7. Company Case Study – 3M

Pollution prevention programme yielded total savings of US$894m from 1975 to 2002

Summary

The Company

3M is a US-listed engineered products manufacturer. Its main business segments are industrial, transportation, health care, consumer/office, electronic, communications and specialty materials. 3M integrates environmental management into its overall business strategy. Progressive and proactive in terms of its environmental approach, 3M is particularly successful in lowering costs via sound environmental management. 3M is also a leader in designing eco-efficient products.

Background

3M is ahead of the curve in that it integrates environmental activities into a traditional management strategy. Its EHS management system was formalised in 2001, and focuses on pollution prevention, recycling, regulatory standards, and eco-efficient product development. In the UK all bar one of 3M's manufacturing facilities are ISO 14001 certified – the exception being a recent acquisition which was working towards certification by the end of 2003. All 3M manufacturing sites worldwide that produce products for global markets are to be certified to ISO 14001. The company sets five year plans to measure itself against, in line with GRI guidelines, producing an annual scorecard of achievements against targets. 3M also utilizes life cycle management to improve the environmental, health and safety impact of its products and processes, which should considerably reduce future environmental liability.

Key Findings

Environmental Governance Measure	Financial Measure	Degree of Correlation	Quantifiable Impact?
Pollution Prevention Pays (3P) program, adopted in 1975, has been a key part of 3M's environmental strategy. From 1975 to 2002, this programme has prevented 857,282 tonnes of pollutants	Lower costs; improved operational efficiency	Strong – evidence that cost savings were achieved	In 2000, savings resulting from 3P projects amounted to US$22.4 million. In 2002, this figure was US$36.8 million. Total savings of US$ 894 million from 1975 to 2002
Implementation and development of environmental management strategy, formalised EHS management in 2001	Improved reputation	Strong – improvements in most indicators; awards for best practice	Global fines for the company were US$85,000 in 1998 compared to US$253,000 in 1990. 10% improvement in energy efficiency 2000-2002
Focus on eco-efficient product development, for instance, production of more environmentally friendly Scotchgard products following potential health concerns from compound found in previous product	Competitive advantage through new markets	Strong - significant investment in 'green' businesses	100 commercially applied and six consumer-applied protectors and cleaners

Environmental Governance

Issues

- In 2002, six years after 3M sold a site to the US government, government officials found a waste dump there from a former printing operation, which had been covered by vegetation. The US Justice Department and the National Park Service settled the CERCLA cost-recovery action brought against 3M as a result. The company had to pay £11 million to reimburse the federal government for cleanup.
- Asbestos exposure of £15.2 million in October 2001, arising from a case brought by 6 ex-employees, from exposure to asbestos in the 1960s and 1970s.
- In 2000 3M incurred a £106 million non-recurring cost associated with the phase out of perflourooctanyl (PFO)-based chemical products found in a range of its Scotchgard products. In response, 3M produced a reformulated, more environmentally-friendly Scotchgard for use by carpet makers. The product, introduced ahead of schedule in November 2000, was gradually phased in to the market.
- Whilst progressive and proactive in terms of environmental management, 3M does have a higher than average incidence of releases/sales for its sector. There were 60 non-fine notices of violations and permits exceeded worldwide in 1999 compared with 98 in 1990.

Responses

- From 1975 to 2002, 3M's 3P program has been a key part of its environmental strategy. The program seeks to eliminate pollution at source through development of new technologies and products, via product reformulation, process modification, equipment redesign, and recycling and reuse of waste materials. From 1975 to 2002, 3M's 3P program has saved £632 million, and prevented 857,282 tonnes of pollutants. In 2000, savings resulting from 3P projects amounted to £15.8 million. In 2002, this figure was £26 million.
- 3M sets 5 year plans to measure itself against, in line with GRI guidelines, producing an annual scorecard of environmental governance achievements against targets. Downward trend in air and water emissions, waste production. Improvement in energy efficiency.
- 3M set itself a target to improve efficiency by 20% during the period 2001-2005.
- 3M has also made significant progress in terms of air emissions. Between 1990 and 2000, a 93% reduction in volatile organic air emissions was achieved. Between 2000 and 2002, there was a further 25% reduction in volatile air emissions. 3M set a target to reduce volatile air emissions by a 25% between 2001 and 2005.
- US EPA Toxic Release Inventory (TRI) releases have seen significant improvement. Between 1990 and 2000, there has been a 93% reduction, and between 2000 and 2002, a 38% reduction in TRI releases. The target set in the latest 5 year plan is to reduce TRI releases by 50% between 2001 and 2005.
- 3M reduced solid waste by 47% between 1990 and 2000, and by 12% between 2000 and 2002 between 2000 and 2002. Set itself a target to reduce waste by 25% between 2001 and 2005.
- Set a target to double the number of 'Pollution Prevention Pays' (3P) projects from 194 for the previous 5 year period (1995 – 2000) to 400 projects in this period (2001 – 2005).

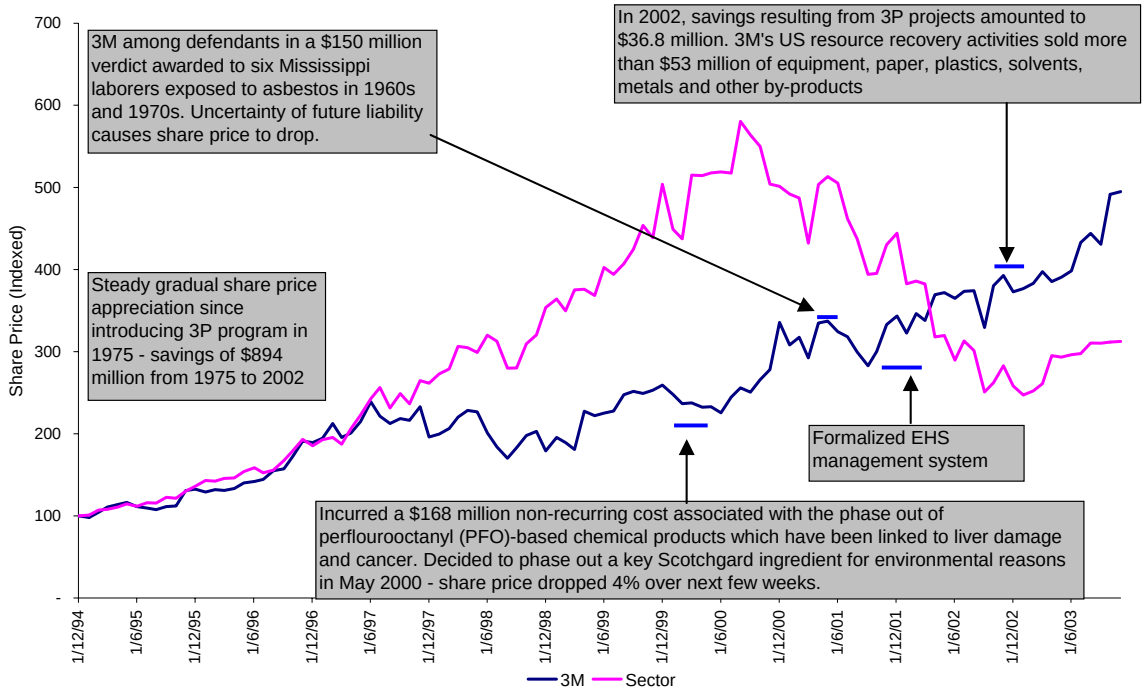
Financial impacts

Fundamentals

Share price performance

Figure 9

3M Share Price (indexed) vs S&P 500 Industrial Conglomerates (indexed)



3M's share price appreciated fairly gradually from the late 1980s until the mid-1990s, during a period where the group did not have a distinct, overarching environmental strategy and like other industrial conglomerates, had been cited as a repeat offender in terms of pollution. More recently, however, whilst the rest of the industrial conglomerates sector has languished in the doldrums since mid-2002, 3M's share price has significantly outperformed its counterparts.

This can be attributed to a host of factors, including strong sales in its occupational HSE unit (see below – 'Competitive Advantage').

In 1975 3M adopted its voluntary 'Pollution Prevention Pays' (3P) programme, based on the idea that pollution prevention is both an environmental as well as a financially viable strategy. The aim of the strategy was to eliminate pollution at source, through product reformulation, process modification, equipment redesign and recycling and reuse of waste materials.

Intangibles

Corporate reputation

3M has certainly built a strong brand, particularly renowned for specific products, some of which are described below.

Competitive advantage and new markets

A well integrated life cycle management system has resulted in the manufacturing of products such as respirators, hearing protection products, air monitoring devices, environmental safety products, recycling-compatible label materials for plastic electronic equipment, water based contact adhesives, CFC-free asthma inhalers and the CFC replacement HFEs. 3M has shown strong sales in its occupational HSE unit, for instance, it received a US$27 million contract from the US Advanced Battery Consortium for the second phase of developing a lithium polymer battery which has the potential to generate performance levels equivalent to gasoline powered vehicles.

Operational efficiency

Operational efficiency gains have been highlighted by 3M's pollution prevention programme, which have resulted in savings of £632 million since 1975. With targets to improve efficiency by 20%, reduce emissions and solid waste by 25%, and TRI releases by 50%, during the period 2001-2005, operational efficiency gains look set to continue.

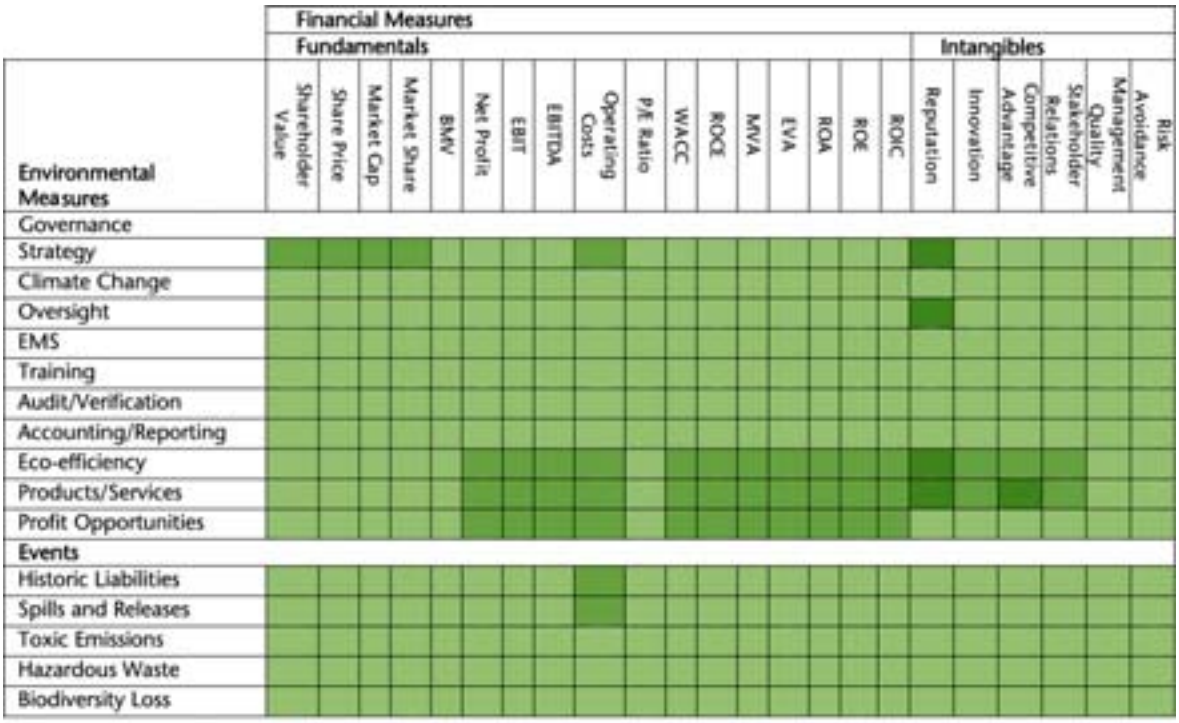
Risk avoidance

In 2000, 3M incurred a £106 million non-recurring cost associated with the phase out of perflourooctanyl (PFO)-based chemical products which have been linked to liver damage and cancer. In October 2001, 3M was among the defendants in a £102 million verdict awarded to six Mississippi labourers who were exposed to asbestos in the 1960s and 1970s. 3M appealed its portion of the verdict, US$22.5 million. However, news of this asbestos liability came at a time when third-quarter earnings at 3M fell 21% as the manufacturer was hurt by the softening global economy.

In 2002, six years after 3M sold a site to the US government, government officials found a waste dump at the site from a former printing operation. The waste had been covered by vegetation. The US Justice Department and the National Park Service settled the CERCLA cost-recovery action brought against 3M as a result. The company had to pay US$15.5 million to settle the CERCLA cost-recovery action to reimburse the federal government for cleanup.

3M's recent decision to incorporate environmental management strategies into its overall business approach should benefit the company as it steals a march on its competitors in developing products that are less likely to lead to future environmental liability. The adoption of eco-efficient manufacturing methods has also lead to more flexible plant configuration and enhanced productivity.

Appendix – summary of financial impacts identified



Key

Degree of correlation	Strong	Moderate	Little or None

8. Company Case Study – Baxter International

Environmental management initiatives saved US$64.7 million in 2002.

Summary

The company

Baxter International, founded in 1931, has three main business lines; bioscience, medication delivery and renal. The bioscience area produces plasma proteins to treat haemophilia and other blood-related disorders, providing the largest sales. The medication delivery business manufactures intravenous and injectable medications and systems for delivering those medications, and the renal therapy business makes products such as dialysis equipment. The company employs 50,000 in more than 100 countries and in 2003, sales reached $8.9 billion.

Background

Baxter provides a model for environmental management, reporting and accounting and has consistently strived for high standards. This has set the company apart from others in the sector. The company has had comprehensive systems in place since 1991 and was one of the first pilot companies to report under the Global Reporting Initiative (GRI) when it was established in 1999.

Key Findings

Environmental Governance Measure	Financial Measure	Degree of Correlation	Quantifiable Impact?
Leading environmental governance standards, consistently raising the bar in terms of progressive efforts to reduce environmental impact of operations since 1991	Improved reputation	Low to moderate - consistently improving share price, but difficult to pinpoint to environmental efforts	Compounded annual return to shareholders from 1993 to 2002 increased 25%
Systematic monitoring, recording and target setting to reduce environmental risks to business	Cost savings and cost avoidance in dollars	Strong – cost reductions	Improvements saved $12.7 million in 2002, with cost avoidance at $52 million (from efforts initiated in the six years prior to the report year)
Evolution and development of environmental leadership, more recently with a focus on energy conservation and climate change.	Improved reputation; improved operational efficiency	Strong – inclusion in leading ethical indexes	Energy reduction methods resulted in cost savings and avoidance of $28 million from efforts initiated between 1996 and 2002

Environmental governance

Issues

- The industry is growing as more companies are becoming positioned to serve the growing and aging population which is increasing healthcare demands. The effects of the post-WW2 baby boom reaching a peak, millions now in their middle age, means people in general are living longer and the trend is likely to continue. Despite growing levels of business, the industry has challenges to reduce its ecological footprint.
- While environmental concerns are not central to the healthcare industry, there are an increasing number of initiatives to address such issues. These include reducing packaging and the purchase of PVC plastic, mercury reduction programs, efforts to reduce incineration and

use reusable over disposable items. Such trends have an impact with hospital needs being one of the key drivers of the healthcare equipment and suppliers industry.

- Heightened awareness over the environmental damage of products following disposal. There is environmental pressure to reduce the use of mercury and some European countries have imposed bans. In many cases, companies are subject to legislation such as the US Mercury Bill prohibiting the sale of mercury thermometers and managing mercury stock piles.
- The emergence of environmental groups campaigning for greener healthcare, having an impact on the products and services of healthcare equipment and providers. In 1999, Health Care Without Harm launched a campaign to phase out PVC in products due to dangerous carcinogens released during incineration and leaching of toxins during use of IV bags and tubing.
- The emergence of 'green' purchasing and its increasing popularity as sustainable development generally becomes more strategically important for companies and governments.
- Due to the scope of the company's manufacturing operations, Baxter's environmentally-related liabilities have been above average for the sector. Baxter has been named as a Potentially Responsible Party (PRP) at eight Superfund sites and liable for clean up costs. Estimated exposure to this is $2 million.
- Wastewater has emerged as a challenge for Baxter. For example in 2002, of the 20 notices of violation (NOVs) received in 2002, 19, and additionally one cease & desist order, were in relation to wastewater.
- Due to the nature of the manufacturing operation, risk exposure apparent in terms of toxic air emissions and releases from sterilisation processes.

Responses

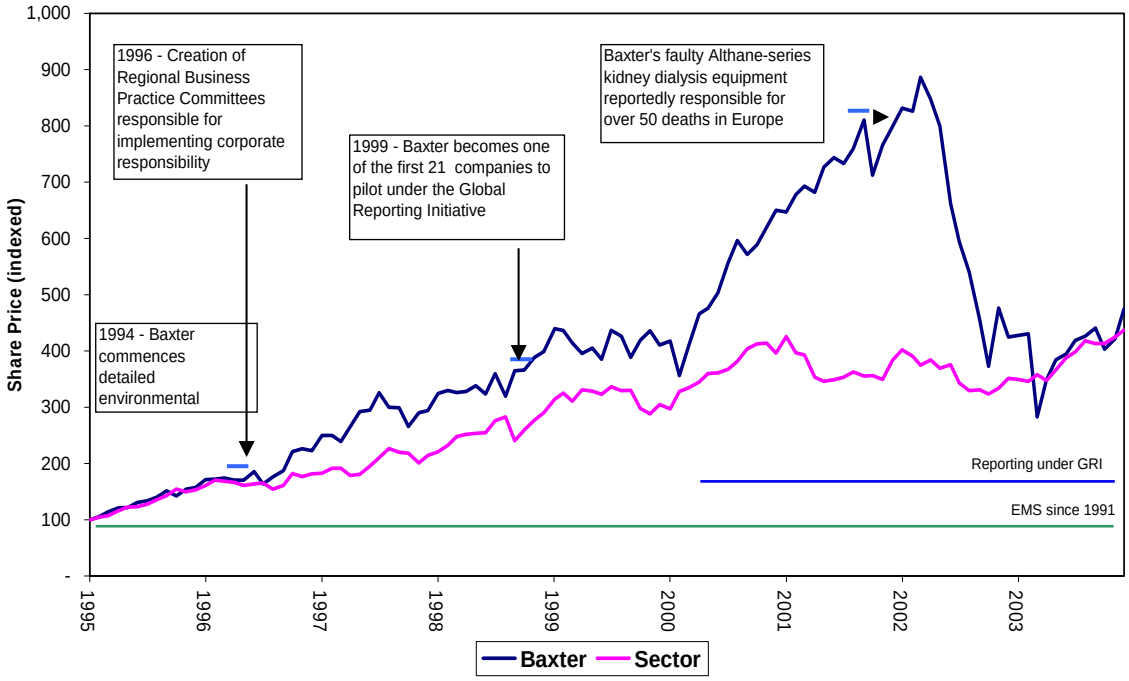
- Increasing evidence of good environmental governance with a clear environmental management framework, senior level commitment and accountability. Baxter has developed by far the most proactive environmental policies and practices in the sector.
- Baxter joined the GRI in 1999 and has made significant efforts to educate itself in emerging sustainability issues.
- Implementation of group-wide EMS in 1991 going beyond ISO 14001. Committed to ISO 14001 certification at all major sites.
- Highly advanced environmental cost accounting system and has published environmental balance sheet since 1994.
- Publication of sustainability report, now in fourth year which has improved transparency and stakeholder relations. Environmental auditing and third party verification by ERM Certification and Verification Services. Reporting activities audited against the Good Environmental Reporting Principles (GERP) which were developed with CERES.
- Baxter is developing a more aggressive waste reduction strategy and seeing a downward trend in toxic air emissions which have been reduced by 99% since 1988 levels.

