

A healthy future?

An analysis of the sustainability of the medical technology industry

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Introduction

This report examines the relevant environmental and social aspects for medical technology companies, paying particular attention to the way they affect business performance. This report takes a closer look at the key social issues: efficacy/tolerability, and the cost/benefit relationship of products, as well as problematic marketing practices and unethical business conduct. Compared with other sectors, the environmental impacts of the medical technology industry are below average. But because of the diversity of the products (from bandages through to implants and endoscopes), the impacts vary.

The medical technology industry

The medical technology industry includes among others manufacturers of X-ray equipment and pacemakers, orthopaedic aids (e.g. artificial hip joints) and wound care products. The table below shows the medical technology companies assessed by Sarasin Sustainable Investments and discussed in this report. They include 10 of the 11 biggest companies (by stock market value).

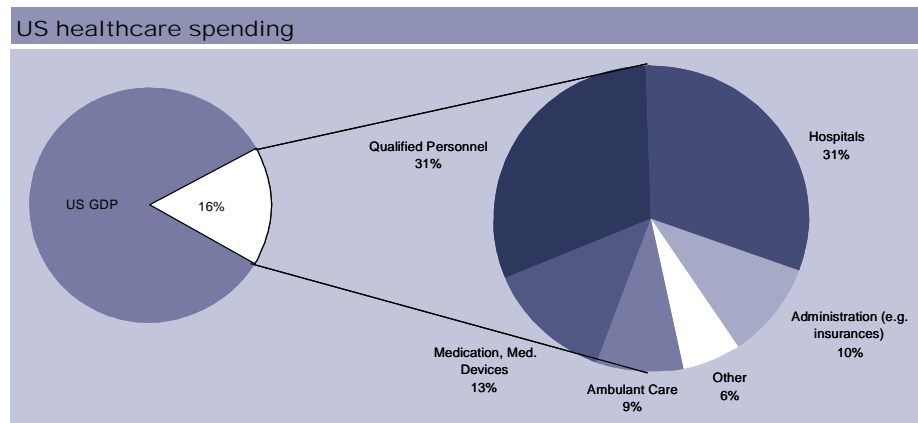
Selection of the biggest* listed medtech companies and other rated firms				
Company	Country	Sales 2006 (USD bn)	Employees	Stock market capitalisation (USD m)
Medtronic	USA	11.3	36,000	60,955
Baxter	USA	10.4	45,000	35,838
Stryker	USA	5.1	15,000	27,199
Zimmer	USA	3.5	7,000	19,657
Boston Scientific	USA	7.8	29,000	18,913
Becton Dickinson	USA	5.7	27,000	18,818
St. Jude Medical	USA	3.3	12,000	15,401
Synthes	CH	2.4	9'000	13,564
Essilor	FR	3.7	29'288	12614
Olympus	JP	9.2	32'958	11,561
Smith & Nephew	UK	2.8	8'000	11,111
Bard (C.R.)	USA	1.8	8'900	8,588
Nobel Biocare	CH	0.8	2'000	7,177
Sonova	CH	0.9	4'023	5,867
William Demant	DK	0.9	4'797	5,586
Straumann	CH	0.5	1'650	4,258
Getinge	SE	2.0	7'531	4,116
Drägerwerk	DE	2.7	10'069	1,154

* by market capitalisation (status: 02.09.07)

Source: MSCI / Bloomberg

Cost pressures still increasing
in healthcare

Healthcare costs are an important economic factor in industrialised countries. In the USA, for example, national healthcare spending amounted to 16% of GDP in 2005. This is set to rise to 20% by 2016. Over the period 1990 to 2004, the annual rise in the consumer price index for medical healthcare in the US has always been higher (by up to 3.5%) than the rise of the overall index.



