 23</b>
11	Siemens (Electronic & electrical equipment)	down 7
12	General Motors (Automobiles & parts)	down 6
13	Honda Motor (Automobiles & parts)	up 3
14	Daimler (Automobiles & parts)	down 11
15	GlaxoSmithKline (Pharmaceuticals & biotechnology)	down 4
16	Merck (Pharmaceuticals & biotechnology)	up 13
17	Intel (Technology hardware & equipment)	down 3
18	<b>Panasonic (Leisure goods)</b>	<b>up 129</b>
19	Sony (Leisure goods)	down 4
20	Cisco Systems (Technology hardware & equipment)	up 11
21	Robert Bosch (Automobiles & parts)	up 5
22	IBM (Software & computer services)	down 13
23	Ford Motor (Automobiles & parts)	down 22
24	Nissan Motor (Automobiles & parts)	up 10
25	<b>Takeda Pharmaceutical (Pharmaceuticals &amp; biotechnology)</b>	<b>up 47</b>
26	Hitachi (Technology hardware & equipment)	down 2
27	AstraZeneca (Pharmaceuticals & biotechnology)	down 2
28	Eli Lilly (Pharmaceuticals & biotechnology)	up 13
29	Bayer (Chemicals)	up 3
30	EADS (Aerospace & defence)	up 5
31	Toshiba (General industrials)	down 1
32	Alcatel-Lucent (Technology hardware & equipment)	up 15
33	NEC (Technology hardware & equipment)	up 7
34	Bristol-Myers Squibb (Pharmaceuticals & biotechnology)	up 8
35	BMW (Automobiles & parts)	down 7
36	Boeing (Aerospace & defence)	up 21
37	Ericsson (Technology hardware & equipment)	down 20
38	General Electric (General industrials)	down 1
39	Peugeot (PSA) (Automobiles & parts)	down 1
40	Canon (Technology hardware & equipment)	down 1
41	<b>Oracle (Software &amp; computer services)</b>	<b>up 30</b>
42	Denso (Automobiles & parts)	up 10
43	Motorola (Technology hardware & equipment)	down 24
44	Boehringer Ingelheim (Pharmaceuticals & biotechnology)	up 18
45	NTT (Fixed line telecommunications)	down 24
46	Amgen (Pharmaceuticals & biotechnology)	up 10
47	<b>Google (Software &amp; computer services)</b>	<b>up more than 1000</b>
48	Hewlett-Packard (Technology hardware & equipment)	down 25
49	Finmeccanica (Aerospace & defence)	up 9
50	Abbott Laboratories (Pharmaceuticals & biotechnology)	up 2

## **4. R&D investment by region**

## 4. R&D investment by region (1)

Growth of R&D investment and net sales in the Scoreboard.