Financial impacts

Fundamentals

Share price performance

Figure 16
Baxter International Share Price (indexed) vx S&P 500 Healthcare Equipment



Baxter's share price rose between 1996 and 2003, a period where the company introduced some progressive environmental practices. But several other factors have of course had an appreciable impact on share price. At the end of January 2000, Baxter posted exceptional Q4 results, reported strong earnings growth and sales (which exceeded 1999 targets). Net sales grew 12% and net earnings were up 17%. On active trading the stock price rose 9% on 27 January. Over the same period, Baxter made a number of significant acquisitions across all of its businesses including Immuno (transforming the company's BioScience business), Ohmeda, Cook, ESI Lederle and North American Vaccine. During this period Baxter also sold Allegiance Healthcare Corporation and Edwards Lifesciences Corporation and other positive news included the announcement of its smallpox vaccine contract. Furthermore, Baxter successfully completed a $500 million share repurchase program.

Baxter had a good year generally during 2000 which saw continued rising demand for Factor VIII (in 2000 the company tripled production capacity), the acquisition of Vaccine Inc (seen by financial community as a market expected to grow considerably over next few years), and the launch of the first generic propofol (used by anaesthesia business) following a patent expiry - sales exceeded $100 million in 2000 for this product alone.

Operational costs

As the table below shows, Baxter's efforts have resulted in a significant reduction of operating costs. Environmental efforts saved $65 million in 2002.

	2002	2001	2000
Environmental Costs ($ million)	**23**	**22**	**23**
Environmental Savings ($ million)			
Air Toxics Cost Reduction	0	0	0.1
Hazardous Waste Disposal Cost Reductions	-0.2	-0.2	0.2
Hazardous Waste Material Cost Reductions	-1.2	-0.5	1
Non-hazardous Waste Disposal Cost Reductions	0.6	-0.6	0
Non-hazardous Waste Material Cost Reductions	4	-2.5	3.9
Recycling Income	2.1	1.8	3.5
Energy Conservation Cost Savings	4.3	2.7	2.8
Packaging Cost Reductions	2.9	2.5	1.3
Water Conservation Cost Savings	0.2	0.1	0.1
Total Cost Savings ($ million)*	**13**	**3**	**13**
Cost Avoidance From Efforts Initiated Since 1996 ($ million)	**52**	**57**	**61**
Total Income, Savings & Cost Avoidance ($ million)*	**65**	**60**	**74**

Source: Baxter International (based on estimates)

Table 8

Recycling level has increased by 12% since 1996. Since 2000, $7.4 million in revenue has been created. Baxter has benefited from focusing on eco-efficiency and energy conservation. The company's progressive efforts in this area have resulted in estimated cost-savings of $4.3 million in 2002. Baxter also estimates that energy reduction methods in place since will save more than $30 million annually in 2005. Energy reduction methods resulted in cost-savings and avoidance of $28 million from efforts initiated between 1996 and 2002 alone. Projects in 2002 reduced packaging by 3.7% from 1995 levels and saved Baxter $2.9 million. On a more localised scale, highlights include: $1.2 million saving at the company's Singapore facility due to a project to reduce sterilisation agents and packaging. In Mexico, reducing the thickness of IV bags by 20% has resulted in average quarterly savings of $91,000. At Turkish facilities, the Water Savings Team created engineering projects resulting in a 12% reduction in water use per unit of production, saving $35,000 per year.

Intangibles

Eco-Efficiency

As detailed in the previous section, Baxter has for some time been making significant progress in improving operational efficiency and reducing costs. Baxter has benefited from eco-efficiency improvements and energy conservation. Due to collaborative efforts between quality, EHS, manufacturing, purchasing and packaging teams, Baxter has reduced the use of raw material use per unit and further benefits from an increase in recycling (60% of non-hazardous waste recycled in 2002), use of by-products and concentrated efforts with key suppliers in Europe and the US. Baxter is making significant savings from focusing on packaging (company aims to reduce actual levels 20% from 1995 levels). Additionally, Baxter's policy prohibits the use of packaging or packaging components—including inks, dyes, pigments, adhesives, stabilizers, or any other additive—to which lead, cadmium, mercury or hexavalent chromium have intentionally been added.

Product Stewardship

In a fairly fast paced industry such as healthcare, innovation is paramount. Companies that can identify emerging trends within CSR, including legislative changes will be able to differentiate themselves from companies which take a more reactive approach. By staying ahead of regulation, companies can increase sales as well as avoiding costs. While environmental concerns are not central to the healthcare industry, there are an increasing number of programs and groups aiming to improve the environmental impacts of the healthcare industry. These include reducing packaging and the purchase of PVC plastic (chlorine sources in dioxin creation in incinerators). There are also mercury reduction programs, efforts to reduce incineration and use reusable over disposable items where feasible. Such trends will have an impact with hospitals being one of the key drivers of the healthcare equipment and suppliers industry. There may be increased opportunities for companies to generate shareholder return and recognize future growth opportunities by looking more seriously at sustainability issues. Baxter feels significant business advantages result from product stewardship. This includes reducing manufacturing costs, meeting legal and regulatory requirements. Baxter considers environmental criteria at the R&D stage using checklists and process controls. In 2001, the company initiated a new tool called the Product Sustainability Review, the aim of which is to assess life cycle impacts of products on sustainability generally. As part of this process Baxter looks for ways to reduce environmental impacts during every stage of the product life cycle. Baxter's R&D teams also pursue 'Green Chemistry' initiatives to prevent pollution and waste. Such initiatives provide environmental benefits and cost savings and include hazardous substance substitution, reduction of toxins and limiting waste.

Management quality and reputation

Baxter has established an outstanding reputation for environmental responsibility, making clear its belief that this commitment will maximize value to the company and shareholders. The board was heavily involved in creating the original EH&S policies, becoming more involved in the 1980s with many new environmental laws and regulations, such as CERCLA. Good environmental governance systems are in place through the public policy committee, corporate responsibility office and regional business practice committees overseeing environmental standards and implementation across Baxter's operations. Baxter has had a formal environmental management system since 1991 and the majority of sites are covered by ISO14001 certifications consistent with the company's policy, which requires ISO 14001 certification at major sites. Additionally, sites are third party audited at approximately 40 locations to manage risks to the business. Such proactive efforts and future implementation will set the company apart from other companies in the sector. With maturing markets and a continued economic slowdown, such strategies will ultimately provide benefits. Additionally, Baxter has received widespread recognition for extensively reporting the financial impacts of environmental activity. Baxter's environmental accounting and reporting practices have served as a model since the early 1990s.

Stakeholder relations

The company has received 15 external environmental awards in 2002. Stakeholder outreach extends to local communities and Baxter is involved with environmental leadership programs such as the Business Environment Leadership of the Pew Center for Global Climate Change, Chicago Climate Exchange, Coalition for Environmentally Responsible Economies, the Global Reporting Initiative and World Resources Institute in addition to co-operating with campaign groups such as Hospitals for a Healthy Environment and Healthcare Without Harm. The company engages its customers in environment, health and safety matters through a Customer Advisory Council, which meets quarterly to identify sustainable solutions for Baxter and its customers.

Climate change risks

Baxter has demonstrated leadership in addressing the risks of climate change to the business. Baxter has a policy on climate change and engages with NGOs and governmental groups. Its environmental efforts include holding energy summits and employing over 65 energy managers, an intranet site devoted to energy use, ongoing assessments of renewable power sources, such as wind and solar energy, a best practice database as well as many internal initiatives to reduce energy use and cut emissions. Baxter has aligned itself with the Kyoto protocol and by 2005 plans to reduce energy and greenhouse gases by 30% per unit of production value compared to 1996 levels. The company reached toxic and CFC emissions reductions four years ahead of targets, reducing emissions 99% from 1988 levels. Additionally, Baxter is involved with groups such as U.S. Environmental Protection Agency's Climate Leaders Program and the Chicago Climate Exchange, which requires Baxter to offset some of its emissions and will facilitate experience with carbon trading.

Appendix – summary of financial impacts identified

	Financial Measures																					
	Fundamentals																Intangibles					
Environmental Measures	Shareholder Value	Share Price	Market Cap	Market Share	BMV	Net Profit	EBIT	EBITDA	Operating Costs	P/E Ratio	WACC	ROCE	MVA	EVA	ROA	ROE	ROIC	Reputation	Innovation	Competitive Advantage	Stakeholder Relations	Quality Management	Risk Avoidance
Governance																							
Strategy																							
Climate Change																							
Oversight																							
EMS																							
Training																							
Audit/Verification																							
Accounting/Reporting																							
Eco-efficiency																							
Products/Services																							
Profit Opportunities																							
Events																							
Historic Liabilities																							
Spills and Releases																							
Toxic Emissions																							
Hazardous Waste																							
Biodiversity Loss																							

Key

Degree of correlation	Strong	Moderate	Little or None

9. Company Case Study – The Co-operative Bank

14% of 2001 pre-tax profits from customers stating that ethical policy (incorporating environmental issues) the most important factor in choosing Co-operative Bank. Continuing growth in profits and customer base.

Summary

The company

The Co-operative Bank is a full service clearing bank providing a range of retail banking products including current accounts, credit cards, loans, mortgages, saving and investments. The Co-operative Bank is a sister organisation to the Co-operative Insurance Society (CIS), the UK's only co-operative insurance company - owned and controlled by its members. In 2002 Co-operative Financial Services (CFS) was formed, bringing together the Co-operative Bank and the CIS under common strategic leadership. CFS is part of the Co-operative Family of Companies. This case study focuses on the Co-operative Bank's environmental governance approach and its impact on the financial performance of the bank.

Background

Over the last ten years the Co-operative Bank has gained a reputation for developing innovative products, offering high levels of customer service and a range of channels by which accountholders can access their money. At the same time the Co-operative Bank aims to be a modern bank that conducts its business in an ethical manner. The bank's high profile ethical stance makes it clear to customers which organisations it will and will not do business with, enabling customers to make an informed choice about the way their money is being used. The bank introduced its ethical policy in 1992, and made it a principle not to invest money in companies that damage the environment. 1996 saw the introduction of its ecological mission statement, and the bank is now incorporating key environmental principles into its overall ethical policy.

Key Findings

Environmental Governance Measure	Financial Measure	Degree of Correlation	Quantifiable Impact?
Introduction of ecological mission statement, now incorporating its key environmental principles into its overall ethical policy	Contribution to pre-tax profits	Strong - environmental considerations form part of this institution's overall business strategy.	In 2001, 14% of pre-tax profits came from customers who stated that 'ethics is the most important factor' in deciding to bank with the Co-operative Bank, 26% came from those who said 'ethics was an important factor' in choosing the bank.
As above	Competitive advantage	As above	During 2000 the Co-operative Bank's account base grew by 336,000 accounts and 280,000 customers, and continues to grow

Environmental governance

Issues

- Financial institutions play an important role in ensuring that environmental aspects of potential projects have been considered before financing a project, in line with international guidelines. Failing to fully investigate a potential borrower can lead to negative reputation consequences, e.g., underwriting deals in unsustainable projects.

- Financial institutions can strengthen underwriting and reduce claims risks by gaining a thorough understanding of the environmental risks facing clients and providing risk management services where appropriate to help them in reducing these.
- The EU Commission drafted a directive on civil liability on environmental damage in January 2002. The project is intended to give a sound set of objectives to determine the relevance and the range of environmental damage and the chain of liabilities.
- Implementation of environmental management systems can have a positive impact on day-to-day practices, quality of management, internal consistency and corporate culture.
- Even though the environmental impacts of a financial institution's business activities tend to be much greater than its day-to-day operations, the larger institutions do create significant impacts in terms of resource use, particularly energy-use including business travel.
- Real estate investment contains environmental and financial risk associated with contaminated sites. The leading financial institutions take into account possible financial damages inherited in such an investment including reduction in asset value, cost of investigation of polluted sites, clean-up costs for contaminated sites, toxic waste disposal and project delays in construction work. In order to avoid these costs, many banks investigate the sites in the context of due diligence.

Responses

- In 1992 the Co-operative Bank launched its ethical policy and 1996 saw the introduction of an ecological mission statement. The bank is now incorporating its key environmental principles into its ethical policy, by making a commitment not to invest money in businesses whose main activities are at odds with these ethical principles.
- In line with the principles of it ecological mission statement, the bank will not invest in any business whose core activity contributes to: global climate change, through the extraction or production of fossil fuels the manufacture of chemicals which are persistent in the environment and linked to long term health concerns the unsustainable harvest of natural resources, including timber and fish. Furthermore, the bank will seek to support companies involved in: recycling and sustainable waste management renewable energy and energy efficiency sustainable natural products and services, including timber and organic produce the pursuit of ecological sustainability.
- In 1994 the Co-operative Bank became the first UK bank to establish an in-house ecology unit, responsible for facilitating the development of financial products for environmental businesses and organisations. This ecology team has experience of working with companies of all sizes and varieties.

Financial impacts

Fundamentals

Profitability

In 2001, the bank calculated that 14% of its pre-tax profits came from customers who stated that 'ethics is the most important factor' in deciding to bank with the Co-operative Bank, while 26% came from those who said that 'ethics was an important factor' in choosing the bank. Environmental considerations do form part of the institution's ethical policy. In 2003, Chris Laszlo published a book, arguing that ethical business conduct increases shareholder value. He highlighted a number of companies that have turned good ethical conduct into tangible profits, particularly highlighting Co-operative Bank, whose strong social and environmental record directly contributed to 20% percent of company profits. In 2002 Co-operative Bank pre-tax profits were £122.5 million, up 14% on the previous year. This was the ninth year of record results. Average retail customer deposit and lending balances rose by 12% and 11% respectively. Return on equity (after tax) was 19.8%. Profits for 2003 have just been reported at £130 million, up over 6%.

Operating costs

Investment in new environmental policies, research, new business streams and clear reporting has not added any significant burdens to the company in terms of financial costs.

Intangibles

Corporate reputation

In Business in the Environment's (BiE) Seventh Index of Corporate Environmental Engagement, March 2003, the Co-operative Bank, joined an ‘elite’ group of organisations – the ‘Premier League’ – that scored over 95% in this assessment of their environmental management processes and impacts. 207 businesses participated in the seventh index. In 2002 it was awarded the 'Special Judges' Award for Overall Corporate Social Responsibility Performance' at the Global Corporate Conscience Awards in New York. The bank also won the ACCA sustainability reporting award for third year running. The bank was the outright winner for the second consecutive year, having shared the award in 2002 with BT and Shell.

Competitive advantage

During 2000 the Co-operative Bank’s account base grew by 336,000 accounts and 280,000 customers, and continues to grow, largely due to the explicit ethical policy launched in 1992. Its position is cited to be a powerful differentiator that creates high levels of customer loyalty. Recent MORI surveys have found that the bank’s current account holders cite ‘ethics’ more frequently than any other issue when questioned as to the factors that influenced them to open an account.

New markets

A wide range of tailored banking products is on offer, providing low-cost banking, interest on deposits and a variety of borrowing facilities at reduced rates. There are a number of products and services available from the ecology unit.