Source: Adamant / Centers for Medicare&Medicaid Services, Office of Actuary, 2007. Data basis: 2005

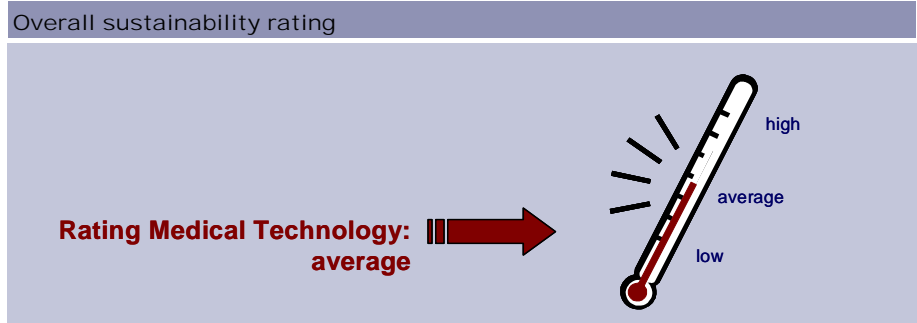
A number of factors are contributing to this trend. The increase in the elderly section of the population is fuelling demand for healthcare services and products. At the same time new medical technology and pharmaceutical products are being continuously developed that extend the range of treatments available. This situation is not helped by the fact that in an ageing society the proportion of people paying tax and social security contributions is steadily declining. Cost pressures will therefore continue to mount.

Many countries already have systems in place to measure the cost efficiency of new technologies as a prerequisite for reimbursing healthcare costs. One example of initiatives to cut costs is the diagnosis related group (DRG) method for hospitals, a system already introduced in Germany and planned for Switzerland. This generates more competition and downward price pressure for medical technology products. The industry's margins, which are high compared with other industries, have shrunk worldwide in the past two years.

Sustainability issues

Sustainability rating

The rating of the industry's sustainability risks is "average".



Source: Bank Sarasin

Top priority: benefit to the patient

The industry's sustainability rating is determined mainly by social aspects (see figure below). Medical technology products provide substantial social benefit. They make a significant contribution towards improving healthcare. Because the products play such a key role in treating patients, their efficacy and safety are extremely important (external conflict potential/product use). Advanced research and development, modern production technology and highly trained, motivated staff provide the foundation for top-quality, innovative products. These themes are directly linked to the company's financial performance, partly in view of potential product liability cases. One issue that is becoming increasingly important is the cost efficiency of products, especially given the efforts to keep runaway health costs under control. Business ethics are particularly important in this industry. As in the pharmaceutical industry, a number of cases of unethical marketing practices and price-fixing have come to light in recent years (external conflict potential/production).

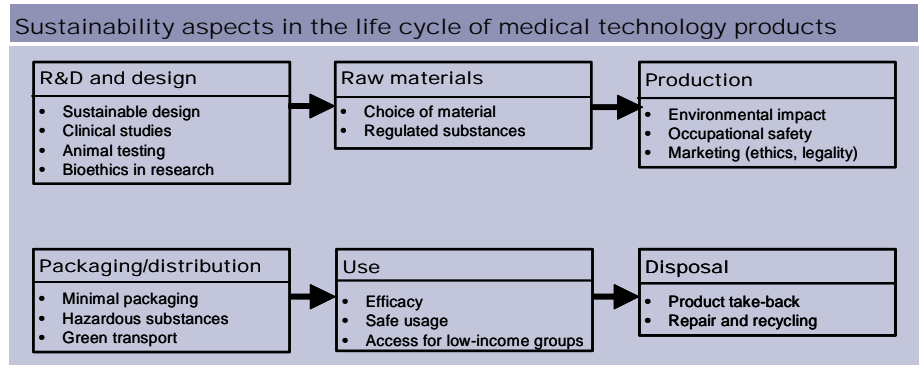
Sustainability rating of the medtech industry in detail

Risks:	Phase in the product life cycle		
	Pre-production	Production	Use & Disposal
Consumption of resources	●		
Emissions	●	●	
Internal conflict potential	●	●	
External conflict potential		●●	●●●

