

## Key figures on world top R&D investors

This section provides a summary of the *Scoreboard* data for the world top R&D investors. The data of the EU and non-EU groups are aggregated and presented by group of top investing companies and industrial sectors.

### 1. Overall R&D investment (see Table 1)

This year's *Scoreboard* shows a strong increase in worldwide R&D investment. Together, the 2000 companies of the *Scoreboard* invested **€371 billion in 2005**, 7% more than last year. An average growth rate for EU companies of **5.3%** contrasts with last year's near stagnation. The R&D investment growth of companies in the non-EU list was **7.7%**, one percent higher than the previous year.

The average R&D intensity<sup>1</sup> of *Scoreboard* companies decreased slightly during the last financial year for both the EU and the non-EU groups, due to a higher growth rate of net sales than R&D investment. As a result, EU companies keep lower average R&D intensity than non-EU companies.

#### *Comparison caveat*

The use of *Scoreboard* data for comparative analyses should carefully consider the methodological limitations (see Annex) and particularly the following points:

The EU and non-EU groups include companies of different size. This year, the R&D investment threshold for the EU group is €2.67 million and €24.91 million for the non-EU group. In order to compare EU and non-EU companies on similar basis, only EU companies with R&D exceeding the non-EU threshold should be included. These are 338 EU companies with R&D above €24.91 million that represent 94.4% of the R&D investment of the EU 1000 group (see Table 1).

It is also important to note that changes in *Scoreboard* parameters can be significantly affected by exchange rate fluctuations, non-synchronisation of the business cycle between different economies and the potential impact of companies' mergers and acquisitions.

### 2. Top R&D investors (see Table 2)

The list of top 10 R&D investors includes more companies from the US, due mainly to the appreciation of the US dollar against the Euro in 2005. Three US companies top the list of world biggest R&D investors in 2005: Ford, Pfizer and General Motors. Last year's champion, the European company Daimler Chrysler, ranks only fourth. The average R&D intensity of US companies is higher than that of the EU companies.

<sup>1</sup> R&D intensity is defined in the *Scoreboard* as the ratio between R&D and net sales.

Four out of the top six world R&D investors are car manufacturers: Ford, General Motors, Daimler Chrysler and Toyota Motor.

The number of EU based companies in the top 50 by world R&D investment remains 18 as in the previous year, being equalled by the number of US companies. Many EU and Japanese companies lost positions within the list, partly due to the appreciation of the US dollar in 2005. Japan loses 2 companies in the top 50 in favour of US and South Korea. The two Korean companies, Samsung Electronics and Hyundai Motor, are among the fastest growing R&D investors and climbed to much higher positions.

There are more companies from the non-EU group increasing their R&D investment over the last period. However, in the list of world top 50 R&D investors, there are five EU companies out of the top 10 fastest growers. Many companies based in Taiwan have increased their R&D investment strongly since 2002.

## 2. Top R&D industrial sectors (see Table 3)

Worldwide R&D investment continues to be highly concentrated in automobiles & parts, IT hardware, and pharmaceuticals & biotechnology. Each of these sectors has a similar share of worldwide R&D, around 18 %, and together account for more than half of global R&D investment.

The highest average R&D growth rates over the last year are shown in pharmaceuticals & biotechnology and in a number of services sectors such as software & computer services, travel & leisure, media, health care equipment & services, and support services.

The sectors with the highest R&D intensity are pharmaceuticals & biotechnology, software & computer services and IT hardware, while sectors like telecommunications services or oil & gas show relatively low R&D intensity

The lower average of R&D intensity of EU companies is due to their large partaking of low R&D-intensive sectors (with much higher sales) as compared to the similar group of non-EU companies.