Stakeholder relations

The environmental policy has struck a chord with the bank’s customers, finding high levels of support, likely to foster customer loyalty. Customer satisfaction rates with the bank’s investment policy on various environmental issues are shown below:

No investment in business whose core activity contributes to:

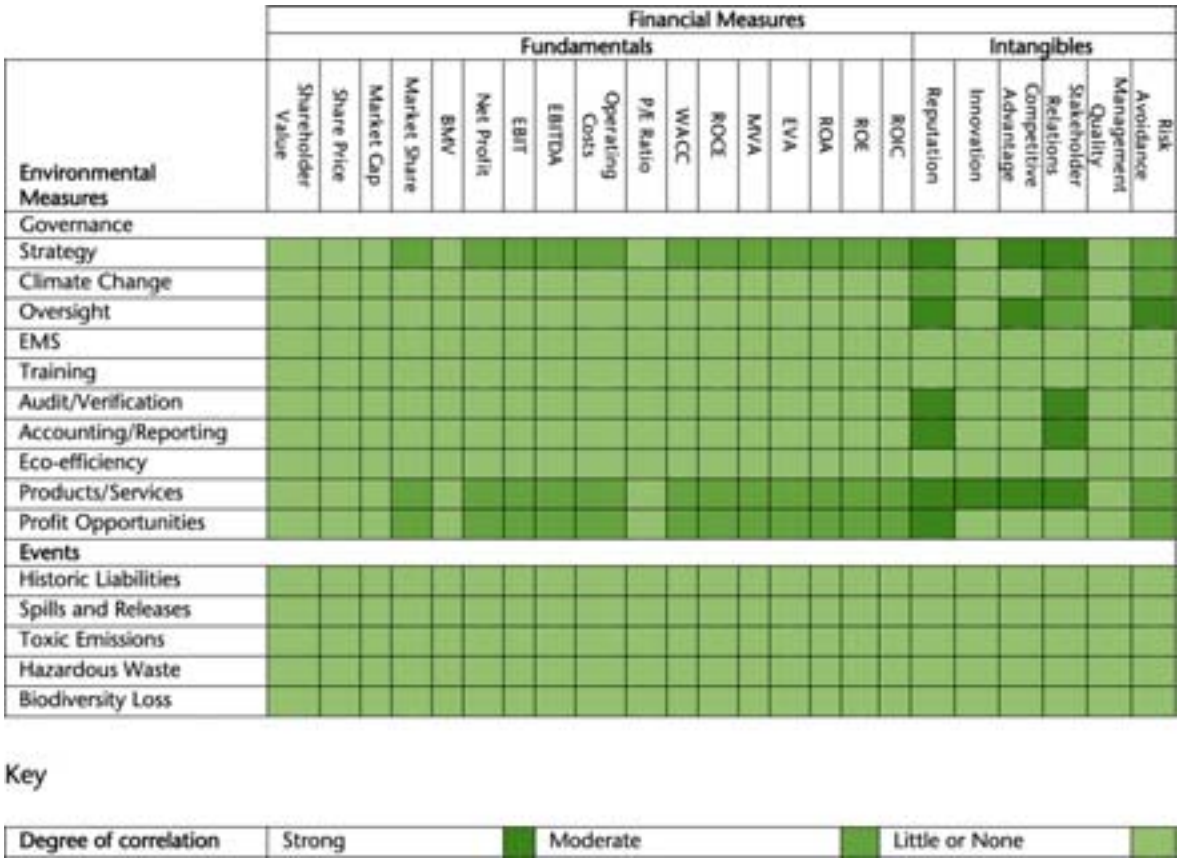
- global climate change - 70%
- persistent chemicals - 88%
- unsustainable harvesting - 94%

For positive investments:

- recycling and sustainable waste management - 98%
- renewable energy and energy efficiency - 98%
- sustainable natural products and services, including timber and organic produce - 97%
- the pursuit of ecological sustainability - 97%

So far as the bank’s own employees are concerned, employee loyalty and motivation also seems to have been achieved through the environmental and ethical policy stance. In a survey, 'UK's Best Workplaces 2003', the bank ranked 24 out of 50. In March 2003 the bank was named by Great Place to Work as a 'Best Workplace 2003'. Inclusion in the list, published by the Financial Times, is influenced by an independent random survey of staff views about their employer.

Appendix – summary of financial impacts identified



Key

Degree of correlation	Strong	Moderate	Little or None

10. Company Case Study – Iceland (The Big Food Group Plc)

Own-brand product sales increased after decision in 1998 to ban GM ingredients, but environmentally-friendly foods strategy proved costly

Summary

The company

Formerly known as Iceland Group Plc, the Big Food Group is engaged in food retailing, wholesaling, and food service together with appliance retailing, repair and delivery. The group has over 3.4 million customers a week visiting Iceland Food stores, 100,000 corner shops/independent grocers and 370,000 catering outlets obtaining their supplies from Booker and Woodward. Well-known trading names are Iceland Foods, Iceland Home Shopping, Booker Cash & Carry and Woodward Food service. Wholesale accounted for 68% of fiscal 2003 revenues; retail, 30% and food service, 2%.

Background

Iceland took an innovative approach to issues such as GM ingredients and additives in its own brand goods. It introduced no-GM and no artificial colouring or flavourings policies in 1998 which appeared to deliver some initially positive results. Its organic produce strategy, selling organic foods at low cost, reportedly cost the company approximately £20 million (rather than the £8 million originally predicted). These higher than expected costs, on top of a run of poor sales in late 2000 resulted in a slump in the company's share price.

Key Findings

Environmental Governance Measure	Financial Measure	Degree of Correlation	Quantifiable Impact?
Iceland introduced a no-GM policy in 1998 for its own-brand goods, one of the first UK food retailers to do so.	Improved reputation.	Strong – widely praised for its public stance. Increased sales.	Sales of own-brand products appeared to increase after decision in 1998 to ban GM ingredients.
Announced its intention to eliminate artificial colours and flavourings preservatives from own brand goods in late 1998.	Improved reputation.	Strong – widely praised for its stance.	Share price rally at end of trading (increasing 3.3%) on day this was announced.
Announced intention to source only organic produce for its own brand goods but to sell them at 'non-organic' prices with the company absorbing the shortfall – predicted at £8 million.	Improved reputation at first followed by apparent loss in investor confidence when the initiative proved costly.	Strong – support at first, but investor reaction equally strong when company revealed the true cost of the operation and ended the initiative after 6 months.	Initial enthusiasm fell as company saw falling sales and mounting costs - estimated at £20m. Profit warning in 2000, share price fell 50% in Jan 2001.
Iceland was the first retailer to sell a 'Kyoto' range of fridges, the only such product endorsed by Greenpeace.	Competitive advantage through new markets and improved reputation.	Moderate – the UK's large appliance retailers now equally if not more proactive on these issues.	Sales figures for 'Kyoto' fridges not disclosed.

***N.B.** This case study looks only at Iceland, the food retail arm of the Big Food Group Plc. None of the other Big Food Group company subsidiaries are considered.

Environmental Governance

Issues

- Public and NGO pressure on issues such as GM ingredients and food additives has gained momentum in the last five years. The policies of major food retailers on these and other environmental issues have subsequently been in the spotlight and those failing to develop policies have been criticised.
- Receiving less public and media attention but still important for the sector is the waste production, energy and fuel consumption by retail outlets and distribution activities. Proactive retailers are addressing these concerns by improving transparency and reporting on policies, management systems and progress regarding these issues.

Responses

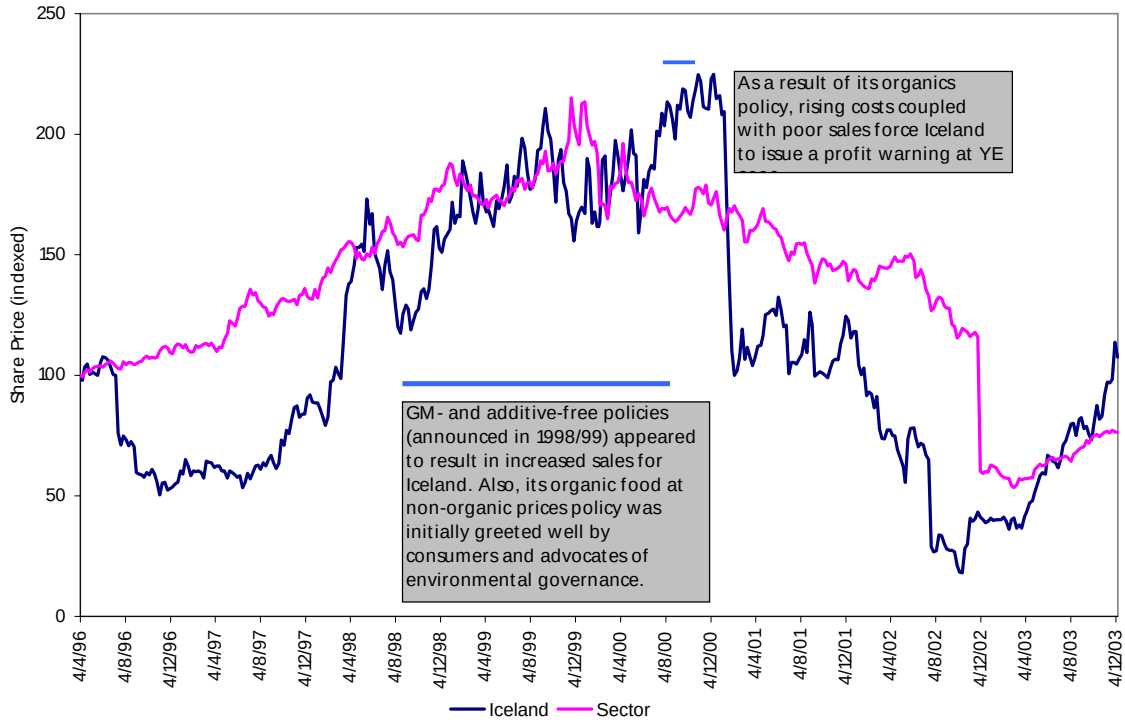
- Iceland was one of the first food retailers to adopt a public stance on GM ingredients, banning them in all of its own brand goods as far back as 1998.
- In 1998 the company also declared its intention to phase out artificial colours and flavourings (and preservatives where possible) from its own brand goods. Customers responded positively to both this move and the no-GM policy.
- Iceland's profile further improved in 1999 when it announced that all its own-brand food products would be sourced from organic producers, but sold at non-organic prices. In addition to this, Iceland pledged £1 million to the National Trust's 'Whole Farming Planning' program. This program had the aim of increasing the amount of UK farming land devoted to organic produce. The company announced that any shortfall in revenues as a result of this strategy would be absorbed – estimated at the time to be £8 million.
- Unfortunately for Iceland its organic strategy backfired and was abandoned after only six months, incurring costs (approximately £20 million) and contributing to a sustained drop in its share price.
- Iceland is also a major retailer of kitchen appliances, particularly fridges and freezers. In 1999 it launched the Iceland 'Kyoto' range of fridges and freezers, the first and only products in the world to be endorsed by Greenpeace. These fridges use non-CFC refrigerant gas isobutene. In addition, since October 1999 the company has a policy of purchasing commercial fridges and freezers that use isobutane as their refrigerant.
- Prior to 2004 Iceland was the only subsidiary of the Big Food Group to report on environmental issues. However, in 2003/04 the Group developed a CSR strategy including policies regarding its environmental commitments, and included the incorporation of recommendations from the ABI guidelines into its risk management systems. All CSR governance is coordinated by the CSR Management Forum, which reports to the board level CSR Committee, which in turn is accountable to the main board. A group-wide third party environmental audit was conducted as part of the development of the Group's CSR strategy. A formal EMS is also under development, projected to be rolled out in 2004/05. Reporting on environmental governance is currently included in a brief section in the Big Food Group annual report with more detail provided on the corporate website. From 2005 reporting will be expanded to include details on performance and KPIs based on the major elements of its CSR strategy.

Financial impacts

Fundamentals

Share price performance

Figure 17
Iceland (Big Food Group) Share Price (indexed) vs World DS Food & Drug Retailers (indexed)



N.B. Iceland's financial data is consolidated within the Big Food Group's accounts. Iceland's revenues make up only 30% of overall revenues at the Big Food Group. Drawing firm conclusions from financial data is therefore difficult but the impact of Iceland's organics policy appears to have been a contributing factor to the decline in the group's share price in early 2001.

Iceland's fortunes have been mixed over the last five years. The company saw sales of its own-brand products increase after the decision in 1998 to ban GM ingredients. However, this cannot be taken in isolation from ongoing price promotions – a major driver of Iceland's sales. Also, the company's share price seemed to rally (increasing 3.3%) at the end of trading on the day that the company announced its intention to eliminate artificial colours and flavourings from its own brand goods, in the same year.

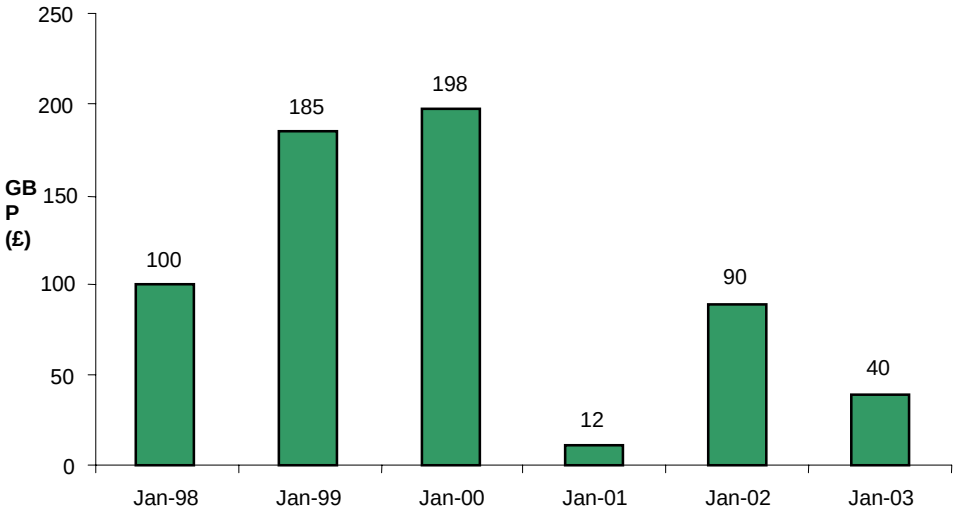
The decision, in 1999, to provide organic produce at 'non-organic' prices (and promote organic farming through the support of a UK organic farming initiative and a donation of £1 million) was greeted with enthusiasm and praise by environmental groups and organic farmers. Initially, it was predicted that the company would have to absorb additional costs of around £8 million so that Iceland's own brand (organic) goods were competitively priced against non-organic alternatives.

However, in late 2000 Iceland's fortunes changed. The company experienced generally poor sales - a 1.5% drop in sales in the second half of 2000, and a 5.5% decline in the month leading up to Christmas 2000 – as a result of unsuccessful price promotions. The effect of this was exacerbated by the higher than expected costs of Iceland's organic foods strategy – the final costs of which were nearer to £20 million than the estimated £8 million. This news, received as a profit warning by the city, saw the company's share price drop in early 2001. At year end 2000, Iceland's share price was 322p. By mid-Feb 2001 it had fallen to 153p.

Total Shareholder Return (TSR)

A brief assessment of Iceland's total shareholder return (TSR) over the last five years gives a good picture of Iceland's changing fortunes, of which the organics strategy was a contributing factor.

Figure 18
Total Shareholder Return 1998 – 2003



Source: Big Food Group

TSR showed strong growth from 1998 to 2000, the period over which Iceland announced its GM- and additive-free policies and then introduced its organic produce policy. As a result of the company's profit warning in late 2000, TSR declined almost to zero in 2001.

Intangibles

Corporate reputation

Green groups lauded Iceland as a key proponent of sound environmental management and 'green' business, as a result of its stance on GM ingredients, food additives and organics.

Competitive advantage and new markets

Iceland has been selling fridges and other kitchen appliances for a number of years. In fact, it is one of the UK's major fridge/freezer retailers. The company won plaudits from supporters of environmental governance when, in October 1998, it began stocking a refrigerator endorsed by Greenpeace due to its lack of ozone depletion chemicals in the condensing unit. This is the only such product that Greenpeace endorses.

If Iceland decides to reintroduce organic produce in the future it will face a challenge in gaining market share away from the other major food retailers (such as Sainsbury and Tesco). Tesco is currently the largest organic retailer in the UK with 28% of the market.

According to the UK's Soil Association, the UK organics market is worth over £1 billion and is growing at over 10% a year – faster than that for any other food and drink products. The Iceland strategy on 'environmentally-friendly' foods may have been ahead of its time, during a period when customers were not entirely ready to opt for such foods or sufficiently aware of them.

Operational efficiency

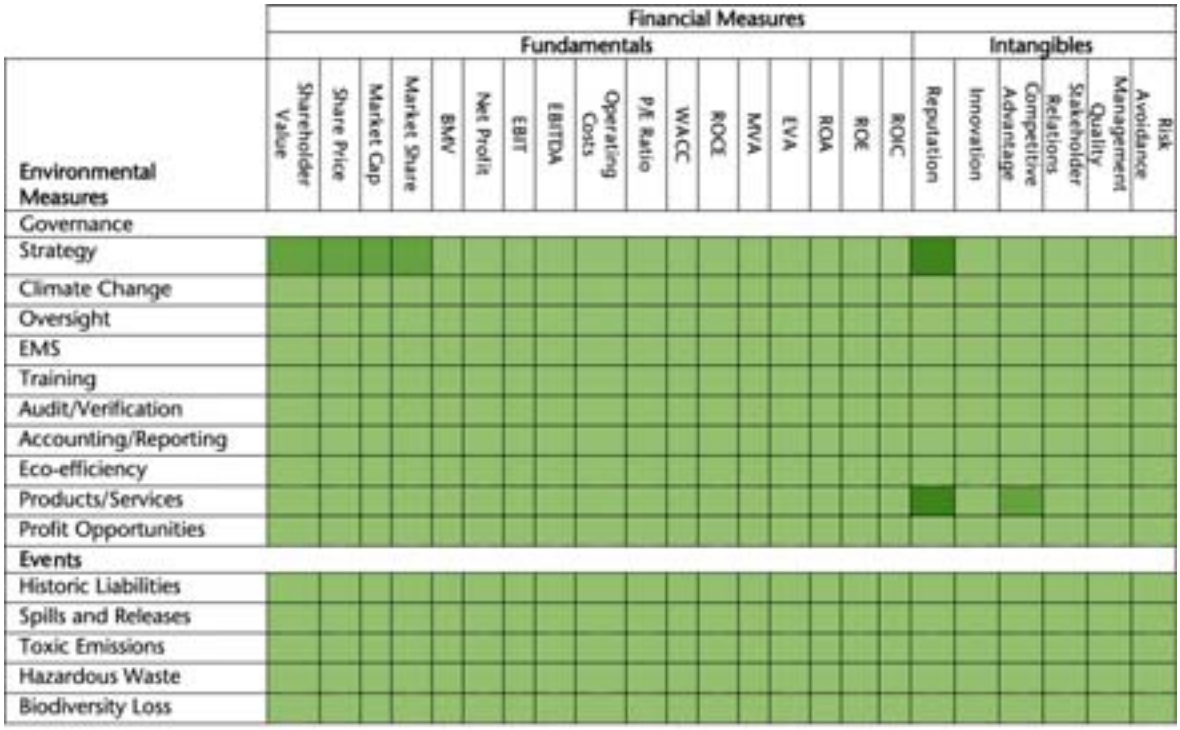
Retailers can improve operational efficiency, reduce costs and increase profitability by focusing on energy use, logistics and waste management. The typically low profit margin associated with the food and drug retail sector (often in the 2-3% range) means that reducing energy costs can significantly increase profitability. The cost of energy for large retail chains is between 15-20% of total operating costs.