Source: Bank Sarasin

Attractive employer

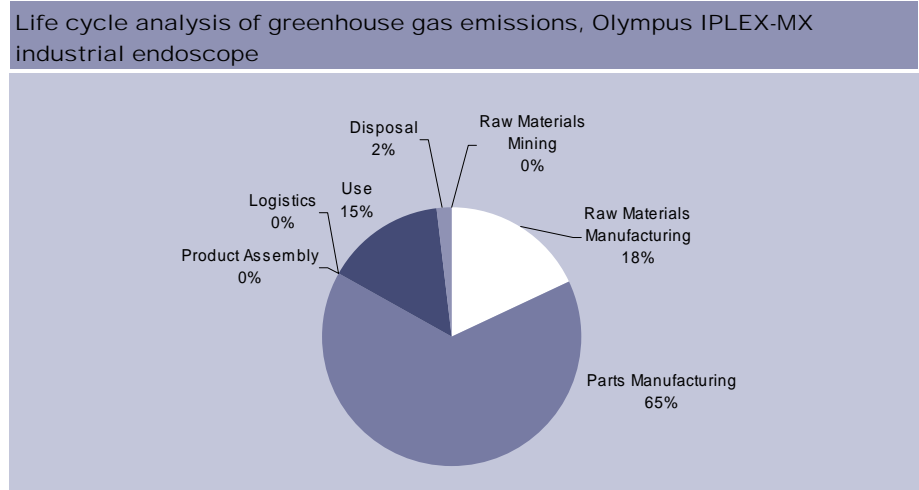
Since the sector enjoys steady growth and excellent margins, the working conditions can generally be classed as very good. Large-scale redundancies and labour disputes are not an issue. Instead, in the "war for talents" it's far more important to create good working conditions, attractive salaries and options for improving the work-life balance, along with training and professional development opportunities.



Source: Baxter, Bank Sarasin

Environmental aspects should be part of product development

Compared with other sectors, the environmental impacts of the medical technology industry are below average. But because of the diversity of the products (from bandages through to implants and endoscopes), the impacts vary. The systematic way to determine the environmental impact of a product is to carry out life cycle analyses as part of the product development process. A number of manufacturers, such as Olympus, Baxter and Smith & Nephew, have already been doing this for some years, and Essilor followed suit in 2006. The environmental impacts tend to be concentrated in the raw materials and component manufacturing stages (see next chart). The devices are usually made by assembling components bought in by the equipment manufacturer. In this case, most of the ecological impact occurs at the suppliers. This highlights the importance of environmental and social requirements for suppliers. In the case of electrical and electronic equipment, the amount of energy consumed during their use also plays an important role.



Source: Olympus

Hazardous substances

As already mentioned, the safety requirements for medical technology products are extremely high. Products that come into contact with the human body must not contain any harmful substances, or at least only minute quantities of them. In some cases, however, a trade-off is necessary on the environmental side in the interests of maximum efficacy. Certain consumables, for example, are made from PVC due to the lack of alternative plastic materials with similar properties. Like other equipment, electrical and electronic medical technology devices must comply with EU directives on disposal and on hazardous substances.

Major clients demand sustainability

Large buyers of medical products and services are increasingly giving priority to environmental and social criteria. Britain's National Health Service (NHS), whose annual spending volume is around GBP 15 billion, is a prime example. The NHS has now included relevant criteria in the specification catalogues of all its areas of procurement.

Financially relevant sustainability opportunities and risks

Risks and opportunities for companies

The various environmental and social aspects present a number of financial risks for companies in the medtech industry, as shown in the table below. On the other hand, companies are also able to benefit from the opportunities created by finding an innovative solution to these problems.

Financial risks and opportunities associated with sustainability		
Sustainability issues	Risks	Opportunities
Efficacy/tolerability of products	<ul style="list-style-type: none"> Product recalls Compensation claims Tougher approval procedures Damage to reputation 	<ul style="list-style-type: none"> Safer products through longer product test phases Good reputation with regulatory authorities
Products' cost/benefit ratio	<ul style="list-style-type: none"> Cost reduction in healthcare Decline in sales or margins No coverage by health insurance schemes 	<ul style="list-style-type: none"> Market share expansion through innovation with good cost/benefit ratio
Marketing practices	<ul style="list-style-type: none"> Fines and settlements for illegal marketing practices Clients' loss of confidence Increase in regulatory pressure 	<ul style="list-style-type: none"> Lower marketing costs thanks to more efficient marketing Reputation as a fair provider Less regulatory pressure

Source: Bank Sarasin

In 2005 and 2006 the shares of medical technology companies suffered from the effects of product recalls, uncertainty about medium and long-term safety (stents), shrinking coverage by health insurance schemes and price pressure (especially in orthopaedics and cardiology). At the same time, there was a decline in the launch of new flagship products.

Product recalls are bad news for patients and profits

The efficacy and tolerability of the products are the two most important aspects for patients. In the event of quality problems or undesirable side-effects of the products, companies are affected in three ways. Sales are hit directly in the case of product recalls and stop-sale orders. The biggest financial risk often comes from the legal side, especially in the USA. Last but not least, a company's reputation could be damaged, which is particularly painful for manufacturers of medical products. Cardiology has been particularly affected by such developments in recent years. Because of the difficulties described, the US approvals body, the FDA, is expected to generally tighten up the approval procedure for high-risk products. Combined with companies' experiences in recent years, this should mean that there will ultimately be fewer product recalls and liability claims in future. But at the same time this could slow down the introduction of new treatment techniques.