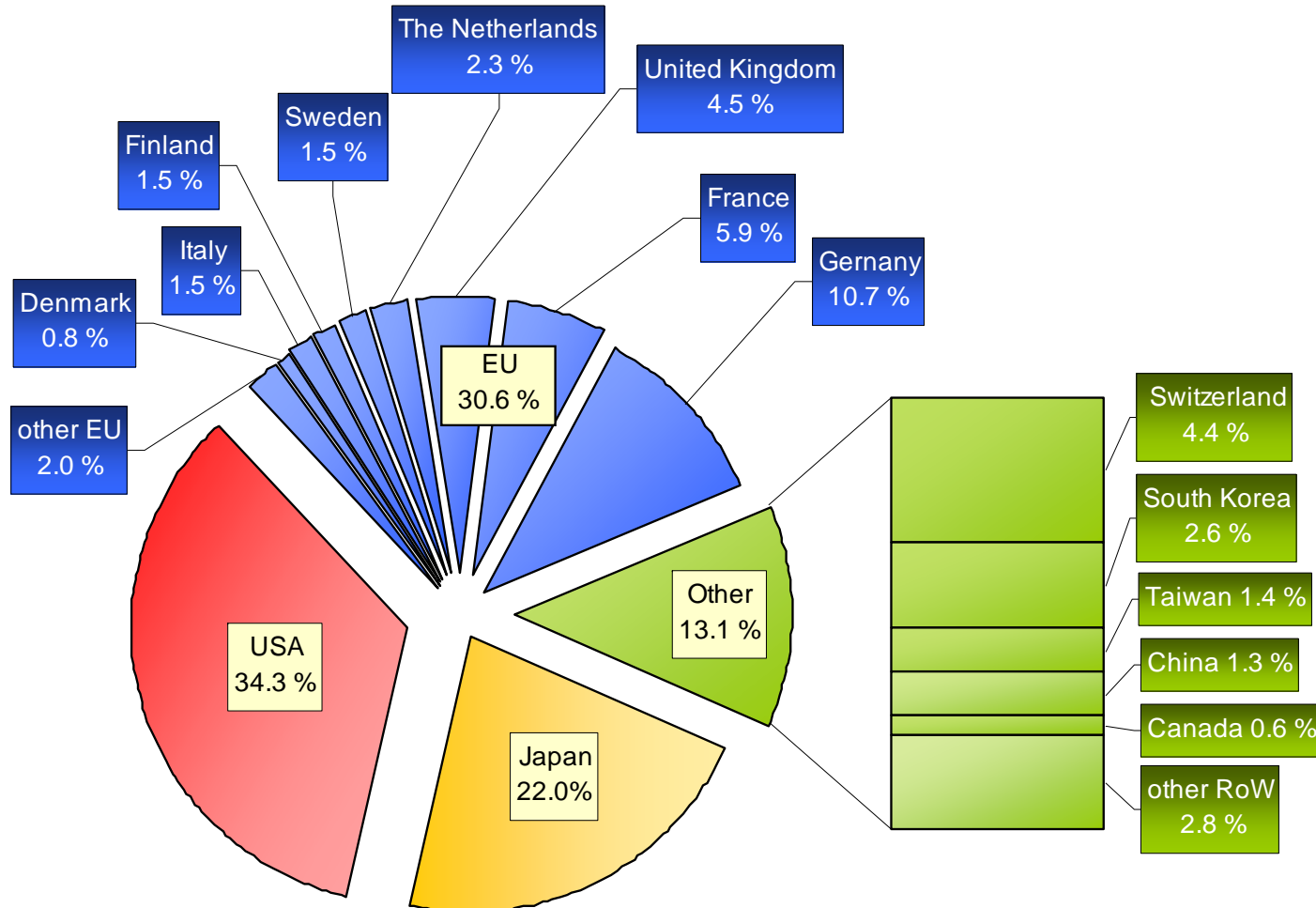
Other Asian countries include South Korea, Taiwan, China, India and Hong Kong.

Source: The 2010 EU Industrial R&D Investment Scoreboard

European Commission, JRC/DG RTD.

**Overall figures mask significant differences by region**

## 4. R&D investment by region (2)



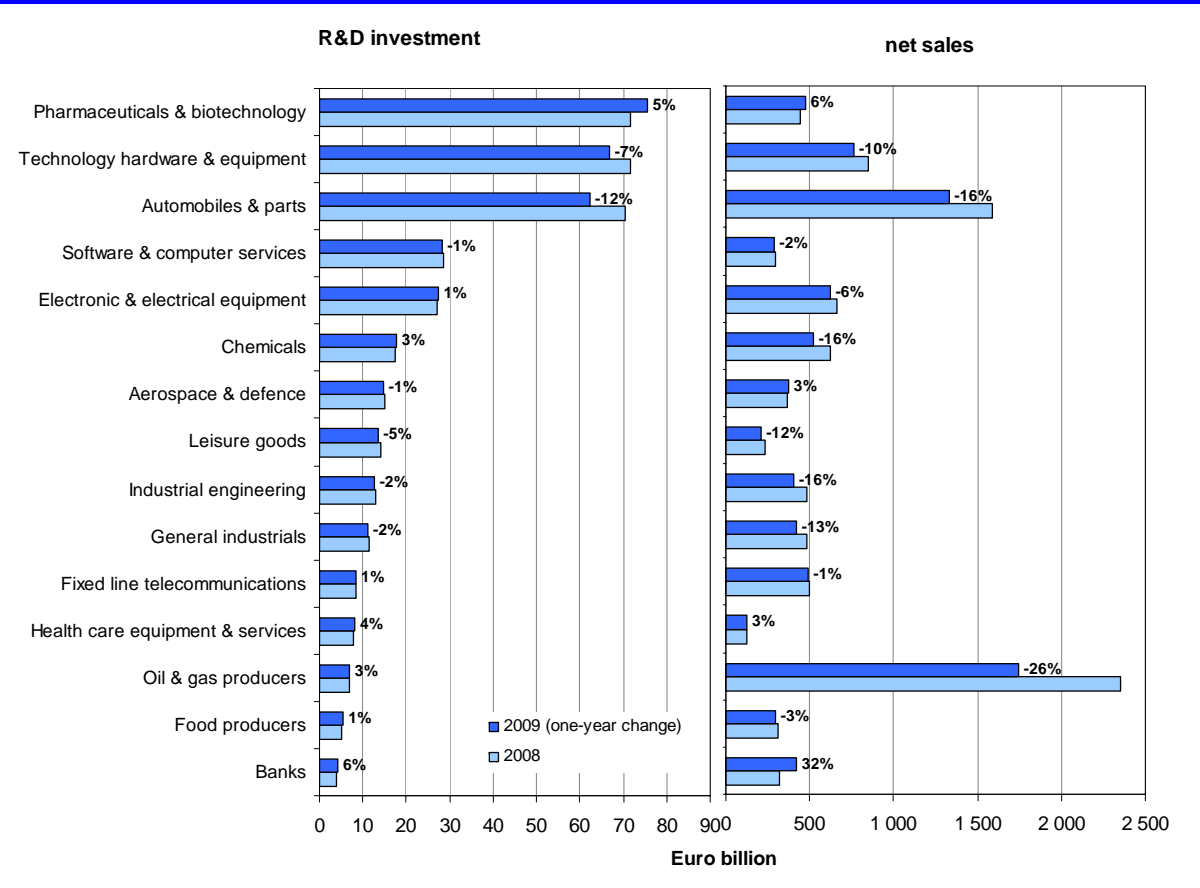
Source: The 2010 EU Industrial R&D Investment Scoreboard, EC, JRC/DG RTD