The US EPA (environmental protection agency) estimates that, on average, reducing energy costs by US$1 has the same impact on profitability as increasing off-the-shelf sales by US$85. Improving energy management usually enhances lighting, refrigeration and HVAC (heating, ventilating and air conditioning) performance. This leads to less food spoilage and can reduce lost work time related to illness resulting from inefficient heating or cooling. Also, by increasing operating efficiency, companies are able to lower costs, reduce waste and redirect revenue to other areas of the business, for example expansion and competitive pricing.

In terms of logistics, proactive companies are using innovative logistics management systems to reduce overall number of journeys, improve driver efficiency and thereby reduce fuel consumption and greenhouse gas (GHG) emissions.

According to research conducted by the UK government, proactive waste reduction measures can reduce costs by 1% or more, the equivalent of increasing sales by 10-20% in this low margin business. Waste reduction measures include implementing sophisticated waste sorting and recycling programs, redesigning packaging and encouraging consumers to recycle their own waste.

Appendix – summary of financial impacts identified



Key

Degree of correlation	Strong	Moderate	Little or None

11. Company Case Study – Monsanto

Long-running lawsuit recently settled for US$396m. Scale of fines over past decade likely to have had an impact on operating costs and profitability.

Summary

The Company

Monsanto was merged into Pharmacia & Upjohn Inc. in March 2000, which spun off a new incarnation of Monsanto as an independent company in 2002. It now specialises in genetic engineering of seeds, herbicides and pesticides. Bio-engineered products are sold to the agricultural industry. Net sales were US$4,936m for fiscal year 2003. Sales are split between the Agricultural Productivity and Seeds & Genomics divisions in a 60:40 ratio, respectively. Sales are derived mainly from markets in the US, Canada, Mexico, Argentina, Brazil and France. Monsanto's main product, Roundup, is the world's most popular herbicide. Worldwide, employees number 14,700.

Background

Monsanto has revised its strategy on environmental issues and stakeholder consultation. Prior to the merger with Pharmacia, in the early 1990s, new company directors had reversed the previous board's decision to take a circumspect approach to the introduction of agricultural biotechnology products until farmers, food retailers and the general public had accepted the technology. However, in Europe there has been and continues to be some resistance to the introduction of GE crops. Monsanto is now reviving its outside consultations with environmental, consumer and other groups with concerns or interest in GE technology, but the company announced in October 2003 that it is withdrawing from many European operations. The relatively strong anti-GE stance of many European consumers continues to be a taxing issue for the international biotechnology business.

Key Findings

Environmental Governance Measure	Financial Measure	Degree of Correlation	Quantifiable Impact?
The environmental governance strategy of the 1990s appeared not to take full account of differing perceptions about GE foods in different regions, with concerns in Europe over human health and environmental damage affecting the speed at which GE crops could be introduced	Lost revenues particularly in the EU and possible damage to stock-price performance	Strong – Pharmacia decided to spin off Monsanto, in part due to the uncertain future of the agri-biotech market	Reductions in EU imports of GE crops. US corn exports to Europe fell from US$305m in 1996 to US$2m in 2001. Exports to Korea have fallen from US$300m to US$85m
Environmental management of hazardous and toxic wastes from previous chemicals operations in the US led to historic liabilities for 28 Superfund sites; ranked 5th on the TRI for releases to land, air and water	Impact on operating costs, stock-price	Strong - fines likely to have affected operating costs and earnings per share	Long-running lawsuit recently settled for US$396m on Monsanto's part, Solutia, previously owned by the former Monsanto, paid up to US$200m in remediation costs and has filed for bankruptcy protection
More responsive strategy with new focus on animal-feed crops and different forms of herbicides and insecticides; research into 'bio-pharming' on hold. Retrenching in European operations, partly due to reduced efficacy and greater competition	Revenue and stock price performance	Strong – revenues and stock-price performance increasing again during 2003	Will be fully measurable in the next financial year (decreases in Roundup sales accounted for 26% of the company's US$1,693m US losses in 2002)

Environmental Governance

Issues

- Public opposition in the EU has to an extent stymied efforts to market and sell GE crops in Europe and has curtailed sales or the donations of 'aid' to some developing countries with strong links and reliance on European trade and investment. Monsanto states that its US clients are few, large, and wholesale, and the company's strategy will be to sell more to its existing customers. But increasingly, the company's significant markets are developing for organically-grown and certified non-GE crops.
- Over 35 countries have enacted or announced laws that restrict GE imports and/or require labelling of foods containing GE ingredients. Europe was one of the first regions to restrict GE imports and require labelling. More recently, major food importers such as China, Japan and Korea have enacted GE restriction/labelling requirements. GE concerns have caused US corn exports to Europe to fall from US$305 million in 1996 to US$2 million in 2001. Exports to Korea have fallen from US$300 million to US$85 million. The Cartagena Protocol on Biosafety is likely to enter into force in 2004. This will impose substantially greater documentation and risk assessment costs on GE exporters. The Protocol will also likely hold GE seed manufacturers liable for contamination and other problems caused by GE seed use.
- Most European food manufacturers and retailers have implemented policies to ensure that no GE ingredients are used in their food products. Companies pursuing such policies include Nestlé, Unilever, Heinz, ASDA (Wal-Mart), Carrefour, Tesco and many others. Beyond Europe, there has been some strong opposition to GE crops in Asia, Africa and other developing regions.
- In 2002, Monsanto admitted that the "genetic drift" of GE traits to non-GE crops is inevitable. The company is abandoning efforts to produce pharmaceuticals in genetically engineered crops, 'pharming', to focus on businesses that could pay off sooner. The company has said that its decision was not related to the concerns that pharmaceutical-containing corn might wind up in food products, forcing product recalls, but was part of the broader overhaul of its strategy.
- With a 2002 loss of US$1.7 billion on sales of US$4.7 billion, several factors will place ongoing pressure on earnings. These include increasing competition for Roundup following patent expiration, growing resistance amongst the weeds Roundup is designed to control, difficulty in opening new markets due to concerns about GE safety, and questions about the economics of using GE products. A 2002 study by the US Department of Agriculture found that GE soya provided no net benefit to farmers in several cases. It also found that benefits from GE corn may have been due to seed companies setting low prices to gain market share.
- In 1995, the former Monsanto ranked fifth among US corporations in the EPA's Toxic Release Inventory, having discharged 37 million pounds of toxic chemicals into the air, land, water and underground. As of 2001, the current company has 29 agricultural-related Superfund sites where the US EPA has identified it as a 'potential responsible party'.
- PCBs and dioxin contamination over decades in the US, in sites surrounding manufacturing plants, waste disposal sites and other sources related to reuse of contaminated substances, led to class action lawsuits against the former Monsanto, the current company recently settling the liabilities linked to the spin-off company Solutia for US$396 million.

Responses

- Monsanto's new environmental pledge outlines its commitment to "Dialogue, Transparency, Respect, Sharing and Benefits". Monsanto is also revamping its image through increased stakeholder engagement and community involvement, reporting on its activities in a CSR report.
- The company has implemented an EMS and other environmental initiatives include the development of more recyclable product packaging and the installation of a co-generation plant at its facilities in Belgium. The company measures and reports its climate change emissions. There is a board committee on Public Policy and Corporate Responsibility, and two expert and industry advisory panels. Monsanto's environmental reporting methodology was developed in partnership with the WBCSD, represents an 11 year period depicting performance and product safety data, and is available online. Corporate audits are regularly conducted at major facilities.

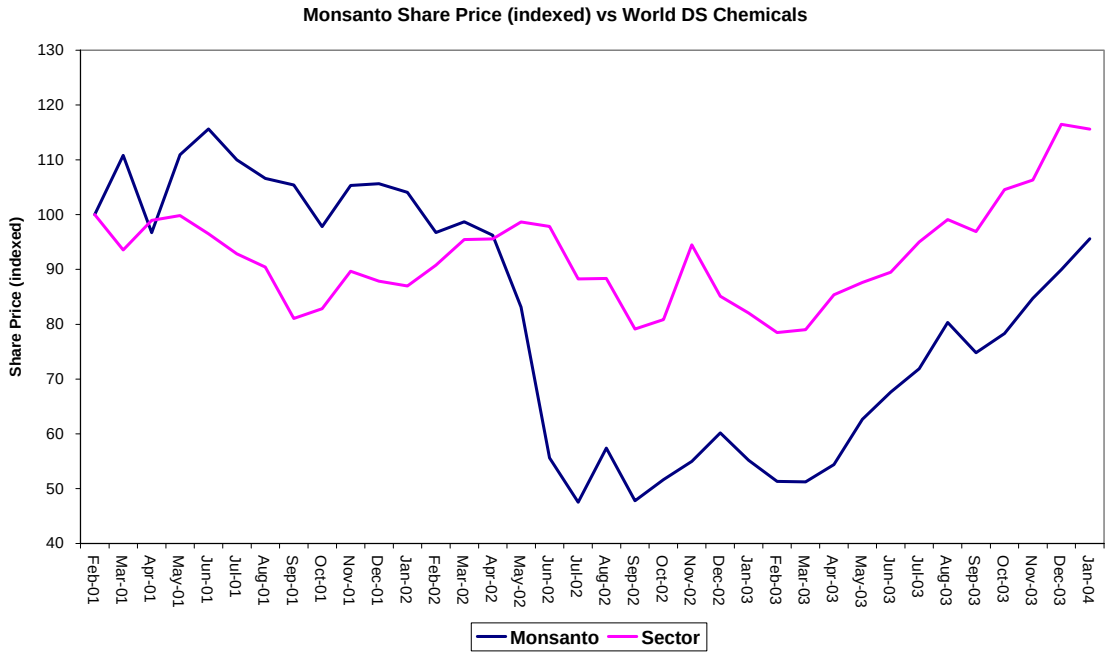
- The company claims that its farming technologies and products reduce the need for fossil fuel energy and contribute to reduced global greenhouse gas emissions as well as enabling more abundant and lower-impact agriculture in developing nations. However, many of these claims have been called into question by stakeholder groups and independent scientific evidence often appears to be at odds with Monsanto's own trials and findings on the continued success and superiority to traditional methods of its herbicides and modified crops.

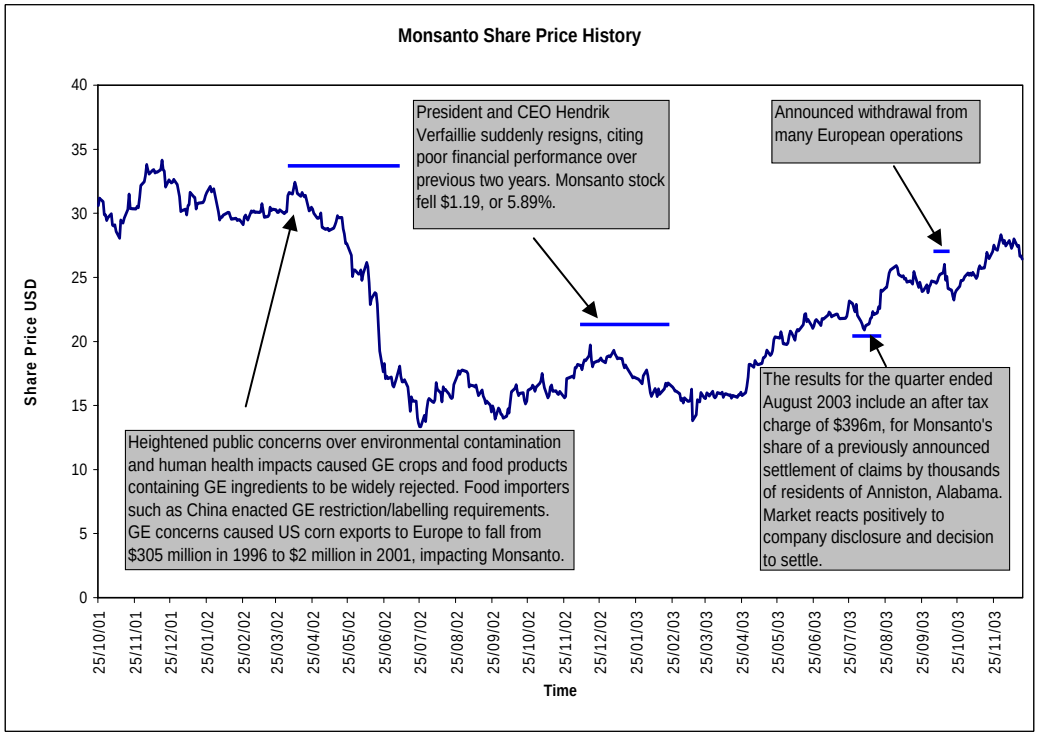
Financial impacts

Fundamentals

Share price performance

Figure 19





Monsanto's historic liabilities, consumer concerns over GE products, difficulties in ensuring good stakeholder relations and the continuing need for scientific testing to reassure the public have all been factors in its stock-price falls, reductions in earnings per share and increased operating costs.

In December 2002, the Monsanto president and chief executive Hendrik A. Verfaillie resigned, citing the company's poor financial performance over the previous two years. Monsanto stock fell US$1.19, or 5.89%. The company's share-price is now recovering from its slump in tandem with the company having adopted a more responsive environmental strategy.

Fines and liabilities

Results for the quarter ended August 2003 included an after tax charge of US$396m, or 96 cents per share, for Monsanto's share of a previously announced settlement of claims by thousands of residents of Anniston, Alabama. They alleged that a plant operated by Monsanto's former chemicals unit, Solutia Inc., contaminated their surroundings with PCBs (polychlorinated biphenyls).

In 1990, the former Monsanto company reached a US$648,000 settlement for allegedly failing to report required health data to the EPA. In 1991, it paid a US$1 million fine to the state Attorney General of Massachusetts in the case of a 200,000 gallon acid wastewater spill. A US$39 million settlement in Houston, Texas in 1992 involved the deposition of hazardous chemicals into unlined pits.

In 1997, the former Monsanto responded to five years of complaints by the New York State Attorney General that its advertisements for Roundup were misleading; the company altered its ads to delete claims that the herbicide is "biodegradable" and "environmentally friendly," and paid £31,000 toward the state's legal expenses in the case.

In March 1998, the company agreed to pay a fine of £136,000 for mislabeling containers of Roundup on 75 separate occasions with faulty safety information. The penalty was the largest settlement ever paid for violation of the Worker Protection Standards of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

The current Monsanto Company now has 29 Superfund sites, not including those incurred by Solutia or Pharmacia Corporation.

On 17 October 2003, the USDA disclosed that the former Monsanto and its research partners paid £38,000 in fines for previously undisclosed violations in 2001 in testing GE crops. The fines, though small for a multibillion-dollar company, were far higher than any previously known to have been levied against the company in similar circumstances. The violations had apparently been detected internally and reported to the government along standard lines, as part of an auditing program designed to ensure that unapproved crops do not reach food manufacturers or agricultural commodities.

Intangibles

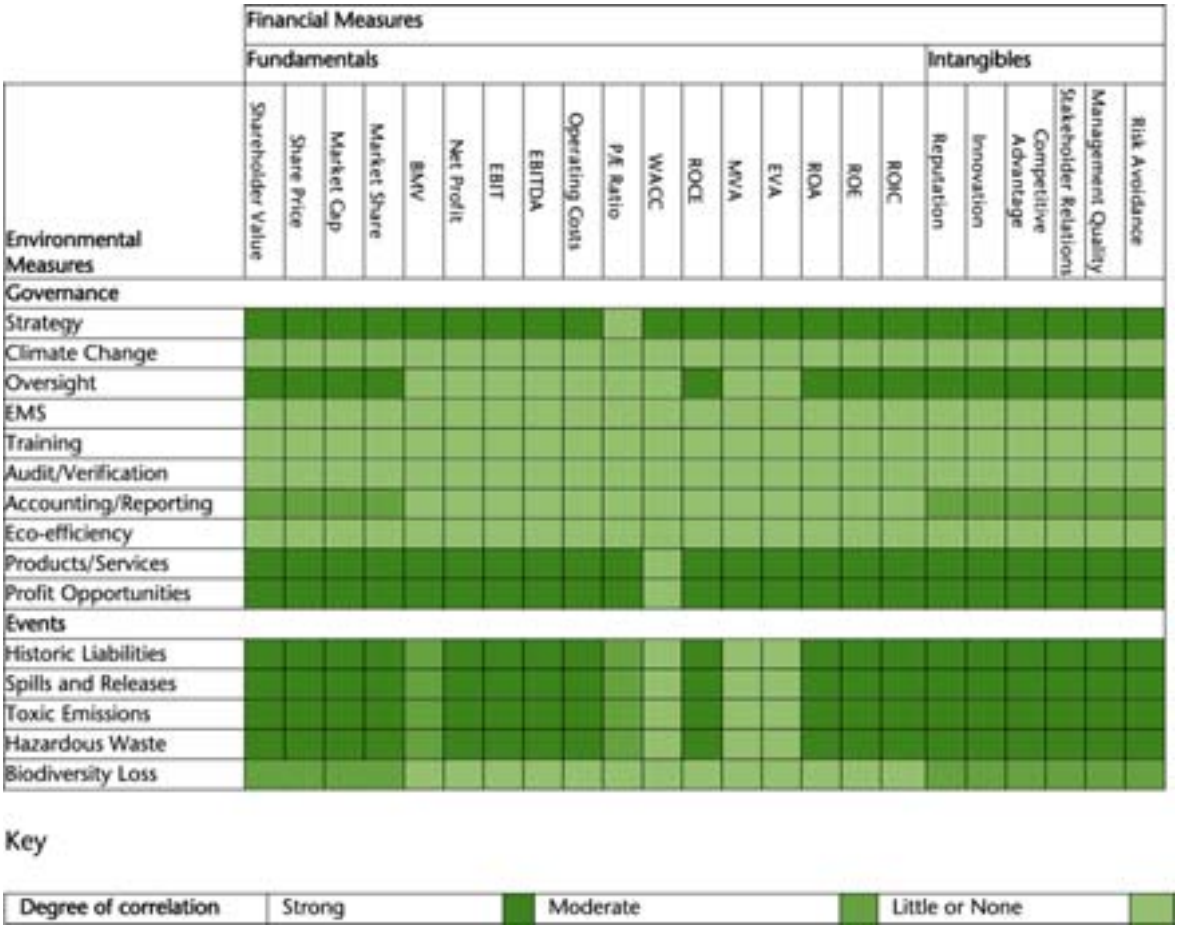
Competitive advantage

In order to achieve competitive advantage over traditional or organically-grown crops, the company has to demonstrate not only that its products are safe but also that they provide additional benefits to farmers, food manufacturers and retailers and to consumers. Adequate separation throughout the transportation of grain is also likely to be required soon which may be extremely difficult, given the systems currently in place where the grain from many different farms is stored in centralised silos before shipment. The argument often used previously has been that genetic engineering can result in reduced pesticide and herbicide applications, higher yields and enhanced properties of the crops, e.g., with added vitamins or minerals useful in developing countries where there may be widespread problems with malnutrition. The veracity of these claims is now being challenged as farmers often find that yields are not in fact greater than traditional varieties nor that they are necessarily using less herbicide. The company also cannot demonstrate that genetic drift and contamination of a farmer's other crops will not occur; recent evidence in fact shows that this is highly likely, representing further legal issues for the company.