Marketing practices under investigation

The threat of fines and legal costs for court cases means that business ethics are becoming extremely important, discouraging price fixing and bribes as a short-cut to commercial success. A number of measures have been undertaken in the pharmaceutical industry in recent years to discourage what from an ethical and/or legal perspective are considered to be "problematic" marketing practices.

The US courts have imposed record fines, and companies and industry federations have responded by introducing tougher guidelines. There have been – and still are – similar problematic marketing practices in the medical technology product industry. Here too, the authorities and the courts have since taken action. The illegal marketing of so-called “off-label uses” that occurs in the pharmaceutical industry also happens in the medical technology segment. This simply means that products are marketed for therapeutic uses for which they have not yet been approved (use by a doctor is not illegal). At the start of this year, for example, America’s FDA looked into the implantation of biliary stents, originally intended for use in the gall bladder, in the legs. It is estimated that approximately 60% of the metal stents inserted in the peripheral areas of the body have not been approved for this use. The FDA has asked manufacturers to change their marketing practices so as to steer clear of these applications. In general terms, less aggressive marketing practices may be detrimental to sales growth, but they do at least reduce product liability and company reputation risks.

Products influence overall treatment costs

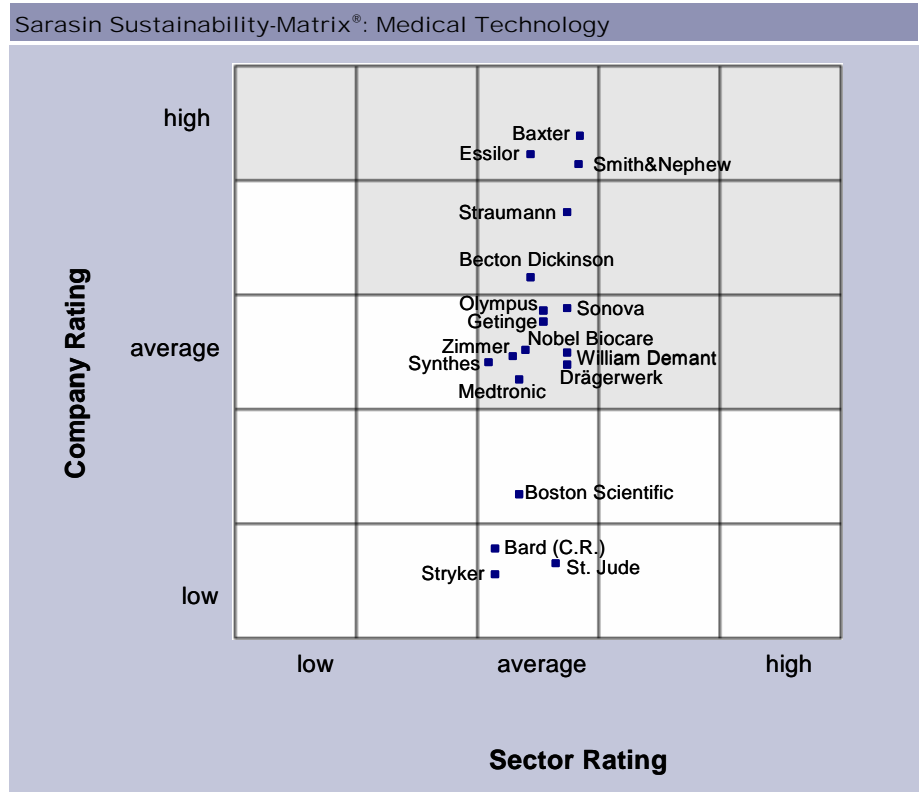
In view of soaring healthcare costs, the cost efficiency of medical technology products and of treatment methods is a crucial ingredient of market success. Medical equipment and products influence costs in different stages of the healthcare value chain: from diagnostics to surgery, through to nursing care costs (e.g. changing bandages), etc. It is therefore important that manufacturers pay proper attention not just to patient benefit, but also to cost efficiency when developing and marketing their products. On the sales side, the main arguments tend to focus too often on volume discounts etc. A number of manufacturers are taking up this theme, and emphasise that new and more efficient products can help to reduce the cost of medical treatment and aftercare, thereby saving costs – even though the new product itself often tends to be more expensive than the one it replaces. This line of argument is encouraging better market acceptance of new products. To achieve these product innovations, companies need to invest in research & development and greater efficiency, which in turn requires a motivated workforce, among other things.