**Table 1. Overall Performance of companies in the 2006 Scoreboard.**

| Factor   | Non-EU1000    | EU338         | EU1000        |
|--|---------------|---------------|---------------|
| <b>R&amp;D Investment (€ bn)</b>                     | <b>257.7</b>  | <b>106.6</b>  | <b>112.9</b>  |
| <b>Change over previous year</b>                     | <b>7.7 %</b>  | <b>5.3 %</b>  | <b>5.3 %</b>  |
| Net Sales (€ bn)                                     | 6566.0        | 3624.9        | 4507.0        |
| <b>Change over previous year</b>                     | <b>9.5 %</b>  | <b>6.5 %</b>  | <b>7.0 %</b>  |
| <b>R&amp;D Investment / Net Sales Ratio</b>          | <b>3.9 %</b>  | <b>2.9 %</b>  | <b>2.5 %</b>  |
| <b>Change in Operating Profit over previous year</b> | <b>11.8 %</b> | <b>20.1 %</b> | <b>21.2 %</b> |

**Note:** Values for the 2005 financial year (calculation of growth rates and ratios include only companies for which data are fully available).

Table 2. Ranking of world top 50 companies by R&D investment.

| Rank | Company                          | Sector                         | R&D investment 2005 (€ m) | Change from previous year (%) |
|------|----------------------------------|--------------------------------|---------------------------|-------------------------------|
| 1    | Ford Motor, USA                  | Automobiles & parts            | 6781.92                   | 8.1                           |
| 2    | Pfizer, USA                      | Pharmaceuticals                | 6308.88                   | -3.1                          |
| 3    | General Motors, USA              | Automobiles & parts            | 5679.86                   | 3.1                           |
| 4    | DaimlerChrysler, Germany         | Automobiles & parts            | 5649                      | -0.2                          |
| 5    | Microsoft, USA                   | Software                       | 5581.52                   | 6.5                           |
| 6    | Toyota Motor, Japan              | Automobiles & parts            | 5423.93                   | 10.7                          |
| 7    | Johnson & Johnson, USA           | Pharmaceuticals                | 5350.94                   | 21.3                          |
| 8    | Siemens, Germany                 | Electrical components & equip. | 5155                      | 1.8                           |
| 9    | Samsung Electronics, South Korea | Electronic equip.              | 4612.61                   | 12.2                          |
| 10   | GlaxoSmithKline, UK              | Pharmaceuticals                | 4564.13                   | 10.5                          |
| 11   | IBM, USA                         | Computer services              | 4559.15                   | 4.1                           |
| 12   | Intel, USA                       | Semiconductors                 | 4361.62                   | 7.7                           |
| 13   | Novartis, Switzerland            | Pharmaceuticals                | 4108.15                   | 15.2                          |
| 14   | Volkswagen, Germany              | Automobiles & parts            | 4075                      | -2.1                          |
| 15   | Matsushita Electric, Japan       | Leisure goods                  | 4056.61                   | -8.2                          |
| 16   | Sanofi-Aventis, France           | Pharmaceuticals                | 4044                      | 2.1                           |
| 17   | Nokia, Finland                   | Telecommunications equip.      | 3978                      | 3.8                           |
| 18   | Sony, Japan                      | Leisure goods                  | 3819.68                   | 5.9                           |
| 19   | Roche, Switzerland               | Pharmaceuticals                | 3669.7                    | 12                            |
| 20   | Honda Motor, Japan               | Automobiles & parts            | 3359.7                    | 4.2                           |
| 21   | Merck, USA                       | Pharmaceuticals                | 3262.1                    | -4                            |
| 22   | Motorola, USA                    | Telecommunications equip.      | 3119.68                   | 20.3                          |
| 23   | BMW, Germany                     | Automobiles & parts            | 3115                      | 10.5                          |
| 24   | Hewlett-Packard, USA             | Computer hardware              | 2958.61                   | -0.5                          |
| 25   | Robert Bosch, Germany            | Automobiles & parts            | 2931                      | 1.1                           |
| 26   | Hitachi, Japan                   | Computer hardware              | 2909.53                   | 4.2                           |
| 27   | General Electric, USA            | General industrials            | 2903.51                   | 10.8                          |
| 28   | AstraZeneca, UK                  | Pharmaceuticals                | 2864.51                   | -11.1                         |
| 29   | Nissan Motor, Japan              | Automobiles & parts            | 2859.75                   | 12.4                          |
| 30   | Cisco Systems, USA               | Telecommunications equip.      | 2816.19                   | 4.1                           |
| 31   | Ericsson, Sweden                 | Telecommunications equip.      | 2729.95                   | 16.5                          |
| 32   | Eli Lilly, USA                   | Pharmaceuticals                | 2564.84                   | 12.4                          |
| 33   | Toshiba, Japan                   | Computer hardware              | 2499.62                   | 3.4                           |
| 34   | EADS, The Netherlands            | Aerospace & defence            | 2367                      | 3.1                           |
| 35   | Philips Electronics, The NL      | Leisure goods                  | 2337                      | -7.8                          |
| 36   | Wyeth, USA                       | Pharmaceuticals                | 2330.77                   | 11.7                          |
| 37   | Bristol-Myers Squibb, USA        | Pharmaceuticals                | 2327.89                   | 9.8                           |
| 38   | NTT, Japan                       | Fixed line telecommunications  | 2284.61                   | -10.4                         |
| 39   | Renault, France                  | Automobiles & parts            | 2264                      | 15.5                          |
| 40   | Peugeot (PSA), France            | Automobiles & parts            | 2151                      | 1.6                           |
| 41   | BAE Systems, UK                  | Aerospace & defence            | 2108.88                   | 30.5                          |
| 42   | Canon, Japan                     | Electronic equipment           | 2057.65                   | 4.1                           |
| 43   | Hyundai Motor, South Korea       | Automobiles & parts            | 1982.69                   | 21.9                          |
| 44   | NEC, Japan                       | Computer hardware              | 1977.72                   | 7.3                           |
| 45   | Amgen, USA                       | Biotechnology                  | 1961.67                   | 14.1                          |
| 46   | Bayer, Germany                   | Chemicals                      | 1886                      | -21.5                         |
| 47   | Boeing, USA                      | Aerospace & defence            | 1869.27                   | 17.4                          |
| 48   | Delphi, USA                      | Automobiles & parts            | 1865.03                   | 4.8                           |
| 49   | Alcatel, France                  | Telecommunications equip.      | 1792                      | 15.1                          |
| 50   | Finmeccanica, Italy              | Aerospace & defence            | 1746                      | 20.1                          |