**Scoreboard companies are mostly based in the Triad**

## **5. R&D investment by sector**

## 5. R&D investment by sector (1)

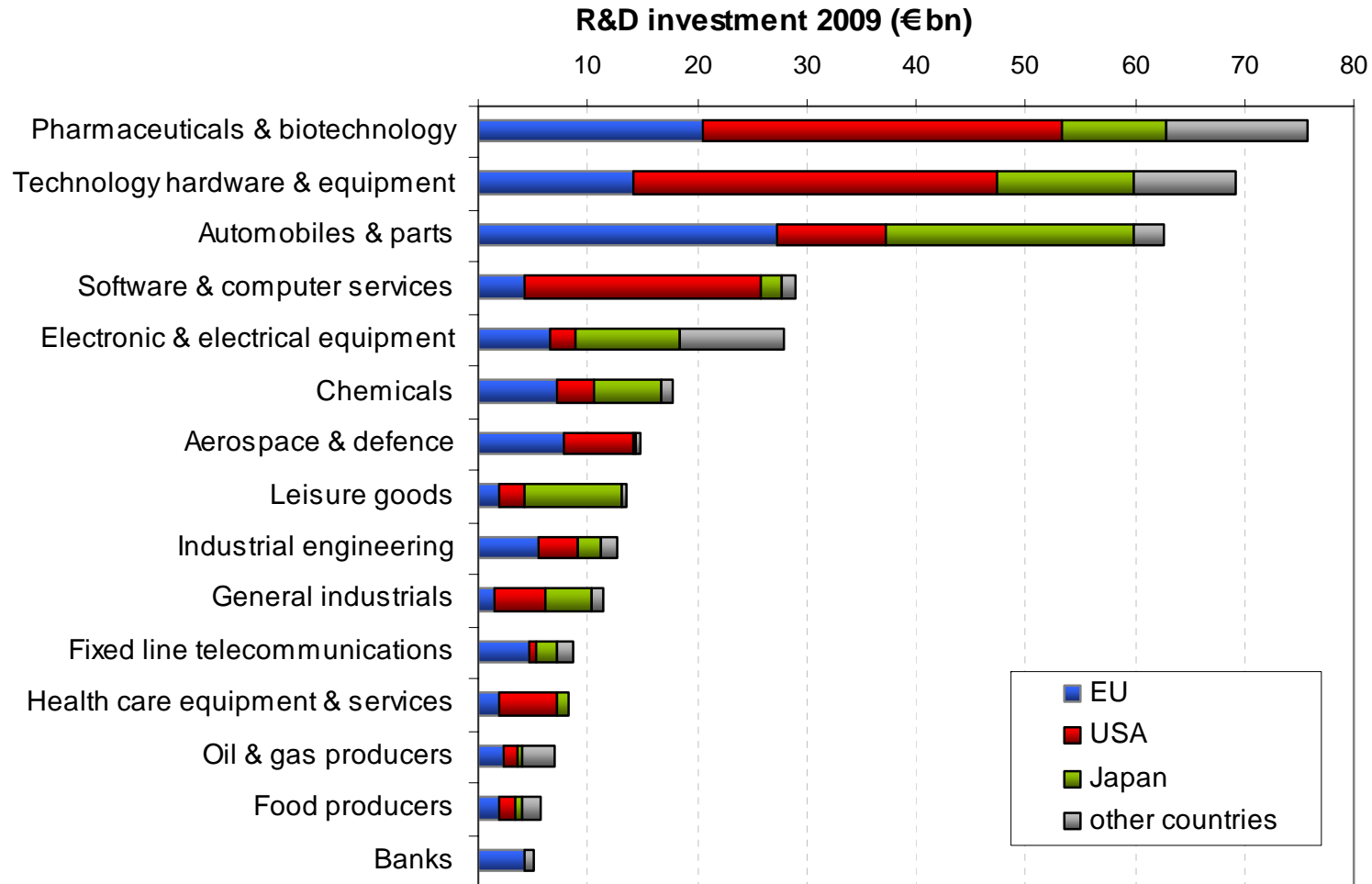
R&D investment and net sales of the top 10 sectors for the Scoreboard companies in 2008 and 2009.