New markets

Monsanto is now focusing on increasing sales to existing customers, particularly in the US, as the large markets envisaged in Europe and elsewhere in the world are not opening as expected, due to a relatively negative consumer response in some markets. The company is also working on new products not destined for human consumption, e.g. animal feed crops.

Appendix – summary of financial impacts identified



12. Company Case Study – PSA Peugeot Citroen

PSA's share price increased 250% in 5 years while sector average stagnated, thanks notably to a strong focus on highly efficient diesel vehicles.

Summary

The Company

PSA Peugeot Citroen (PSA) is France's leading car manufacturer and Europe's second largest with a 15.4% market share. Present in more than 140 countries, PSA has a worldwide scope and has a 5.8% global market share. As a company in an environmentally sensitive industry such as the automobile sector, PSA has developed a proactive environmental policy, focused on addressing global warming and urban quality of life as well as sustainable mobility. Innovation and an advanced life cycle approach have helped to limit market risk and have offered profit opportunities that appear to have contributed steadily to PSA's market strength.

Background

PSA's environmental strategy consists of attaining sustainable growth with products that are fuel efficient and notably through the increase of its market in diesel passenger cars. While this strategy currently offers a practical step forward in terms of addressing global warming, PSA is also developing alternative technologies to provide advanced models to the market when it is ready to adopt them. For approximately 20 years, Peugeot has strived to reduce fuel consumption of its vehicles. Moreover, PSA's main innovations have been linked to addressing environmental concerns. The company has launched several leading technologies to reduce tail-pipe pollutant emissions, especially for diesel motors. This strategy has proved highly successful in a European market fiscally favorable to diesel as a whole, and where diesel has a 43.5% market share. Since 1996 when the company committed to lowering carbon dioxide emissions, each year has seen an additional step towards more environmentally-friendly vehicles and facilities.

Key Findings

Environmental Governance Measure	Financial Measure	Degree of Correlation	Quantifiable Impact?
Focus on low emission product development	Competitive advantage; through new markets	Strong - likely to have contributed to a strong regional and international market presence	Increased market share by 170 basis points in 2000, partly thanks to the development of 'common rail' diesel engine
Implementation and development of an environmental management strategy	Improved reputation	Moderate – improvements in most eco-efficiency indicators	COV emissions dropped 50% from 1988 and 39% water reduction since 1995 per vehicle produced
Investment in 'sustainable' business opportunities	Increased turnover and profits	Strong - significant and growing return	PSA's 2002 profit increased nearly 30%, share price increased 250% in 5 years, partly because it led introduction of diesel vehicles into the market

Environmental Governance

Issues

- The growth rate of the world fleet is about twice the rate of population growth and traffic is a source of major environmental and health impacts.
- The environmental impact of a motor vehicle in use is 5 to 10 times greater than the impact linked to the manufacture of the vehicle. This indicates that the market risk posed by environmental issues is far greater than the operating risks of manufacturing activities.
- Plant operating costs, energy and water consumption for example, represent significant overheads for automotive manufacturers.
- In most OECD countries, legislators have set up regulations to stimulate further improvements from the 75% average rate in the recyclability of vehicles. The EU directive mandates auto manufacturers to make vehicles that are 85% reusable by 2006 and 95% by 2015.
- The major environmental impact in this industry is linked to tailpipe exhaust emissions: smog-forming emissions (NOx, CO, HC, particulates) and contribution to global warming (CO2). Thanks to increasingly severe tailpipe emissions regulations or voluntary agreements the problem of smog-forming has been reduced, yet not sufficiently to eliminate adverse public health effects in large population centres. In addition, the creation of emissions linked to global warming is the most challenging issue for companies and investors. A fleet fuel economy differential is a direct measure of the corporation's market risk exposure. Fluctuation in fuel prices and any carbon emissions regulations that will eventually result from coordinated efforts to combat greenhouse gasses might impact the automaker.

Responses

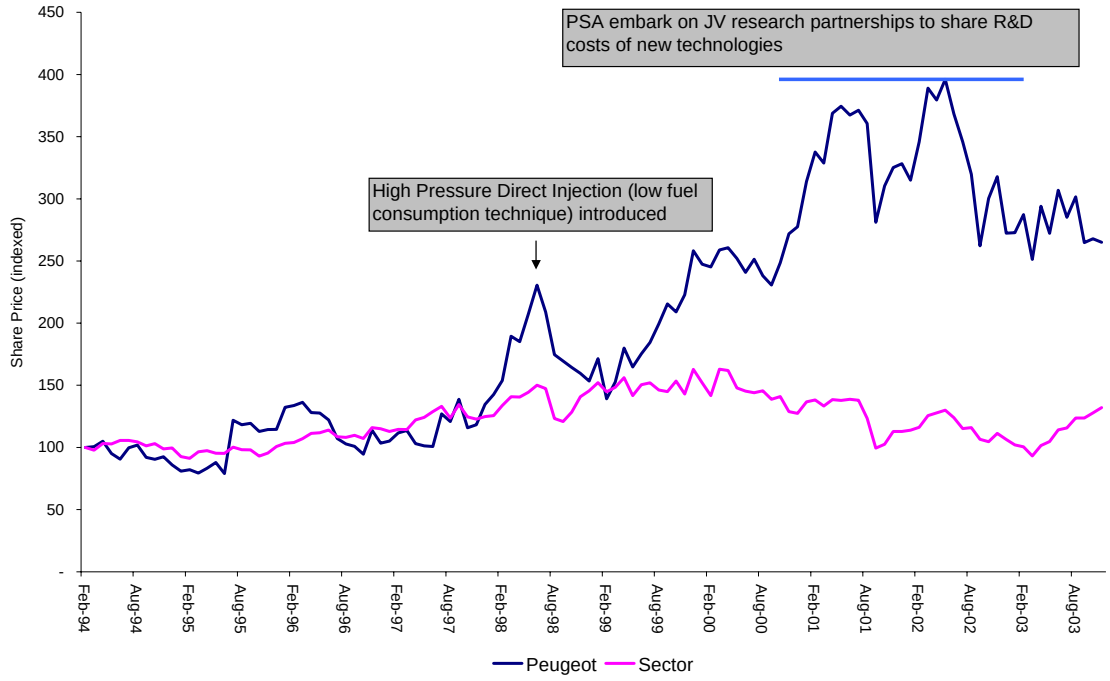
- The group has developed action plans to reduce energy and water consumption at all its automobile plants. Through the use of metering systems and the least water-intensive operating parameters, water consumption was reduced by 5% between 1995 and 2002 despite a 65% increase in production.
- PSA has set up very strong goals and has achieved a recyclability rate target of 95% for the most recent models, which is beyond the current EU directive.
- Diesel car reputation has been completely revitalised in the European Union and PSA has benefited from sustainable growth by increasing its offer and therefore its market share in diesel passenger cars, becoming world's leader in eco-efficient diesel engines. Diesel appears to be currently the most practical solution to global warming. Indeed, diesel engines deliver equivalent performance, yet use less fuel and therefore emit less CO2 than petrol engines, all while reducing other emissions thanks to the development of the two flagship technologies of PSA; the High-pressure Direct Injection (HDI) engine, a 'common rail' system curbing the emissions up to 25% with respect to a conventional diesel motor and the particulate-filter system which cuts particle emissions below measurable limits, according to Peugeot.
- PSA has been involved in the development of electric cars for many years. As early as 1996, PSA launched the Saxo Electric. So far, the group has sold 9,000 electric cars.
- Fuel cell vehicles are considered as the "next big thing" in the car industry and PSA has been involved in the European Hydro-Gen Program and in numerous agreements with the EU and the French government to develop fuel cell technology. From this research the Peugeot Partner Taxi Pac prototype has emerged.

Financial impacts

Fundamentals

Share price performance

Figure 20
Peugeot Share Price (indexed) v World DS Automobile



Share price grew in a noticeable way during two recent periods, when PSA stock outperformed the global market. These periods coincided with several environmental events and PSA's response to them:

- In 1998, public authorities implemented incentives to promote the purchase of new, rather than old, second hand vehicles. This has had a positive effect on the sales of low fuel mileage cars in Europe, especially in Italy. As an indirect impact, these moves to boost sales of fuel efficient cars benefited producers specialising in small cars and those that were using specific technologies to reduce fuel emission, such as PSA.
- In the same year, PSA launched High-pressure Direct Injection, known as HDI, which reduces fuel consumption, thanks to an advanced fuel injection system in the engine.
- From 1999 to 2003, diesel car sales grew sharply in Europe. In 2003, such cars accounted for 67.4% of the total cars sales in France and the rate in Britain exceeded 25% whilst in Germany it reached almost 40%. In the meantime, PSA's automobile sales increased by 33%, in part because it led the pack in introducing diesel vehicles into the market.
- In this period, PSA also implemented joint-venture research partnerships, notably with US manufacturer Ford to share technological research development costs and with Japanese manufacturer Toyota that share the conception and the production of an entire vehicle in common. These partnerships help the automaker to be better prepared to face tough regulation on fleet fuel emissions in 2005.

Intangibles

Corporate reputation

Thanks to a winning product strategy and proactive R&D programmes that have enabled PSA to make significant improvements in its fleet fuel efficiency, PSA has successfully promoted its brand and its corporate image. Technological innovations helped PSA to reach a continuous market share benefit, by offering consumers automobile evolution at prices they can economically afford.

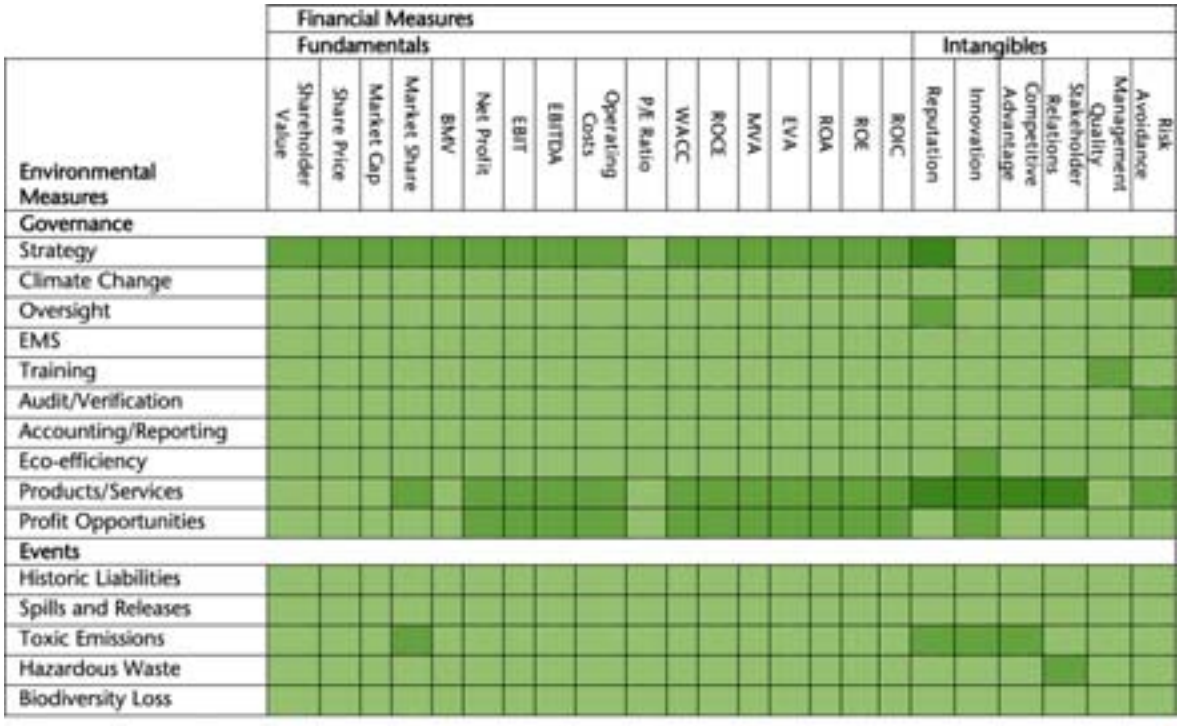
It is worth noting several environmental technologies developed in recent years:

Most of the air conditioning systems use fluorinated gases, which have an adverse impact on the stratospheric ozone layer. They will ultimately be banned. In partnership with auto component manufacturer Delphi, PSA has addressed these environmental impacts by replacing the HFC coolant gas used today with carbon dioxide. CO2 does not harm the ozone layer and its contribution to the greenhouse effect is half that of HFCs.
The latest generation of 'common rail' HDI engines reduces CO2 emissions by 20% compared with an indirect-injection diesel system and by 40% compared with a gasoline engine.
Another link in the emissions control chain is the particle filter that has further enhanced the environmental performance of diesel engines. PSA is the only carmaker in the world to offer particle filter technology as a standard feature, in a demonstration of its commitment to improving the quality of air in urban environments.

Competitive advantage and new markets

In 2003, while most European carmakers declared they will be unlikely to meet the ACEA voluntary target to cut CO2 emissions over the next decade, PSA is considered as the only European carmaker that would effectively meet the 2008 target. This individual performance is the result of efforts within PSA's sustainable policy to meet environmental requirements and might offer the automaker a profile ahead of that of its competitors. This key factor is seen as a competitive advantage that might impact sales favourably. PSA also meets consumer demand by offering cars that respond to fuel consumption reduction challenges, important considering the high price of fuel in Europe.

Appendix – summary of financial impacts identified



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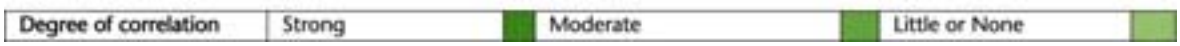


13. Company Case Study – Shell

Environmental management strategy in Nigeria helped SPDC produce five-year high of 1 million barrels crude oil per day. Shell Solar has achieved global market share of more than 10% in solar photovoltaics (end 2003)

Summary

The Company

Shell is a global group of energy and petrochemicals companies, operating in over 145 countries and employing more than 118,000 people. In the first half of the 1990s Shell became the target of a number of investor, consumer and campaign groups, concerned about the company's record on the environment. Since then Shell has developed a new approach to the environment and now states that its aim 'is to meet the energy needs of society, in ways that are economically, socially and environmentally viable, now and in the future'

Background

Shell adopted a new approach to environmental governance following criticism of its environmental performance in the mid-1990s – particularly in relation to activities in the Niger Delta and disposal of the Brent Spar oil platform. In the autumn of 1996, Shell's committee of managing directors (CMD) included in the Group Business Principles and the Group HSE Policy a commitment to sustainable development. This commitment was rolled out across the Group in March of 2003

Key Findings

Environmental Governance Measure	Financial Measure	Degree of Correlation	Quantifiable Impact?
Perceived lack of comprehensive environmental strategy led to unforeseen public reaction to planned disposal of Brent Spar and pressure to find a more environmental solution	Cost of dismantling Brent Spar	Strong – evidence that additional costs incurred	US$60 - 80m – minimal in context of Shell operating costs. 6 month loss of retail market share in selected European countries. No discernible impact on share price. Financial effects of reputation impact, particularly on staff, not quantified
Perceived weaknesses in environmental policy, strategy and reporting in mid-1990s brought challenges in terms of corporate image, not just Brent Spar issue but situation regarding Nigerian operations	Possible damage to good reputation	Strong – CMD responds with a strong commitment to Sustainable Development	No estimate has been made by the company or other analysts in terms of any reputation damage
Implementation and development of sustainability strategy in the last six years, particular focus on Nigerian operations. Shell Group Business Principles and Sustainable Development Road Map. Each system accentuates importance of mid- to long-term planning and integration of social and environmental factors in bi-directional management. Social Responsibility Committee established in 1997 reviews sustainability policy and conduct.	Improved reputation; improved operational efficiencies	Strong – inclusion in leading ethical indexes and production increase	As well as being included in the DJSI, Shell is also a constituent company of the FTSE4GOOD index. In October 2003 SPDC produced a five-year high of 1 million barrels of crude oil per day
Investment in renewable energy companies and technology. In 1997, commitment to invest US$500 million over five years to significantly increase renewable business area. Created another core business called "Shell Renewables".	Competitive advantage through new markets	Strong - significant investment in 'green' businesses and development of market share	Shell Solar has a global market share of more than 10% in solar photovoltaics

Environmental governance

Issues

- Adverse NGO, media and consumer reactions to the oil industry in general, following incidents such as Exxon Valdez and growing international concerns about climate change.
- Serious pollution incidents and associated fines in the early 1990s, eg discharge to Mersey River 1990 and largest UK fine levied at the time (150 tonnes of high-viscosity crude oil escaped into the Mersey Estuary, over a period of little more than an hour, from a fracture in a pipeline operated by Shell UK).
- Disposal of Brent Spar oil platform and public debates and NGO actions, 1995 – 1998
- Shareholder resolution lodged in 1997 on environmental and social policies.
- Environmental pollution in Niger Delta/Ogoniland and related human rights issues, including media and investor attention following execution in 1995 of environmental campaigner Ken Saro Wiwa (and subsequent case being brought under Alien Tort Claims Act) and eight other rights activists belonging to the Ogoni minority on murder charges.
- Accusations of 'Greenwash', received Greenwash award from pressure groups at World Summit on Sustainable Development in 2002.
- Strategy to increase oil extraction during period 2000 – 2005.