Results of the company evaluation

Baxter leads the way

Sarasin Sustainability-Matrix® provides an overview of the companies we have assessed in this sector. The best rating (*high*) is achieved by the US company Baxter, the UK's Smith & Nephew and the French group Essilor, who are the leaders on the Sarasin Sustainability-Matrix®. Baxter is one of the leading suppliers of systems for intravenous administration of drugs, fluids and nutrients to patients. It also manufactures blood plasma therapies and biopharmaceuticals for haemophiliacs as well as products for treating kidney disorders. Smith & Nephew is active in three areas: orthopaedics, endoscopy and wound treatment. Its most important products include knee and hip implants, instruments for minimally invasive surgery and wound dressings. Essilor produces and markets lenses: in 2006 it produced 215 million pairs.

The second tier, with an *above average* rating, includes the Swiss dental implant company Straumann and Becton Dickinson (USA). Becton Dickinson develops, produces and commercialises medical products such as needles and syringes, catheters, devices for measuring blood sugar and surgical blades. Other areas include diagnostics equipment and analytical systems, as well as accessories for cell analysis.



Source: Bank Sarasin

Product quality is a problem particularly in cardiology

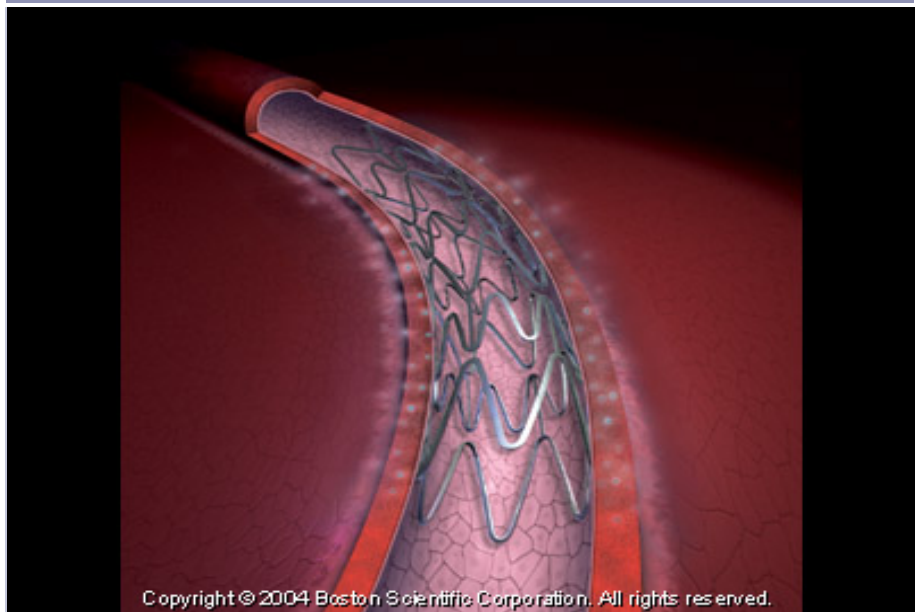
The five leading companies have had very few safety problems with their products in the recent past. The one exception was Baxter, which had to recall faulty infusion and injection pumps in 2005. Other companies experienced more problems with product defects. In one case, potential battery faults in implanted Medtronic defibrillators led to several thousand having to be surgically replaced in 2005 and 2006. A number of claims for compensation were filed. Boston Scien-

tific had to get to grips with a number of product liability problems when it took over Guidant. In June 2006, some 23,000 pacemakers and defibrillators made by Guidant had to be recalled. In addition, 27,000 patients had to be warned that their devices could possibly develop a battery fault. In 2005 as many as 109,000 defibrillators had to be recalled. By March 2007, Boston Scientific was facing 1,100 individual claims for compensation and 75 class actions.

New products = new risks

Similar problems arose with stents in the summer of 2004, when Boston Scientific had to recall around 100,000 of the new TAXUS stents due to technical defects. Despite technical improvements, the market for stents still suffers from safety concerns about products with drug coatings, as there is evidence to suggest that they increase the risk of thrombosis.