Source: *The 2010 EU Industrial R&D Investment Scoreboard*  
European Commission, JRC/DG RTD.

**Also significant differences are observed by sector**

## 5. R&D investment by sector (2)



Source: The 2010 EU Industrial R&D Investment Scoreboard, EC, JRC/DG RTD

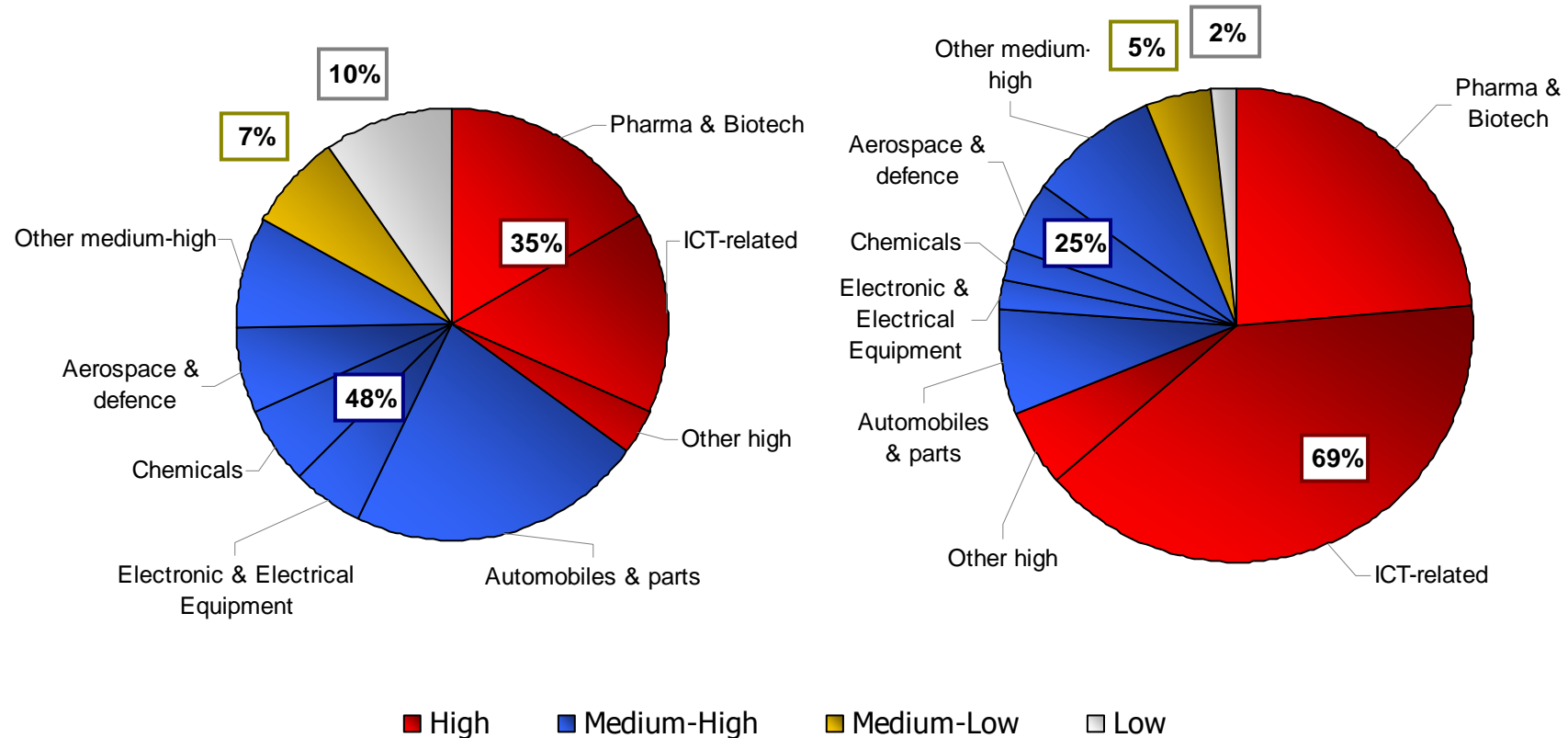
**Pharma & biotech sector reinforces its position as top R&D investor worldwide**