Responses

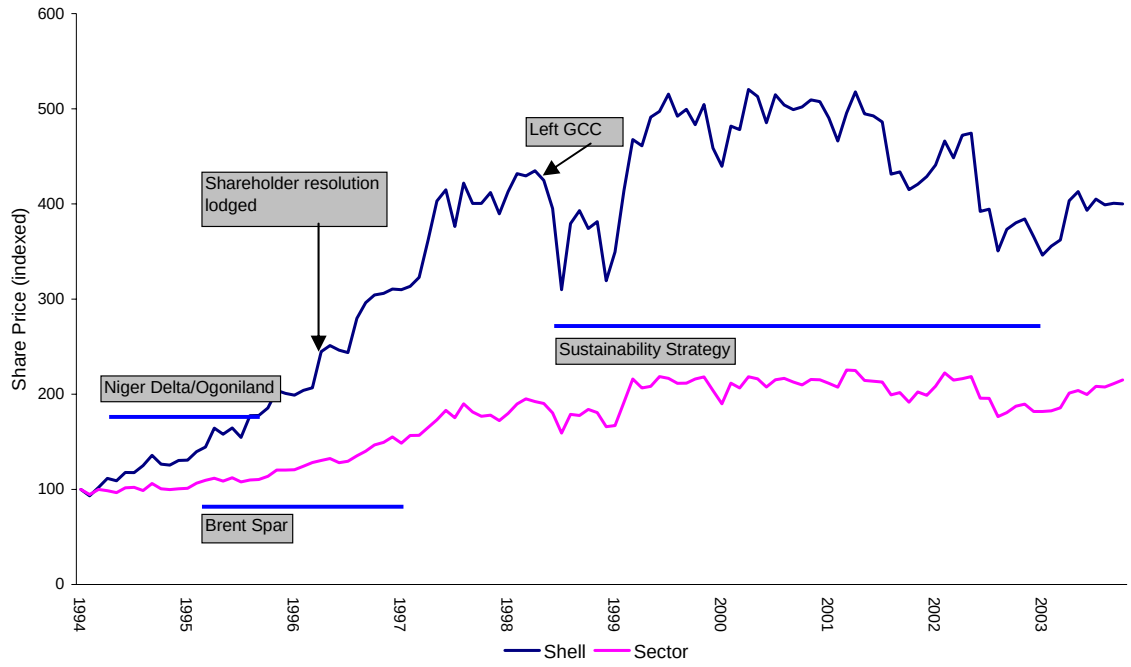
- Publication of the 'Shell Report', now in its sixth year – this entailed a new commitment to sustainable development, creation of a sustainable development management framework and more transparent reporting, including in-depth coverage of environmental and social issues in Nigeria.
- Downward trend in emissions of methane, HCFC, CFCs, volatile organic compounds, sulphur dioxide, oil in effluent, oil spills, energy efficiency.
- Greenhouse gas emissions have been kept flat even with an increase in activity. Shell expects to meet their 2010 target (5% lower emissions than 1990) as energy efficiency programs and projects to end gas flaring compensate for business growth.
- Commitment to stop all continuous 'gas flaring' in all operations by 2008, phase out of all continuous gas venting now completed (last unit, in Brunei.
- Significant investment in marketing and PR to improve environmental image, including stakeholder dialogue and 'Tell Shell' initiative.
- Left Global Climate Coalition (GCC) in 1998.
- Continuing investment in renewable energy operations.
- Reductions in local pollution incidents.
- Withdrawal from a number of potentially controversial projects/concessions, eg Ogoniland, Chad-Cameroon pipeline, joint ventures in Peru and Pakistan.
- Targets published for its 6 health, safety and environmental key performance indicators. These externally assured to financial audit standards ('reasonable' level) by PwC/KPMG
- Global minimum environmental standards
- Biodiversity Standard published, first company to commit not to explore or drill for hydrocarbons in natural World Heritage sites.

Financial impacts

Fundamentals

Share price performance

Figure 21
Shell Share Price (indexed) vs World DS Integrated Oil Sector (indexed)



Share price growth in the mid-1990s appeared to be largely unaffected, during a period where news on Shell's activities in Nigeria and the disposal of Brent Spar first came under public scrutiny and attracted criticism from NGOs and from some investors. Despite possible damage to the company's reputation from these situations, and the subsequent lodging of the shareholder resolution in 1997, share price rose steadily up until the financial crisis in the Asian markets. This crisis accounts for the fall in share price at that time, rather than the announcement that Shell was leaving the GCC.

Between 1997 and 2001 the trend in the company's share price was a generally upward one and it clearly outperformed the sector. It was during this period that Shell became far more transparent about its environmental performance and developed a new approach towards environmental governance. This long period of out-performance does seem to have been in conjunction with Shell becoming a more transparent company so far as its environmental and social performance is concerned.

(Recent events at Shell, including the resignation of senior board members, are unlikely to be associated with any significant failings in terms of environmental governance issues, and relate more to traditional governance standards and accounting procedures. 'Shell audits the externally reported environmental key performance indicators to financial standards using the services of PWC and KPMG. Its 7 HSE key performance indicators (fatalities, TRCF, GWP, flaring, energy efficiency, spills and fines & settlements) are all assured to a high ('reasonable' in IFAC audit parlance) level of assurance by joint auditors KPMG and PwC'.).

Net proceeds, earnings per share (EPS), dividend per share, P/E ratio

The highly publicised debate on Brent Spar which ran from 1995 to 1998 and events in Nigeria, are two challenging episodes in Shell's history. By the end of that period EPS had fallen to less than 1 pence and it is possible that concerns about the company's reputation played a part in this decline. However in the last four to five years, as Shell's image as a responsible global company has been developed, so too has EPS been boosted. Against a background of the company becoming more focused on sustainability, dividend policy also seems sustainable, with DPS increasing year on year.

The dismantling of the Brent Spar Oil Rig is estimated to have cost US$60 - 80m compared with US$7m cost of dumping it, the solution that Shell had proposed initially. This figure appears insignificant relative to Shell's gross proceeds of US$104bn in 1997 and $138bn in 1998 (less than one fiftieth of a percent) and has not played any obvious role in the share price or P/E ratios. The cost is slightly more noticeable when compared to Shell's net income of US$ 4.7 billion in 1997 and US$0.35bn in 1998. The impact of new environmental governance strategies on intangibles may be more marked, as discussed below. In 2004, Shell is preparing to remove the last traces of the controversial Brent Spar oil-storage platform from the North Sea. It plans to uproot the six giant concrete anchor blocks from the seabed as part of a project costing more than £20million.

Intangibles

Corporate reputation

As noted above, in the mid-1990s Shell's reputation came under scrutiny in the wake of some high profile media coverage and NGO campaigns, in some instances criticising the company for its handling of the Brent Spar platform and its operations in Nigeria. In the last five to six years the company has sought to avoid such potentially negative press and its environmental governance approach, as part of its sustainability strategy, has certainly struck a chord within the SRI research community. Shell was ranked best in the oil, gas and coal industry of the global Dow Jones Sustainability Index (DJSI) both in 2001 and 2002. As well as being included in the DJSI, Shell is also a constituent company of the FTSE4GOOD index. In 2003, as noted by Shell in its social report, leading financial institution Storebrand awarded Shell 'best in class status' for its leading environmental and social performance and the company qualified for investment in the Storebrand SRI mandate. In 2002, SHELL ranked 1st within the Petroleum Refining industry in Fortune's list of Global Most Admired Companies. Additionally, according to research carried out by Harris Interactive, Royal Dutch Shell ranks 51st among the 60 most visible companies in America with the best reputations – the second best ranking awarded in the O&G sector.

Competitive advantage

In its 'Spotlight on business environmental report' 2000 the Environment Agency itself named Shell UK as a 'good performer' for its reductions in emissions, while repeat offenders and Shell competitors were named as 'poor performers'. On the issue of climate change, the Carbon Disclosure Project 2003 identified Shell as one of only four companies in the sector whose corporate positioning on the issue was judged to be fully comprehensive.

New markets

Shell Renewables has developed various new energy businesses based around environmental products:

Shell Solar - active across the entire value chain of solar photovoltaics, from silicon to end consumer, moved into the top five global players with the acquisition of Siemens Solar in April 2002. The company manufactures solar photovoltaic products in Europe, the US and Asia. Sales operations based in over 90 countries around the world provide customers with solar solutions to their energy requirements. Despite a challenging trading environment, the company has had notable successes including the contract to supply photovoltaic modules for the roof of the Munich Trade Fair Centre, in Germany, and the first solar home systems being delivered in Xinjiang, China. In 2003 Shell Solar became one of the world's largest solar photovoltaic businesses, with a more than 10% market share. The company has also ben exploring gas-to-liquids, hydrogen pilots and biofuels (via its investment in Intergen).

Shell WindEnergy - which focuses on developing and operating wind farms and selling ‘green’ electricity, building on its strengths in project management, financing and engineering design. Currently, business development is focused in Europe and North America. In the US, new projects will bring the total power generation capacity to 230MW. In Europe, the company is developing offshore projects in the Netherlands and the UK. Shell WindEnergy participates in the NoordzeeWind consortium which has agreed, with the Dutch government, to build a 100MW Wind Park.

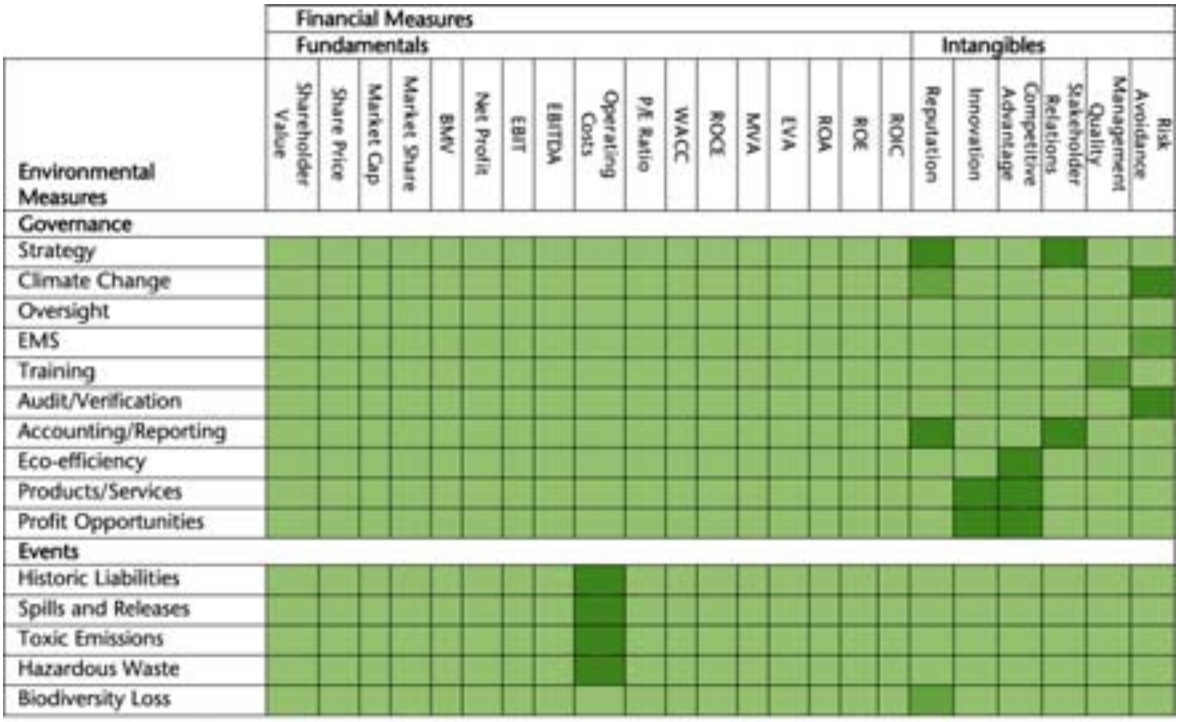
Shell Hydrogen, established in 1999, pursues and develops business opportunities related to hydrogen and fuel cells on a global basis. Four joint ventures have been created since inception, two of which were private capital joint ventures to invest in emerging companies concentrating on promising hydrogen and fuel cell technology. The remaining two focused on existing technology. One commercializing hydrogen-producing fuel processors while the other focusing on metal hydride hydrogen storage tanks. In 2002, the company announced a plan to build, in partnership with the Japanese government, the first hydrogen refueling station in Tokyo and a fleet of prototype vehicles. Also, in its aim to make hydrogen and other eco-fuels commercially available on a wide scale, the company acquired an equity stake in QuestAir Technologies Inc (Group interest 10.6%), and bought a US$29 million stake in Iogen. In 2003, the company opened its first Shell branded hydrogen station in Reykjavik, Iceland.

Operational efficiency

Relationships with local communities, especially in countries of operation such as South Africa and Nigeria, where local community strife can be very disruptive to production, it is essential that good environmental management systems are in place. The main environmental problems which Shell companies in Nigeria have been tackling in the last five to six years are gas flaring, oil spills, dredging of canals, and land use for the construction of facilities. The company improved its environmental management strategies in sensitive regions in Nigeria and South Africa. Shell is using technologies in the Niger Delta which are helping to minimise the effects of oil production on the environment.

The changes put in place follow on from adherence to the group's commitment to the principles of sustainable development and the use of best practice, world-wide. Thanks in part to improved community relations, and fewer disruptions to operations, in October 2003 Shell Petroleum Development Company of Nigeria Limited (SPDC) produced a five-year high of 1 million barrels of crude oil per day for two consecutive days, with indications this output could be sustained.

Appendix – summary of financial impacts identified



Key

Degree of correlation	Strong	Moderate	Little or None

14. Company Case Study – Vestas Wind Systems

Energy sold by the company has risen approximately 45% since 1997. Net turnover increased by 430% between 1997 and 2002

Summary

The Company

Vestas Wind Systems designs, manufactures, sells and installs wind turbines to generate electricity. The company operates worldwide through ten subsidiaries located mainly in Europe and in the United States, one joint-venture in India and sales offices all around the globe. Wind power is a promising alternative energy solution and an inherently sustainable business opportunity. Environmental values are integrated into the core culture of the company. Vestas is included in the DJSI and in the FTSE4Good indices. At the end of December 2003 Vestas shareholders gave their approval to a merger with local and global competitor NEG Micon. The new company will be called Vestas Wind Systems and is expected to command a 35% market share, with Euro2.7 billion in annual revenues.

Background

Vestas has built its entire business on harnessing wind power, a renewable energy that generates electricity. Its activities are therefore directly linked to environmental concerns, as Vestas essentially has been established to generate a profit from a progressive response to the issue of climate change, pollution and resource use. Many of the states that have signed and ratified the Kyoto protocol are pinning their hopes on wind power to reduce their CO2 emissions. At the same time, a strategy of energy diversification has become a major issue for European countries to grapple with. As an alternative to traditional energies such as oil and gas, wind power is assumed to be welcome in this context, in favour of the development of other types of renewable energies.

Key Findings

Environmental Governance Measure	Financial Measure	Degree of Correlation	Quantifiable Impact?
Business strategy devoted to exploitation of a new market for alternative sources of energy using an environmentally-friendly technology	Market penetration	Strong – has become a world leader in the two largest markets for wind power	Vestas has captured a 23% share of the European market and a 42% share of the US market
As above	Sales growth	Strong – impressive growth in turnover	The amount of energy sold by the company has risen approximately 45% since 1997. Net turnover increased by 430% between 1997 and 2002

Environmental Governance

Issues

- Growing international concerns about climate change and concerted action by governments and international institutions such as the UN, witness the recent Institutional Investors' Summit on Climate Risk at the UN headquarters
- In Europe, the diversification of energy sources is becoming a key challenge, firstly due to political and geo-strategic reasons - to gain economic independence from oil and gas producing countries - and secondly due to environmental considerations such as concerns about CO2 emissions or nuclear power
- The environmental impact of a completed wind turbine can be negative, in terms of its visual impression and emission of noise

- Wind power is still expensive compared to traditional energy, especially in the United States where electricity prices are typically between 2 to 4 cents per kWh while prices paid to wind developers range as high as 10 cents per kWh.

Responses

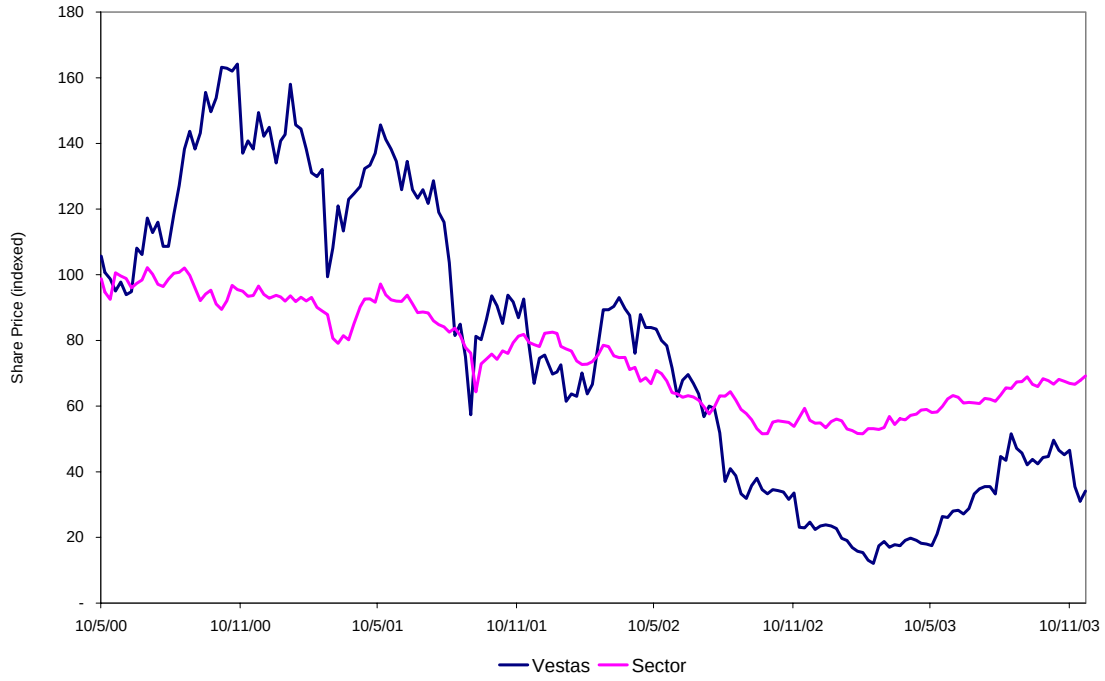
- Wind power is a clean technology, it is inexpensive and offers a solution to climate change issues which can be implemented quickly, although it has to be used in combination with other sources of energy
- Europe has led the way in developing wind power during recent years, especially in Germany, Spain and Denmark.
- Wind is the fastest growing form of electricity generation in the world and prices are projected to be competitive in the next decade, as the costs of utility-scaled wind turbines as well as operating costs are falling as the business expands
- The visual impression created by wind turbines, either positive or negative, is a completely subjective one, but Vestas strives to accommodate customer requirements while simultaneously attempting to ensure that the turbines have as neutral an effect on their surroundings as possible. Regarding noise, ongoing development projects are targeted at finding geometries and solutions intended to minimize noise emissions to circa 40 dB(A)
- The company is taking pre-emptive steps to detect the potential impact of wind turbines on bird populations and the potential allergenic effects of Prepreg, a laminate used in the production of turbines.
- In 2001, the EU approved a directive for the promotion of electricity produced by renewable sources and stated a global indicative target of 12% of gross natural energy consumption by 2010. That may seem to be a bold objective but according to the EWEA (the European Wind Energy Association), there are no technical economical or resource barriers to reaching this goal.