Boston Scientific Taxus® Express™ Stent System



Source: Boston Scientific

Questions have also been raised about patients' tolerance of dental implants. At the end of 2005, professors at Swedish universities found that Nobel Biocare's product NobelDirect, which accounts for roughly 1.5% of group sales, frequently causes atrophy of the jawbone. A Swedish panel of experts came to the conclusion that the product could still be marketed subject to certain restrictions (improved training, no advertising).

Investigations into price-fixing and corruption

The four leading companies also have a relatively good track record when it comes to correct marketing practices. By contrast, Medtronic declared in 2006 that it was prepared to pay the US Justice Department USD 40 million to settle a claim. The company was accused of paying doctors to use Medtronic products. Zimmer, Biomet, Stryker, Smith & Nephew and Johnson & Johnson (DePuy) are also the object of an investigation launched in June 2006 by the US Justice Department into anti-competitive practices (price-fixing) in the orthopaedics industry. A case is also been brought against Zimmer for allegedly bribing hospital doctors (since March 2005). Nobel Biocare pursues a legal, but comparatively aggressive marketing strategy: It is pushing new products that can be used by general dentists (not just orthodontic surgeons) for dental implants. The scale of the

Cost efficiency is becoming an important marketing argument

company's clinical studies for the regulatory approval of this type of product is also being reduced. Both these factors increase the risk of product failure.

Smith & Nephew has integrated the cost/benefit ratio aspect of products into its product development and marketing. One example of superior efficiency is its Versajet device used for wound treatment. Instead of having to remove necrotic tissue with a scalpel in an operating theatre, this is undertaken with a device delivering a high pressure jet of saline solution. This results in more rapid healing and better scar tissue formation. Despite the device's expensive price tag – its disposable jet head alone costs roughly 40 times more than a scalpel blade – overall costs can be reduced by roughly 30% thanks to lower medical treatment costs. A long-term university study, jointly financed by Straumann, demonstrates that the use of dental implants is beneficial, in terms of both cost efficiency and medical benefit, compared with conventional prostheses. Essilor is also tackling this issue, but in a slightly different way. In 2005 it launched a marketing campaign targeted at rural areas in India. It has a mobile laboratory from which eye examinations can be performed and reasonably priced spectacles prescribed. With this sort of initiative, the company intends to establish a firm foothold in emerging markets.

Quality control in implant production



Source: Straumann

Environmental protection and working conditions generally OK

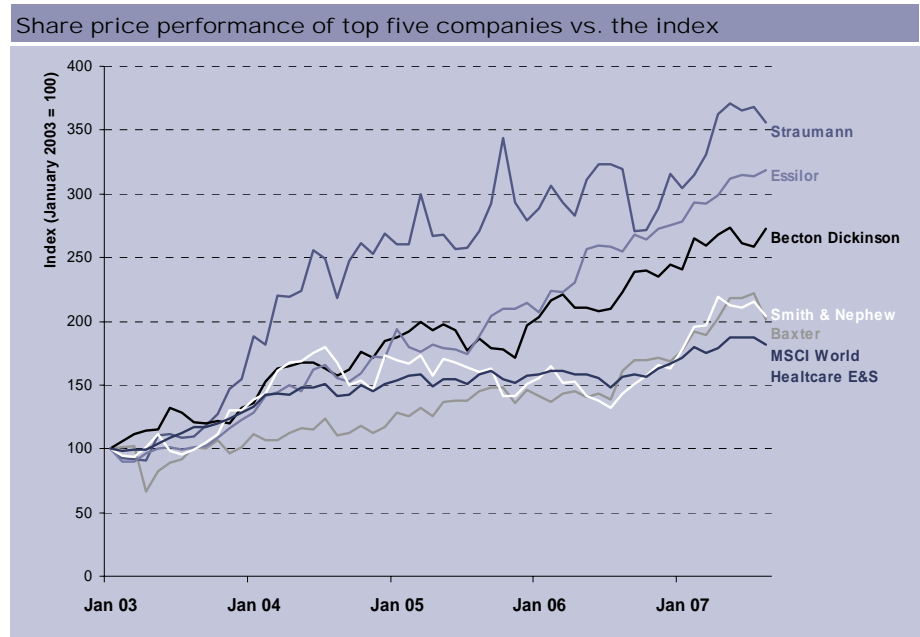
Environmental protection, work safety and other social aspects are also effectively integrated into the organisational structure of the leading companies in this report. Baxter, for example, has an integrated environmental and health & safety management system in place for the whole group. The strong environmental performance in recent years is being driven by ambitious green targets. In the development phase, all products undergo a life cycle analysis of their sustainability credentials. Working conditions in the industry are generally quite good. Smith & Nephew stands out especially. The company conducts a staff survey every two years. In 2006 around 90% of employees said they were basically happy with their job in the company. The staff fluctuation rate was low, at 2.8%.