## 5. R&D investment by sector (3)

EU (€122.9bn)

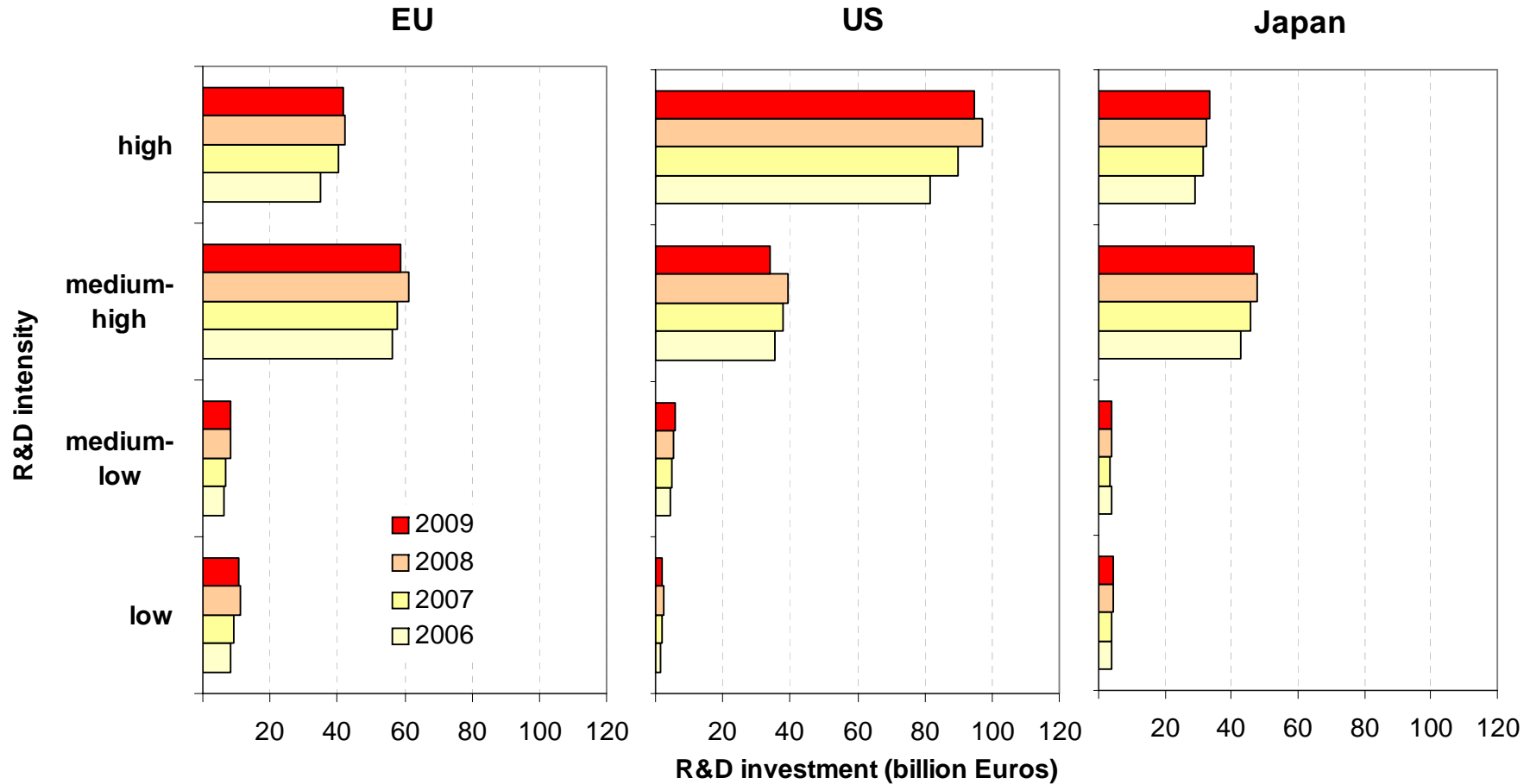
US (€137.9bn)