Financial impacts

Fundamentals

Share price performance

Figure 22
Vestas Share Price (indexed) vs World DS Industrial Conglomerates (indexed)



There is an intrinsic link between the Vestas share price and its environmental governance strategy, given that the success of the company will be judged largely on its ability to sell an environmental technology solution (hence no 'event' labels have been added to the chart above).

In the past two to three years, many analysts have been sceptical about possible in-roads that wind power can make into the energy market.

The Vestas merger is also an indication that there is overcapacity in the industry and analysts are predicting further consolidation in the wind power market. Such sentiments may have depressed company share price. The company is a fairly unique one and so sector comparisons are difficult to make.

Market share

Prior to the merger announcement, Vestas had captured a 23% share of the European market and 42% of the US market.

Intangibles

Corporate reputation

In an annual customer survey carried out in 2001, Vestas found that 93% of customers who responded (more than 50% sent back the questionnaire) stated that they were satisfied or very satisfied with Vestas' products.

Competitive advantage

Thanks to its size and industrial profile, Vestas is subject to less risk relative to other companies in the energy sector. As the UK market is finally opening to wind power, a significant potential market is up for grabs. In fact, £1bn is expected to be invested every year for the next seven years because the UK is Europe's windiest country and has therefore a massive potential for harnessing wind power. Analysts say that only manufacturers with big production capacity and real financial muscle will likely benefit from the selection of suppliers in 2006. They also must be able to support long service contracts of around 20 years. So far, then, only heavy weights like Vestas and GE Wind Energy, a subsidiary of General Electric, look certain to make the cut.

Vestas has the strongest production capacity of the two companies, has a subsidiary in Scotland where towers are made and turbines assembled and is already a supplier in the UK where it built the country's first offshore plant.

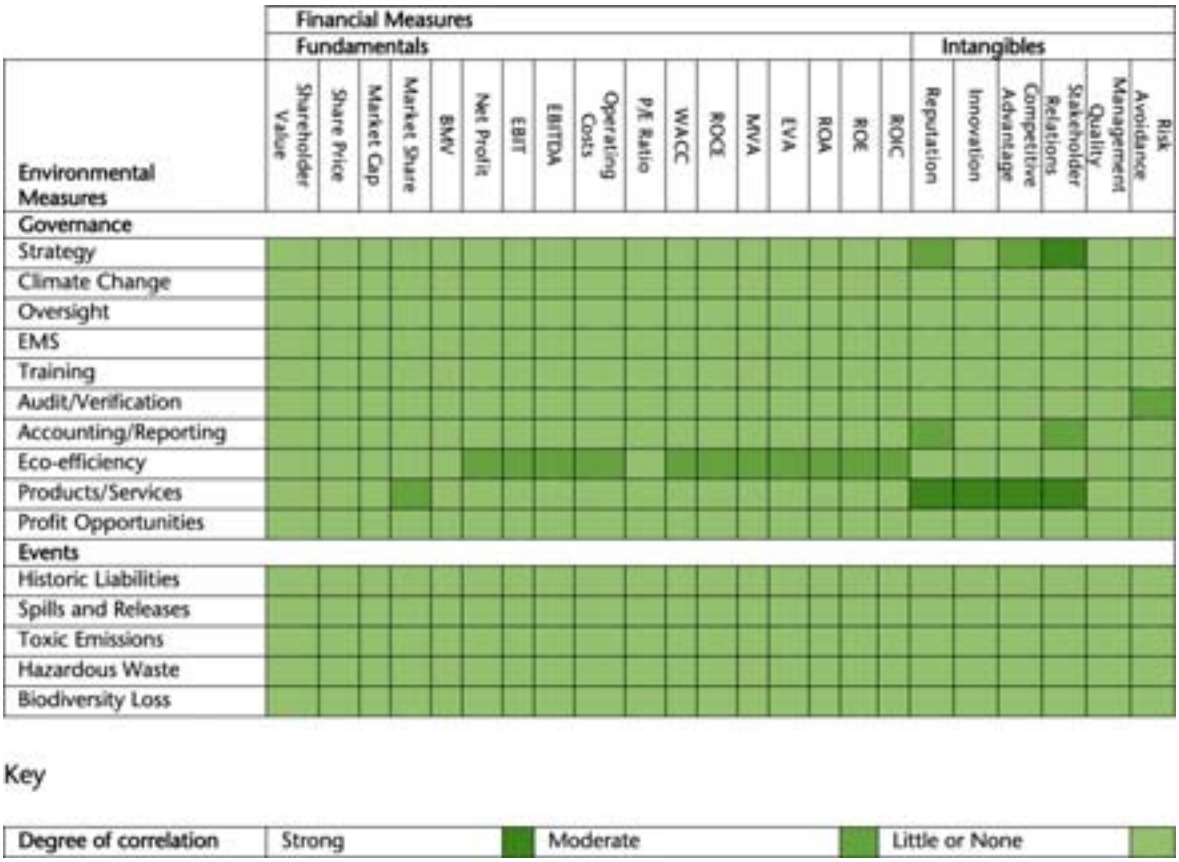
New markets

Wind power has expanded by an average of 25% annually during the past decade and Vestas has benefited greatly from this positive trend, increasing the amount of energy sold by approximately 45% since 1997. Net turnover increased by 430% between 1997 and 2002. Many studies project that, in Europe, wind power capacity will reach 30,000 MW by 2005 and 75,000 by 2010 which will represent one third of all new electricity generation capacity. Presently, 25 GW is produced by wind turbines.

In Europe as well as in the United States, renewable energies are promoted through different media and wind power is well positioned to be developed as the main alternative energy technology, as it is more competitive than solar or biomass for instance. For example, the World Bank launched a global greenhouse gas emissions trading fund in 2000 intended to support investments in clean energy. The Clean Skies initiative introduced in 2002 proposes tax incentives for renewable power of US$4.6bn over the next five years. It has also expanded the current 1.7 cent per kWh credit until 2004.

Vestas is quite confident for the future in Europe, especially because it has acquired a valuable experience in offshore wind turbines, and is actively seeking market share in developing countries where alternative energy solutions represent possible hope for economic improvement. Moreover, China and India were the major buyers in 2001 and Vestas is already well established in India.

Appendix – summary of financial impacts identified



Key

Degree of correlation	Strong	Moderate	Little or None

15. Company Case Study – Xstrata Plc

Announcement of climate change tax in Japan contributed to share price decline of 5% on one day in 2002. Increasing transparency on environmental governance from 2003 onwards helping to demonstrate company acknowledges environmental risks

Summary

The Company

Xstrata Plc's activities comprise four major businesses: coal (thermal and coking), copper, zinc (includes lead production) and ferroalloys. Xstrata's coal business has interests in over 30 operating coal mines located in Australia and South Africa. Copper operations are located in Queensland, Australia, with an additional joint venture in Argentina. The zinc business has mining and smelting operations in Australia, Germany, Spain and the UK. The ferroalloys business comprises ferrochrome and vanadium operations in South Africa and Australia. The group also has a forestry plantation in Chile. Xstrata's workforce is approximately 18,000.

Background

Xstrata listed as a FTSE100 constituent in March 2002 after former Swiss company Xstrata AG purchased the South African and Australian coal business of Glencore International AG. The company expanded in 2003 through the acquisition of MIM Holdings ('MIM') which added considerably to its coal assets, as well as adding copper to its portfolio. Some critics argued that Xstrata had not taken into account potential risks relating to global greenhouse gas mitigation, but Xstrata has made significant strides forward since its listing to position itself as a responsible company. In 2003 the company released its first sustainability report, covering health, safety, environmental and community issues. A follow-up report was published in April 2004. Using Global Reporting Initiative (GRI) guidelines to support the development of indicators and in the writing of its report, Xstrata has shown a strong commitment to environmental governance and environmental performance measurement.

Key Findings

Environmental Governance Measure	Financial Measure	Degree of Correlation	Quantifiable Impact?
Prior to MIM acquisition, Xstrata operations were highly reliant on markets for coal and consequently exposed to fluctuations in coal prices and taxes, including the effect of regulatory measures aimed at reducing climate change. Some critics argued Xtrata had not factored such exposure into its environmental governance strategy, though the company disputed such claims	Share price	Strong – Coal accounted for 66% of revenues, in 2003. Around 20% of Xstrata's thermal coal sales are to Japan.	Xstrata's share price experienced a decline of around 5% on one day in June 2002, which coincided with news that Japan was considering a coal tax.
Xstrata published its first sustainability report in 2003 revealing new environmental governance structures and policies throughout the company. A follow up report was published in April 2004.	Risk and reputation	Moderate – growing level of transparency in relation to environmental governance	Not measured but portfolio diversification has reduced exposure to future carbon risk and possible increase in corporate image in terms of its environmental governance.

Environmental Governance

Issues

- The metals and mining sector has received considerable criticism from NGOs, the media and public/consumer groups over its record on environmental management. Incidents such as the

broken tailings dams in Aznalcóllar (Spain, 1999) and Baia Mare (Romania, 2000) and concerns over the climate change implications from burning coal have exacerbated this trend.

- Short-term impact on shareholder value when Japan – a major Xstrata export market – announced its intention to introduce a tax on coal imports, in 2002. The effect of this announcement was compounded by volatility in the commodity market, depressed coal prices and uncertainty regarding the South African Minerals Development Bill (which will return land and natural resources to State ownership, requiring companies to apply for licences when operating mines). The latter event actually had a greater impact on Xstrata's share price, resulting in a 12% drop in one day (the same effect was experienced by Lonmin and Anglo American).
- Acquisition of MIM Holdings in June 2003, almost doubling its coal assets and production potential as well as increasing internal GHG emissions by 56%. Xstrata is now the world's largest export thermal coal producer, and Japan is currently its major customer for this commodity.

Responses

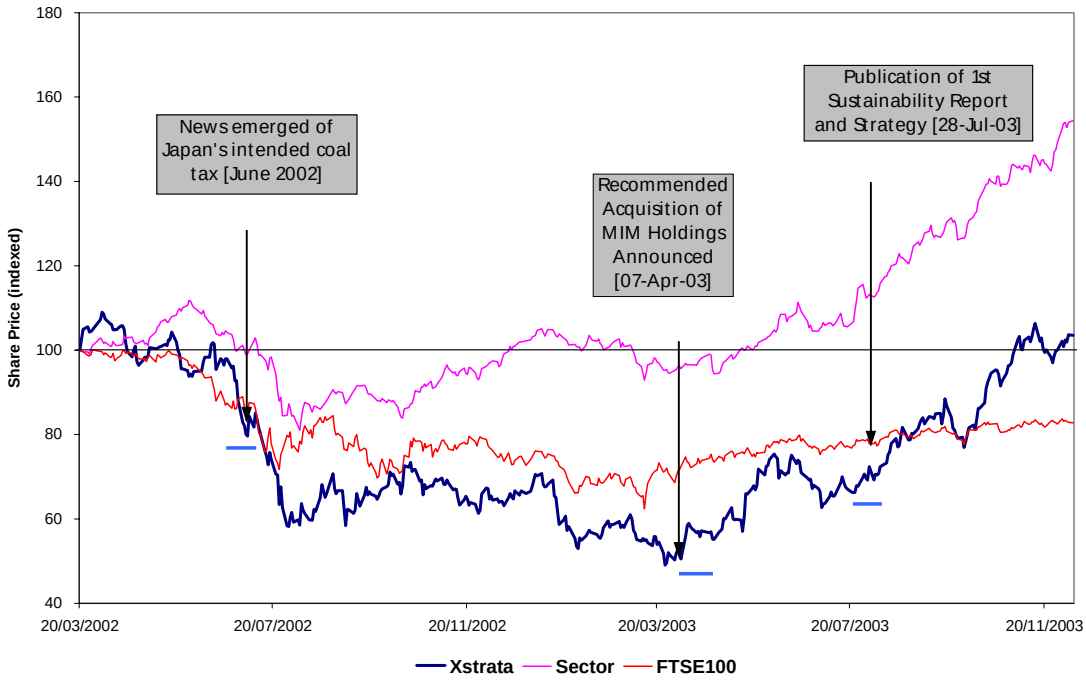
- Xstrata did discuss some of the potential liabilities or increased costs as a result of climate change legislation in its listing documents in March 2002. In particular, the company referred to the Kyoto Protocol and potential European and Japanese carbon taxes. This information was also included in the 'Circular to Shareholders' (April 2003) prior to the MIM acquisition and rights issue in June 2003.
- Published a set of 'Business Principles' and its first, comprehensive sustainability report in 2003. The report was based on the GRI guidelines with disclosure on a group level as well as by individual business divisions. The company's second sustainability report was published in April 2004, building upon its first sustainability report. Xstrata has set itself ongoing targets and has committed to reporting on its progress in future sustainability reports.
- A new global head of HSE was appointed in 2002, helping to coordinate the company's governance efforts at group level.
- Xstrata is involved in a number of Australian initiatives that seek to develop and promote 'Clean Coal Technologies' (CCT).
- The MIM acquisition added to the company's commodity portfolio, increasing its product diversification and thus to an extent indirectly mitigating longer-term financial risk of over-exposure to coal. In addition MIM has a good record on environmental management and was part of the 'Global Mining Initiative' and the Australian 'Greenhouse Challenge Program'. This will benefit the company as it incorporates a 56% increase in internal CO2 emissions prior to the MIM acquisition.

Financial impacts

Fundamentals

Share Price Performance

Figure 10
Xtrata Share Price (indexed) vs World DS Mining (indexed)



The principle market for thermal coal is for use in generating electrical power. Burning coal produces higher levels of greenhouse gases than the use of alternatives such as natural gas. Hence, any agreements restricting greenhouse gas emissions such as the Kyoto Protocol are of potential relevance to the company and its response to such developments is likely to have a bearing on share price.

Some critics accused Xstrata of downplaying the potential risks relating to global greenhouse gas mitigation efforts in the company's Listing Particulars. In a report from 2002 commissioned by Friends of the Earth UK (FoE) entitled *The Xstrata Listing: An Analysis of Climate Risks*, a number of alleged shortcomings and non-compliance with the Listing Rules were cited. Proponents of the view expressed in the FoE report – i.e. that climate change mitigation measures pose direct financial risks to companies such as Xstrata – cite events shortly after the listing as vindication of their position. In late June 2002, it emerged that the Japanese Ministry of Economy, Trade and Industry (METI) was considering introducing a tax on coal imports as a means to reduce greenhouse gas emissions. Within the Kyoto Protocol, Japan is committed to a 6% reduction of its greenhouse gases by 2008-2012. This intention was confirmed by METI on the 28 August 2002. In February 2003 the Japanese cabinet approved the tax, which is to be phased in by 2007 in three stages. The first stage was set to begin in October 2003 with a levy of Yen 1,230 per tonne of coal (approximately US$12 at current prices). When the news first surfaced in June 2002, Xstrata' share price fell by approximately 5% in one day, at a time when the FTSE100 was rising.

Xstrata has refuted all such allegations – arguing that it was not possible (nor even responsible in an official listings document) to attempt to quantify the potential financial impacts of climate change legislation – and published its own comprehensive assessment of and response to the FoE report, demonstrating that the company is taking its environmental governance approach seriously. In addition, the company considers that it recognizes climate change risks and refers to the issue in two major documents. Firstly, in Xstrata's Listing Particulars, published in March 2002. Secondly, in Xstrata's 'Circular to Shareholders' published in April 2003 prior to its acquisition of MIM. Both documents discuss the potential impacts to Xstrata's business from new or tightened legislation

and resulting instruments (such as carbon taxes) aimed at reducing greenhouse gas emissions, for example:

New legislation or regulations may be adopted in the future that may materially adversely affect the Group's mining operations, its cost structure or its customers' ability to use the Group's products, particularly coal…[or]…may also require the Group or its customers to change operations significantly or incur increased costs. [Xstrata Plc Listing Particulars, March 2002, p.61-62]

Other factors may also have played a role in share price fluctuations. Depressed coal prices, generally volatile global commodity markets, global insecurity and the uncertainties over the South African Mineral and Petroleum Resources Development Bill [2001] meant that 2002 was a challenging year for a new mining company to go public.

Other major mining companies such as Rio Tinto and BHP Billiton also experienced a dip in their share price, although less marked – approximately 2% over the same day. Xstrata's share price remained depressed for several months, until April 2003. However, the company's share price has rallied significantly from April onwards, doubling in value by December 2003, ending the year 20% higher than the FTSE100. This rally would appear to coincide with news of Xstrata's acquisition of MIM. Furthermore, the diversification of Xstrata's portfolio to include a significant copper business (as a result of the MIM purchase) occurred at a time when global commodity prices were experiencing a significant upturn.

It is possible that company documents such as the sustainability reports and MIM shareholder circular, published since April 2003 have contributed to positive market sentiment that the company has responded successfully to the challenge implementing sound environmental governance practices.

Intangibles

Corporate reputation

South African Xstrata subsidiary Vanadium Technologies (VanTech) has been in the spotlight over the last year due to the alleged exposure of the company's workforce to chemicals in vanadium mines. Critics point to an independent study published in the American Journal of Industrial Medicine in 1999 which states that Xstrata mine workers were exposed to levels of vanadium pentoxide, sulphur dioxide and ammonia significantly above the legal maximum. Xstrata has denied culpability in the deaths of four workers from VanTech. Furthermore, the company states that it was "completely exonerated" in an investigation carried out by the South African Department of Minerals and Energy Affairs in conjunction with the National Union of Mineworkers and the company itself.