Overall picture

Many of the companies evaluated in this industry score an *average* rating. The difference between them (and companies with *below-average* ratings) and the top group is that they do not have such well-developed environmental and social management system, and/or because they have problems with product quality and ethical business practices.

Sustainability leaders outperform

It is admittedly difficult to quantify the financial consequences of a management style that gives priority to sustainable business practices, as there are numerous superimposed effects that distort the more long-term view. On the other hand, it is at least possible to put a fairly accurate figure on the costs for product recalls, fines and compensation.



Source: Datastream / Bank Sarasin

In the past, the share prices of those companies identified as having a higher than average sustainability rating have performed very well compared to the sector as a whole. This gives weight to the argument that successfully tackling the environmental and social risks associated with a company's business activity can also result in financial benefits for investors.

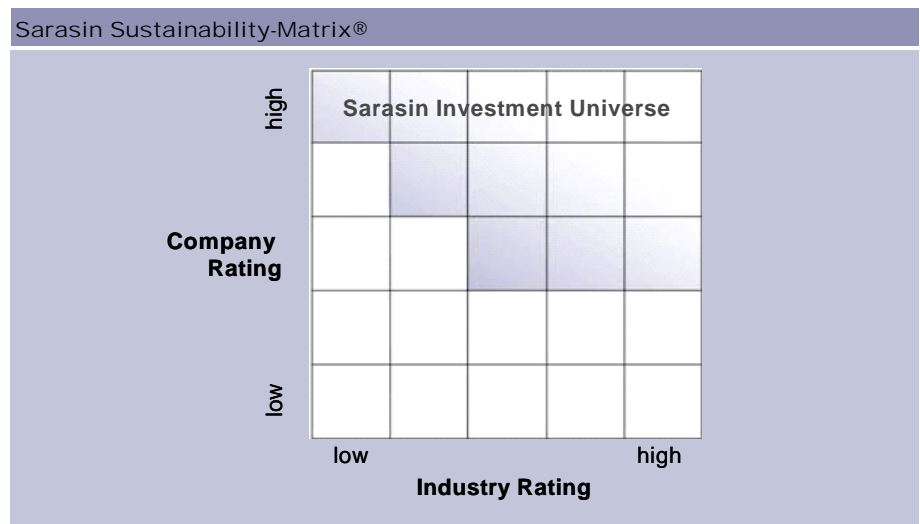
Sustainability analysis methodology

Matrix combines industry and company rating

Our environmental and social analysis of companies is based on a proprietary valuation method developed by Bank Sarasin. It incorporates two dimensions which are combined in the Sarasin Sustainability Matrix®:

- ◆ **Industry rating:** Comparative assessment of industries using selected environmental and social criteria.
- ◆ **Company rating:** Comparative environmental and social analysis of companies within their industry.

Only the companies positioned in the Sarasin investment universe (shaded) qualify for Bank Sarasin's retail sustainability funds.



Source: Bank Sarasin

Evaluation criteria

When assessing individual companies, we consider how they handle the environmental and social risks specific to their industry and exploit the relevant opportunities. The main criteria are the same for all industries. They are compared with the industry average in the company's environmental and social profile and then aggregated into an overall rating. The weighting of the main criteria and the selection of the subcriteria are industry-specific.

Controversial activities

Certain business activities which are not deemed to be compatible with sustainable development (e.g. armaments, nuclear energy, tobacco, pornography) can lead to the exclusion of companies from the Sarasin sustainable investment universe. The Fund's Advisory Council makes this selection for our retail funds Sarasin Sustainable Equity (formerly ValueSar Equity) and Sarasin OekoSar Portfolio.

Information sources

The company rating is based on the company's own details, press reports and information from independent institutions. The companies are contacted to clarify any open questions or contradictions. We do not use standardised questionnaires.

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Publications

Company Rating	Assessing corporate sustainability – Methodology of the Sarasin company rating. Eckhard Plinke, July 2007
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