Source: The 2010 EU Industrial R&D Investment Scoreboard, EC, JRC/DG RTD

**The US has a strong position in high R&D-intensity sectors;  
EU in medium and low sectors**

## 5. R&D investment by sector (4)



Source: The 2010 EU Industrial R&D Investment Scoreboard, EC, JRC/DG RTD

**US R&D growth dominated by the high-tech sector, while that of the EU is spread across all sectors. The US is reinforcing its high R&D intensity sector and the EU its medium.**

## 5. R&D investment by sector (5)

### Pharma & Biotech

Takeda Pharm., Japan	64.3%
Merck, US	21.6%
Astellas Pharma, Japan	18.3%
Amgen, US	-5.5%
Johnson & Johnson, US	-7.8%
AstraZeneca, UK	-12.0%

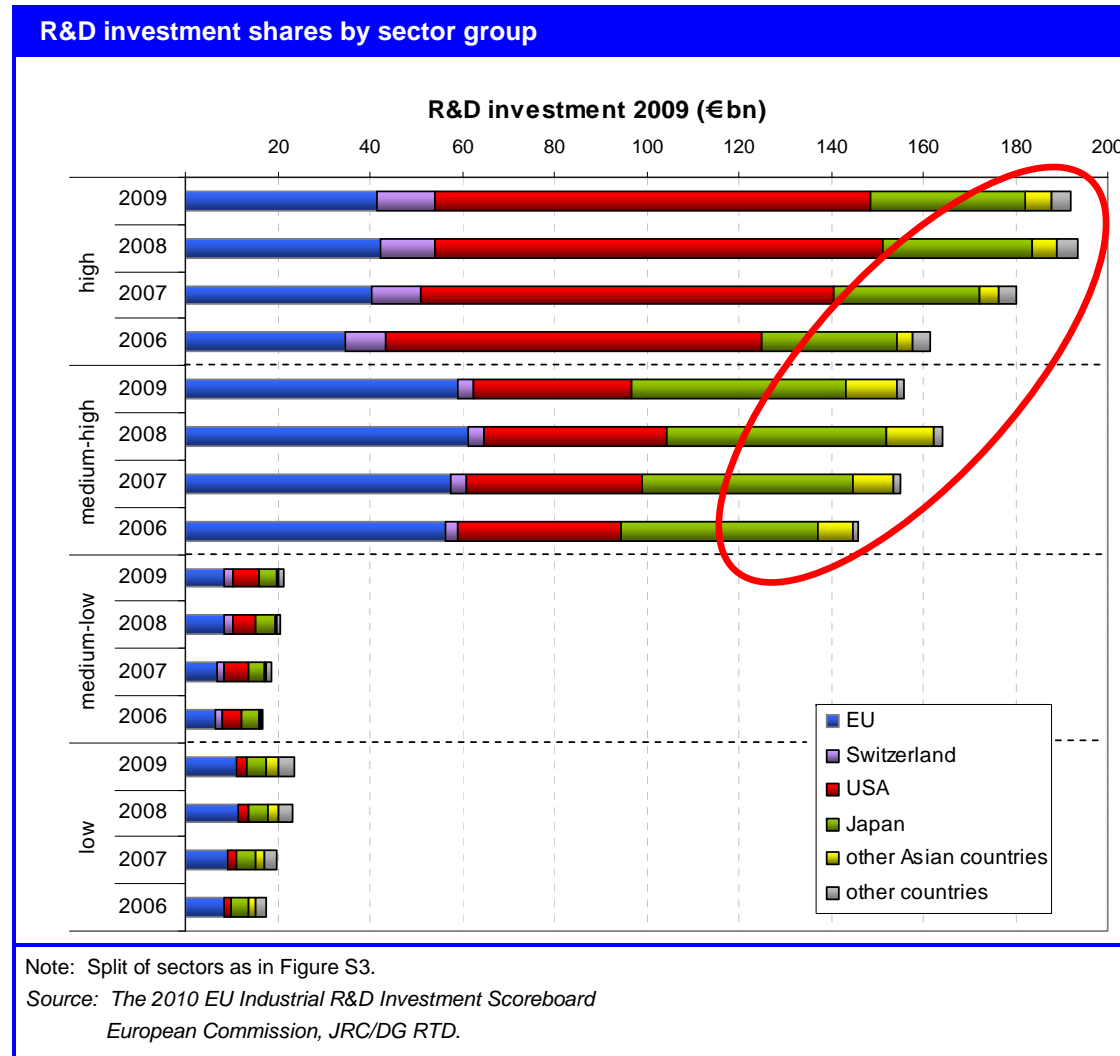
### Automobiles

Suzuki Motor, Japan	5.7%
Hyundai Motor, South Korea	2.0%
Nissan Motor, Japan	-0.4%
General Motors, US	-24.2%
Renault, France	-26.5%
Ford Motor, US	-32.9%