Xstrata was publicly criticized by the Australian Department of Environmental Protection (DEP) in 2001 in relation to pollution control at the company's vanadium refinery in Windamurra. Ten separate breaches over two years were recorded by the DEP. In response, Xstrata stated it would install additional pollution control equipment. The plant is currently "under care and maintenance only" after Xstrata's new management suspended operations at the Windamurra plant in 2002 [Xstrata HSE report 2003].

Xstrata was also found to be polluting a local river in South Africa, near to its chrome mining operations. Deposits of chrome silt were running off into the stream and causing a build up of black sludge. However, the company openly admitted this and committed to rehabilitating the stream within a year. This rehabilitation is now complete and has received praise from government, community and NGO groups.

Competitive advantage and new markets

Since the acquisition of MIM in 2003, Xstrata's commodity portfolio has diversified considerably. In 2002 more than 66% of the company's earnings were from its coal business. In 2003 this has reduced to 28.6%, with copper now making up the lion's share of Xstrata's earnings. However, the majority of Xstrata's business is still thermal coal and – as the company itself sets out in its listing particulars and subsequent documents – by virtue of this the company may face competitive and regulatory risks in the long-term if the global demand for non-coal fuels increases as a result of

GHG emissions mitigation. Clean coal technologies (CCTs) may help to protect the company from a significant future loss of sales, but these technologies are still embryonic and expensive.

Xstrata is involved in a number of Australian initiatives that focus on clean coal technologies and GHG emissions reduction. For example, Xstrata is a participant in the Australian Coal Association's COAL21 program – a partnership between industry, government and the research community – and the Australian Greenhouse Gas Abatement Programme. The goal of the COAL21 program is to "create a national plan to scope, develop, demonstrate and implement near zero emissions coal-based electricity generation". Xstrata is also involved in research programmes focusing on CO2 capture and storage and CCTs such as Integrated Gasification Combined Cycle (IGCC) power generation. The company's commitment in this area is approximately US$9 million over the next five years.

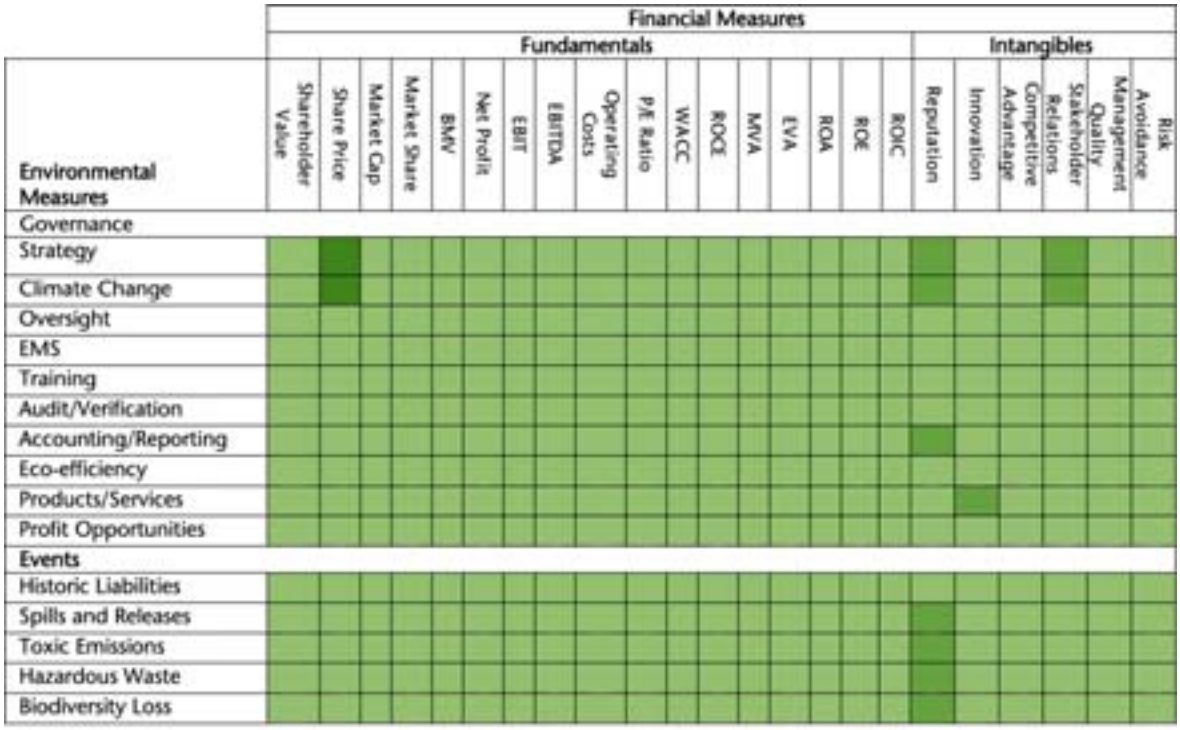
Operational efficiency

Due to the potentially high impact on both the natural environment and communities where Xstrata operates, good environmental management and strong workforce and community relations are important in maintaining its licence to operate. Since its UK listing in 2002 Xstrata has shown considerable commitment to good environmental governance.

The company's strategy and management on a range of environmental, social and corporate governance issues is clearly set out in its business principles and sustainability reports.

Establishing and continuing good relationships with key stakeholders is critical to maintaining ongoing business activities and to building a strong corporate reputation. In 2003 Xstrata developed 'social involvement plans' for each of its main business units. These plans set out the strategy for listening to and involving communities and how it can provide financial resources to assist local development objectives. The former businesses of MIM will develop similar plans in 2004. In its current sustainability report Xstrata has committed to giving at least 1% of its pre-tax profit to community initiatives each year. In 2003 this equated to USD1.78 million. Total spending on community initiatives was USD3.6 million in 2003.

Appendix – summary of financial impacts identified



Key

Degree of correlation	Strong	Moderate	Little or None

Conclusions

How have the study objectives been met by the survey?

This study sought to address five key questions. The extent to which the results of the literature review and the case studies provide answers to these questions is summarised below.

- ❒ Is there evidence to support a positive link between the environmental governance of individual companies and their financial performance?

The overall finding from the literature review is that there is strong evidence that where a company has sound environmental governance policies, practices and performance, it is highly likely to result in improved financial performance. The evidence tends to be more compelling when comparative studies are undertaken, with differences in performance between leaders and laggards quite marked.

The case studies in this report confirm the findings of the literature review, in that changes in financial performance stemming from environmental governance measures can be demonstrated and quantified, although the extent to which these changes is due entirely to environmental governance issues is not always clear.

- ❒ If such a link exists, is it more pronounced in some sectors than in others?

The findings of the literature review suggest that relatively limited research has been undertaken on a sector specific basis. Where sector analysis has been carried out, the focus has generally been on sectors with higher environmental impacts. Most studies that have assessed impacts at the sector level agree that changes in financial performance are more marked when a sector has higher environmental impacts and risks.

Where the sector case studies are concerned, out-performance was demonstrated, for those company ranked highly on environmental governance criteria, albeit over a relatively short period. All the industries profiled in the case studies can be regarded as having relatively high environmental impacts, with the implication that high impact industries are likely to benefit from managing their impacts successfully.

- ❒ Is it possible to say which financial performance indicators best illustrate any effect environmental governance may have?

Studies identified in the literature review focused on environmental governance impacts on shareholder value, share price, operating costs and risk and reputation issues. So is there a reason why study authors choose to focus on these four financial measures?

The likely explanation is that study authors increasingly want to communicate results in a way that will be understood both by mainstream investors and by financial analysts. These groups exercise much power in the market and they are likely to need proof of an empirical connection before fully taking on board the potential financial increments which can be delivered by good environmental governance. In addition, share price as an indicator of financial performance is commonly used and easily understood.

- ❒ Can it be concluded that certain types of environmental governance measures will have an impact on certain financial indicators and is it possible to assess the longevity of the effect on financial performance?

The literature review found that while a wide range of environmental governance issues have been analysed, the focus has been biased towards environmental policy issues. A majority of the studies considered the impact of an overarching environmental strategy or, to a lesser extent, a climate change strategy. More detailed analysis of other, more specific elements of environmental governance are analysed somewhat more sporadically. Longevity of impact is difficult to assess since few of the studies take a time horizon of more than five years.

For the case studies, a number of companies where the impacts could be examined over a longer period of time, such as 3M and Baxter International, were selected. These studies did reveal that a long term environmental governance strategy could yield a continuing financial benefit.

- ❒ Is the body of research comprehensive in its coverage of environmental governance issues and financial indicators?

The coverage of both environmental governance measures and financial indicators is very broad. There is, however, a concentration of analysis around the impact of an environmental strategy on share price performance and shareholder value. Studies of individual companies are few and far between.

The company case studies in this report mostly demonstrated that is possible to take one key environmental governance measure and attempt to relate its impact to specific financial impacts, though the strength of the correlations is often difficult to assess, particularly in relation to share price and shareholder value, which may be influenced by many other market forces and corporate strategy decisions.

One area where links can be more clearly established is that of operational impacts. The cost of an eco-efficiency initiative and its financial outcomes can be measured fairly precisely when a company sets up the appropriate environmental accounting procedures.

Whilst this study has revealed evidence to support the broader question there is more work to be done to better understand the underlying detail, for example at the sector or indicator level.

Some limitations in interpreting the results from the literature

review

A majority of the studies found in the literature review support the argument that implementation of good environmental governance systems yields a positive financial outcome. What is the level of confidence that can be attributed to this overall conclusion? There are some aspects of the analysis which provide a relative degree of comfort in asserting the positive relationship between environmental governance and financial performance, and some aspects which do not.

On the positive side, the wide range of studies does facilitate an understanding of the prominence of environmental governance factors within different scenarios. This allows for comparison of impacts among different types of companies, sectors and funds. The company study category is by far the largest and hence offers insights into the performance of a broad assortment of publicly listed enterprises.

However, while the five year time frame used made the literature review a more manageable and contemporary undertaking, it does mean that the number of studies which fall under each category heading is quite small. In addition, many of the studies look at a diverse range of environmental issues and relate these to an equally diverse range of financial outcomes. Under this scenario, unless the authors specify how each separate environmental governance issue was linked to a specific financial indicator, pinning down the nature of the correlations becomes far more difficult.

Gaps in case study analysis

In terms of the sector case studies in this report, the evidence suggests that a good general standard of environmental governance represents an indicator of quality of management and

likelihood of improved financial return. The difficulty comes in pinning down which environmental governance factors contribute the most to the out-performance shown.

As regards specific financial impacts, before starting on the company case study analysis, some assumptions were made about the types of financial impacts that could result from implementation of environmental governance practices or from environmental events.

The following are descriptions of the case study outcomes that might have been expected:

- Companies (existing or new) where sustained rising value, profitability, share price, reputation etc is based around exploiting green technology / green business;
- Companies where value, profitability, share price, reputation etc have been subject to downward 'blips' due to poor environmental policy, record / performance;
- Companies where value, profitability, share price, reputation etc have been subject to upward 'blips due to good environmental policy, record / performance;
- Companies whose value, profitability, share price, reputation etc has risen/stayed higher due to change in policy / strong policy on the environment;
- Companies whose value, profitability, share price and reputation etc has either declined or is depressed due to a (lack of) environmental policy, poor environmental record / performance.

The results from the company cases studies suggest that in practice it is difficult to classify outcomes according to these five definitions. Many other factors clearly have a bearing on financial impacts.

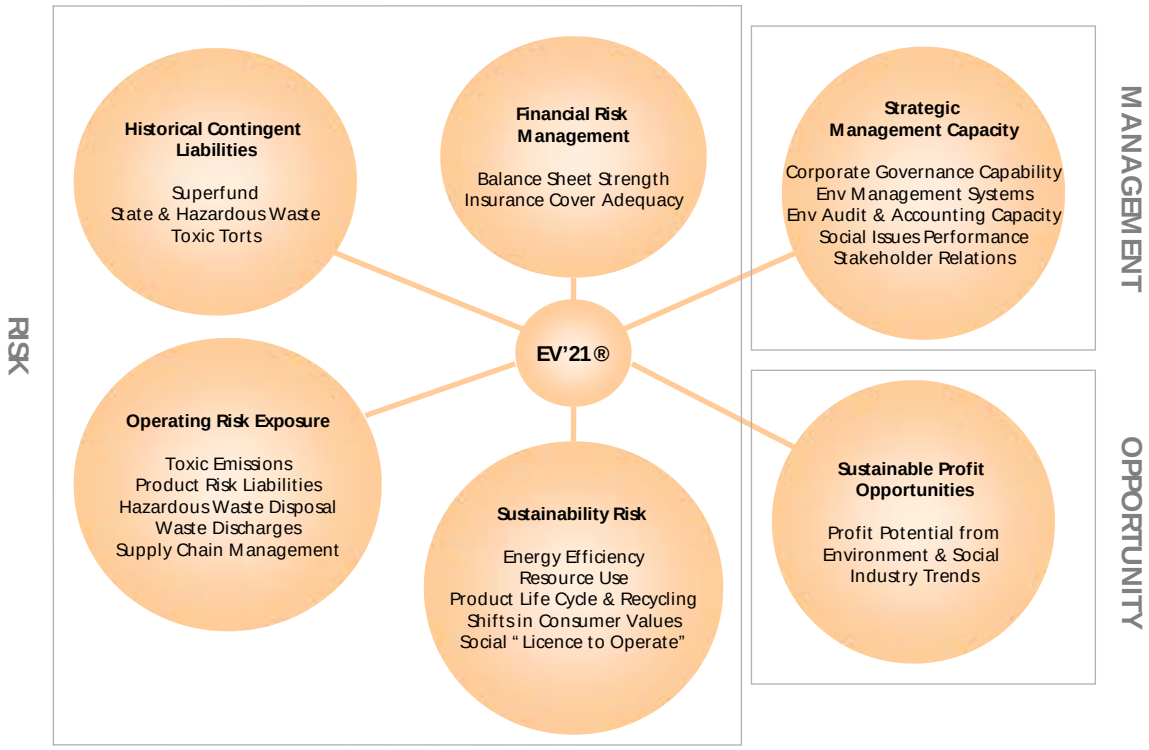
Clearly many factors, such as economic and political developments, have a potential bearing on financial impacts and influence the efficacy of the environmental governance effect.

Appendices

Environmental assessment criteria

To assess the impact of environmental governance on financial performance, Innovest has developed a proprietary tool – the EcoValue'21 investment analytics platform, which was developed in conjunction with strategic partners including PricewaterhouseCoopers and Morgan Stanley Asset Management. In total, the EcoValue'21TM model synthesizes over 60 data points and performance metrics, grouped together under six key value drivers, summarised schematically as follows:

The EcoValue'21™ Rating Model:



Companies are rated against the Innovest EcoValue'21TM performance criteria, and given a weighted score, as well as a letter grade (AAA, BB etc.). Each of the factors has an industry-specific weighting, based in part on a regression-based factor attribution analysis examining recent (5 year) stock market performance. The EcoValue'21TM investment risk ratings are ultimately expressed on a relative scale similar to those currently in use by conventional credit rating agencies such as Moody's and Standard and Poors. The sector case studies in this survey make reference to environmental leaders and laggards (as identified by the Innovest rating model) and assess the extent to which leaders may outperform laggards.

Companies which receive a BBB rating and above are deemed by Innovest to be the environmental governance leaders, while those companies with a rating below BBB are deemed to be below average performers in terms of environmental governance.

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Glossary of terms

BMV Book to Market Value. This is a measure of relative company value. It is derived by dividing the book value per share (net asset value) as per the financial accounts by the present market value (price) per share.

CSR Corporate Social Responsibility. This is essentially about demonstrating a company's value to investors, customers and society. A socially responsible company would act responsibly in all its locations and implement measures in relation to this. For example, this may include environmental stewardship, ensuring fair trade and equal opportunities, providing truthful reporting and communication, ensuring positive community relations and governance, and giving back to society.

EBIT Earnings Before Interest and Taxes. This is a measure of a company's earning power from ongoing operations. It is equal to earnings before deduction of interest payments and income taxes. EBIT represents the amount of cash that a company will be able to use to pay creditors. EBIT is also called operating profit.

EBITDA Earnings Before Interest, Taxes, Depreciation and Amortisation. This is a measure of a company's operating cashflow based on data from the company's income statement. It is calculated by looking at earnings before the deduction of interest expenses, taxes, depreciation, and amortisation. EBITDA is a useful measure for large companies with significant assets, and/or for companies with a significant amount of debt financing.

EVA Economic Value Added. This is the monetary value of an entity at the end of a time period minus the monetary value of that same entity at the beginning of that time period.

Market Cap Market Capitalisation. This is the market price of an entire company. It is calculated by multiplying the number of shares outstanding by the price per share.

Market Share This is the percentage of the total sales of a given type of product or service that is attributable to a given company.

MVA Market Value Added. This is the difference between the market value of a company (both equity and debt) and the capital contributed by investors. If it is positive, the company has increased the value of the capital entrusted to it. If it is negative, the company has destroyed value.

Operating Costs These are the day-to-day expenses incurred in running a business, (i.e. sales and administration).

P/E Ratio Price/Earnings Ratio. This represents the valuation ratio of a company's current share price compared to its per-share earnings. The P/E ratio is equal to a stock's market capitalisation divided by its after-tax earnings over a 12-month period. This is also called the earnings multiple.

ROA Return on Assets. This is a measure of a company's profitability. It is derived by dividing a fiscal year's earnings by total assets.

ROCE Return on Capital Employed. This is a measure of the returns that a company realizes from its capital. It is calculated as profit before interest and tax divided by the difference between total assets and current liabilities. The figure represents the efficiency with which capital is being utilised to generate revenue.

ROE Return on Equity. This is a measure of how well a company has used reinvested earnings to generate additional earnings. It is derived by dividing net income by book value. It is effectively how much profit a company is able to generate given the resources provided by shareholders.

ROIC	Return on Invested Capital. This is a measure of how effectively a company uses money (borrowed or owned) invested in its operations. It is calculated by dividing net income after taxes by total capital.
Share Price	This is the price of one share of stock.
Shareholder Value	This is the value that a shareholder is able to obtain from investment in a company. It includes capital gains, dividend payments, proceeds from buyback programmes and any other payouts.
SRI	Socially Responsible Investment. This involves, to varying degrees, the consideration or incorporation of social, environmental and/or ethical concerns into portfolio management.
Value driver	A factor which influences, either negatively of positively, the financial performance of the company

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