export presence is evidence of industry strength; but it is also a source of vulnerability. Industry performance depends on its ability to hold on to market share in the face of increased competition from Japanese and, in particular, North American and Swiss pharmaceutical firms. Within the EC there is considerable anxiety about increased foreign competition.[35] That there are probably grounds for this anxiety is suggested by the fact that, though the EC continues to have a substantial excess of extra-EC exports over extra-EC imports, the relative magnitude of that surplus has been declining. The ratio of exports to imports fell from 2.48 in 1980 to 2.06 in 1987.[36]

- The performance of most pharmaceutical firms is closely tied to their success in R&D. The European industry engages in a substantial research effort: it currently invests about 4 billion ECU in research. And, as Table 9 shows, this research has paid off in a significant share of world pharmaceuticals inventions. But there is evidence of a decline in the relative R&D performance of the European industry in general, including the EC industry. This can be seen clearly in Figure 10. It shows that while the U.S. industry has tended to hold its position as a producer of new molecules, Europe's relative share has declined as Japan has improved its position in the pharmaceutical industry.

The EC pharmaceutical industry, then, remains a powerful world presence, but one that has been weakened somewhat by the fragmented domestic market it faces, and one that seems to be losing some of its export and R&D dominance. EC producers also complain of inadequate patent protection. The effective life of patents granted within the EC has been substantially shortened by the time required to develop a drug from patentable status to the point where testing for regulatory approval can begin, and by delays in drug registration procedures. This has become a major industry concern.

There is, then, a preoccupation within the European industry with the challenge of North American and, increasingly, Japanese producers. Part of the response to this challenge by European industry leaders is a conviction that European firms have to expand into the North American market, by acquiring North American firms. Two main reasons are given for this strategy. The first is the argument that the research costs for many new drugs are so high that it is necessary to assure as large a market as possible for those drugs that are finally marketed. The second is that European pharmaceuticals firms lack skill in tailoring sales to regional markets. The regulatory environment of the European industry has produced a set of country-based firms (including numerous subsidiaries of foreign-based firms, some of them based in other EC countries) directing sales at national markets. North American firms have more experience in regional marketing and it is thought that their acquisition will allow European sales forces to learn regional marketing skills.[37]

2.4 Biotechnology

A number of factors have hampered the development of biotechnology in Europe. There is the diversity in regulatory regimes and patent law systems (discussed below). There was also a problem with the price of fermentation feedstocks (starch, sugar) caused by the EC's income support program for agricultural producers. Thus, the restrictive quota on isoglucose production in the Community meant that one major application of enzyme technology -- the liquid sweetener -- was commercially exploited in the United States, despite the fact that many of the key innovations were made in Europe.[38] This latter problem was finally addressed