*Note: Best and worst R&D performers in 2009 among the largest companies in the sector*

**Different behaviour of companies in the same sectors**

## 5. R&D investment by sector (6)



**Dynamic regions likely to challenge the EU and the US in high & medium-high tech sectors**

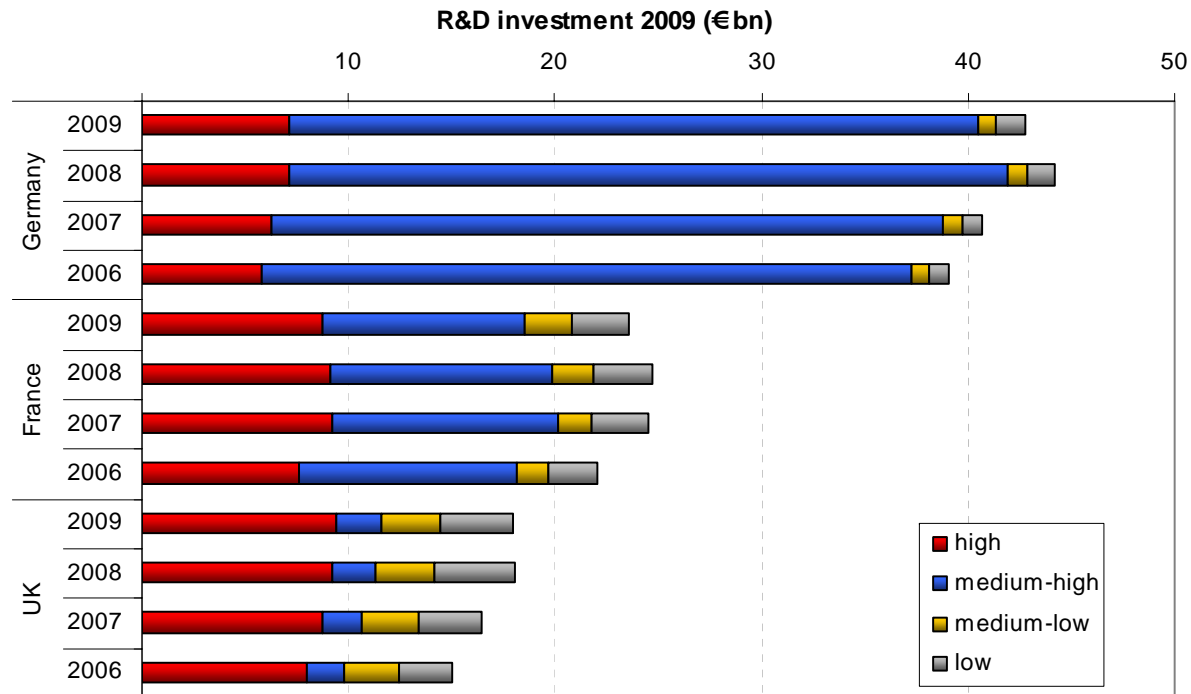
## 5. R&D investment by sector (7)

ICB sector, 4-digits	EU R&D, €m	USA R&D, €m	Overall R&D intensity, %
<i>Most R&amp;D intensive (&gt;10%)</i>			
Biotechnology	877.6	7642.7	21.2
Semiconductors	3344.4	15457.5	16.8
Pharmaceuticals	19717.5	25097.4	15.4
Software	3454.3	14320.6	14.6
Telecom equip.	10559.3	10494.9	12.7
Internet	0.0	3167.6	12.0
<i>Other, largest R&amp;D investing sectors</i>			
Automobiles & parts	27257.7	9963.5	4.7
Chemicals	7189.6	3389.6	3.4
Electronic equipment	958.2	1663.8	4.5
Computer hardware	86.7	6617.1	4.0
Aerospace & defence	7834.7	6405.8	3.9