**Table 3. Ranking of industrial sectors by aggregate R&D from the world top (2000) companies.**

| <b>Rank</b> | <b>Sector *</b>                   | <b>R&amp;D Investment<br/>2005 (€ m)</b> | <b>Change from<br/>previous<br/>year (%)</b> | <b>Sector share<br/>in R&amp;D<br/>investment</b> |
|-------------|-----------------------------------|--|--|---|
| 1           | Technology hardware & equipment   | 70384.35                                 | 7.2  | 19.0%   |
| 2           | Pharmaceuticals & Biotechnology   | 68264.45                                 | 8.4  | 18.4%   |
| 3           | Automobiles & parts               | 64091.43                                 | 5.4  | 17.3%   |
| 4           | Electronic & Electrical Equipment | 27366.32                                 | 6.1  | 7.4%  |
| 5           | Software & Computer Services      | 25289.61                                 | 9.4  | 6.8%  |
| 6           | Chemicals                         | 16930.35                                 | -0.8   | 4.6%  |
| 7           | Leisure goods                     | 15576.01                                 | 1.7  | 4.2%  |
| 8           | Aerospace & defence               | 14849.89                                 | 13.6   | 4.0%  |
| 9           | Industrial Engineering            | 9444.62                                  | 8.9  | 2.5%  |
| 10          | General industrials               | 9228.86                                  | 10.9   | 2.5%  |
| 11          | Health care equipment & services  | 7012.81                                  | 12.5   | 1.9%  |
| 12          | Fixed line telecommunications     | 6474.66                                  | 5.8  | 1.7%  |
| 13          | Oil & gas producers               | 4217.48                                  | 11.4   | 1.1%  |
| 14          | Household goods                   | 3836.58                                  | 7.2  | 1.0%  |
| 15          | Food producers                    | 3767.17                                  | 2.5  | 1.0%  |
|             | Top 15 sectors                    | 346734.59                                | 7.0  | 93.6%   |
|             | Rest of 21 sectors                | 23841.66                                 | 7.2  | 6.4%  |
|             | Grand Total                       | 370576.25                                | 7.0  | 100.0%  |

\* Three digits ICB (International Classification Benchmark)