**Small R&D size of the EU in key industries**

## 5. R&D investment by sector (8)

R&D investment shares in Germany, France and the UK, by sector group



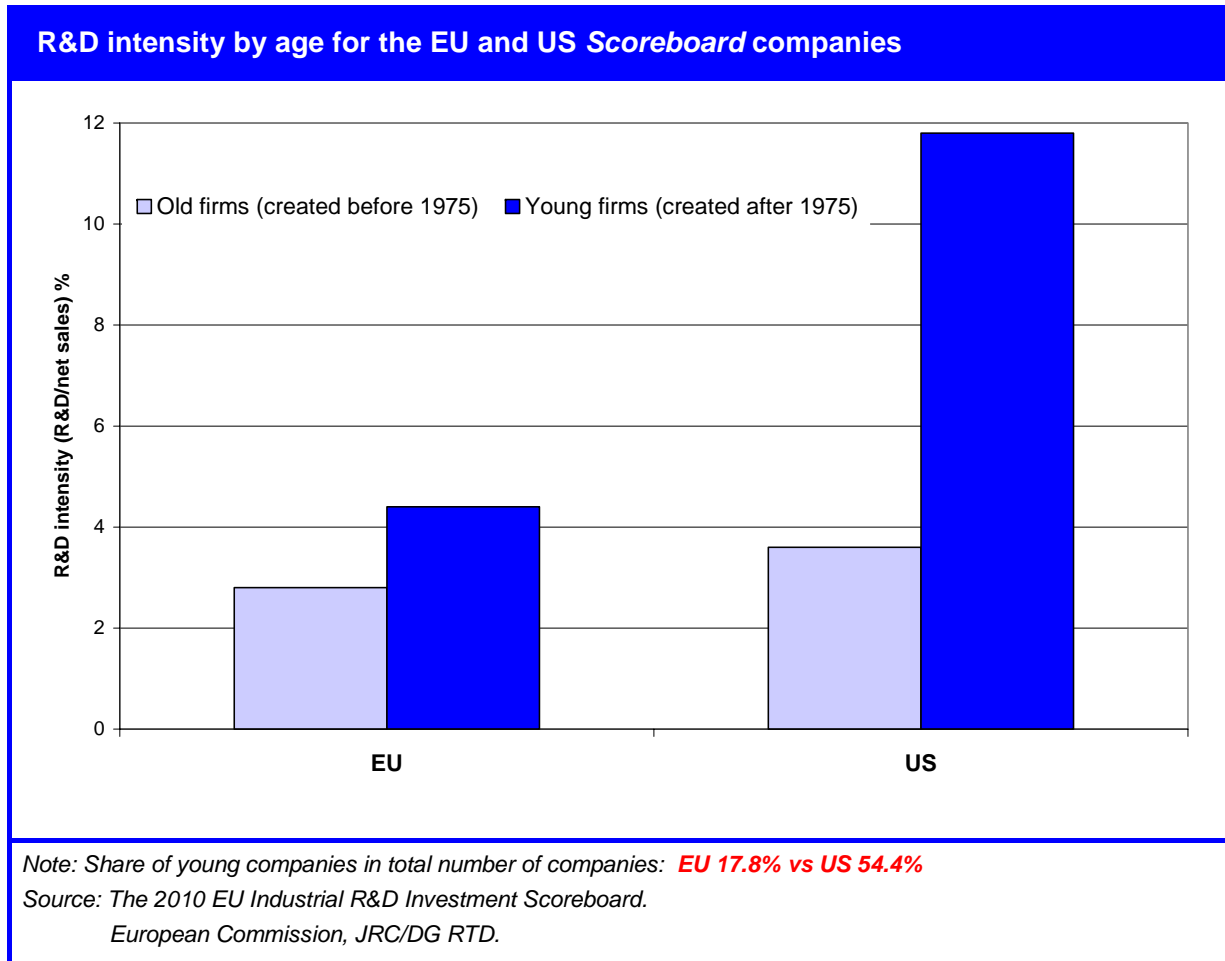
Note: Split of sectors as in Figure S5.

Source: *The 2010 EU Industrial R&D Investment Scoreboard*  
European Commission, JRC/DG RTD.

- Most R&D decrease in Germany and France is due to Automobiles
- The 3 largest MS keep high level of R&D in high tech

## **6. Age and R&D intensity of companies**

## 6. Age and R&D intensity of companies



**Young firms much more R&D intensive in the US than in the EU**



- **Worldwide corporate R&D proved resilient to the global recession (R&D drop by 1.9% & sales by 10.1%)**
- **Toyota is first R&D investor followed by Roche; Volkswagen in 4<sup>th</sup> position is biggest R&D investor in the EU**
- **Overall R&D figures mask significant differences by**
  - **Sector: pharma continued to rise (5.3%) whereas automotive & IT hardware were severely hit (-11.6% vs -6.4%)**
  - **Region: EU (-2.6%) better than US (-5.1%) whereas some Asian countries strongly increase R&D, China (40%), India (27.3%), etc.**
- **Beyond the crisis:**
  - **US dominates in high-tech and EU in medium-high tech but new players likely to challenge them over the medium term**
  - **EU's main weakness: Small R&D size of its high-tech sector**
- **EU's R&D pattern mainly shaped by countries with large share of automotive R&D (Germany and France) and IT hardware R&D (Finland and Sweden)**