

Environmental Shareholder Value

Understanding the Value of Environmental Performance

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1 Foreword

Consideration for the environment is gaining a foothold in the boardrooms of many companies, in Denmark as well as abroad. Previously, this area was the responsibility of technical experts in one of a company's staff functions. Today, however, it is becoming a business area to which the board of management and the company's investors must relate strategically.

Many companies have developed environmental policies and established environmental management systems. Good examples of how environmental initiatives can lead to large savings in, for example, material and energy consumption abound. Many companies are convinced that a green image is important to their earnings. However, the value of environmental work is not illustrated in the calculation of a company's key figures for investors.

The new Danish Financial Statements Act, which entered into force on 1 January 2002, requires large enterprises to provide information about their environmental impact and environmental efforts to the extent that this influences the enterprise's operation and thus its financial development. A screening of the 2002 annual reports for 80 companies showed that 24 percent had described the company's environmental conditions, but that none had described the monetary value of the environment.

The demand for information about environmental and sustainability issues originates from company stakeholders, such as the authorities, interest organisations, employees, and others. Stakeholders are interested in how the company reacts to the impact it imposes on society. However, the information is also of interest to investors in connection with data concerning the company's financial performance in the traditional sense.

The arguments suggesting that companies look at more than the financial bottom line in order to show more social responsibility have been turned upside-down: companies should look at other elements and show social responsibility because it is relevant to their financial bottom line. This is part of the philosophy behind the concept of Corporate Governance.

With this background, the present report focuses on the correlation between the company's environment, finances, and Corporate Governance.

This report has been prepared with support from the Cleaner Products Programme under the Danish Environmental Protection Agency (Danish EPA) by employees of PricewaterhouseCoopers, Anne Søgård Melchiorson (MSc) and Birgitte Mogensen (state-authorized public accountant). The report was completed in February 2004 in Danish.

2 Introduction to the report

The purpose of this report is to illustrate the correlation between, on the one hand, the company's financial success expressed as Shareholder Value, and on the other hand, the company's environmental impact and environmental work. Furthermore, the report sheds light on the interplay between the company's environmental conditions, Shareholder Value and good Corporate Governance, as defined by the Nørby Committee's report on Corporate Governance. At the same time, the purpose of the report is to create a framework for the sub-elements of environmental economics in the company, from financial operation to investments and strategy.

The three key concepts in the report

Environment - includes the company's use of resources and impact on nature.

Shareholder Value - is the value generated by the company for its investors/shareholders. This includes the developments in the company's market value (stock-exchange value) and dividends paid to shareholders.

Corporate Governance - lays down the framework for responsible corporate management.

Shareholder Value is used as the financial concept in this report because it takes a forward-looking view contrary to other traditional retrospective accounting concepts. The forward view harmonises with the company's environmental work where the effect is usually not seen until well beyond the accounting year.

Shareholder Value and the environment both represent business goals, and as the report illustrates there are numerous correlations between the two goals. These correlations are sometimes positive and sometimes negative - however the two concepts seldom stand alone.

At present, only few companies are equipped to measure and manage these correlations. The introduction of Corporate Governance principles aiming at both Shareholder Value and environmental objectives is the operational approach to setting the correlations in motion.

3 Reading guide

The report is addressed to people interested in the environment and finance. That is, investors/shareholders, financial analysts, CEOs and managers, members of boards of directors, and professionals responsible for environmental policy in large companies.

In order for the two worlds to come together, the report begins with an introduction to the three key concepts: Environment (Chapter 4), Corporate Governance (Chapter 5), and Shareholder Value (Chapter 6).

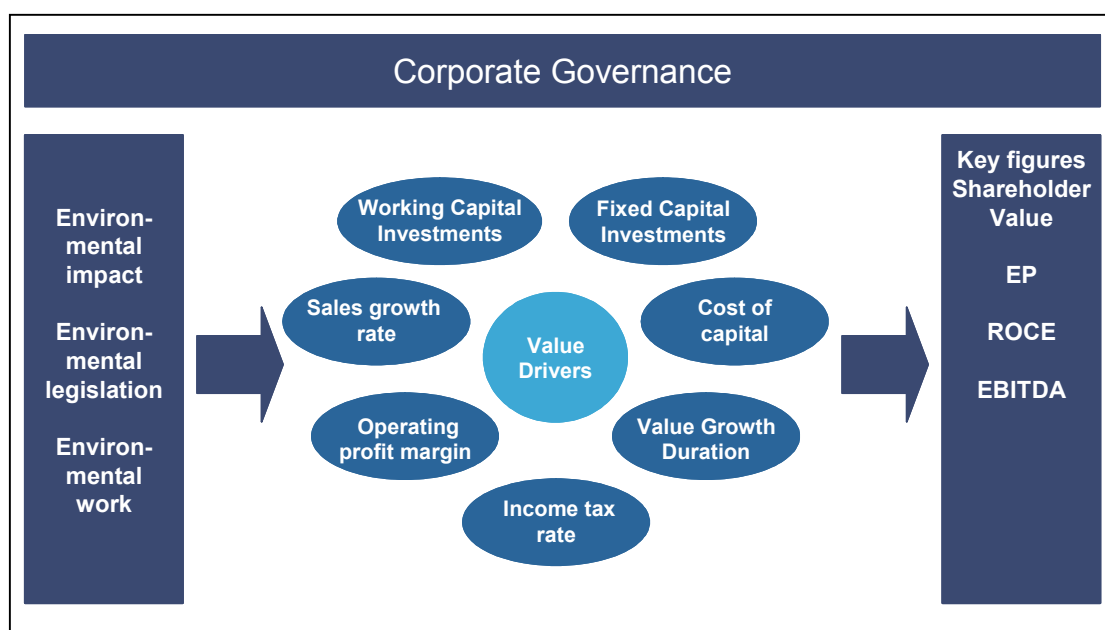


Figure 1: The structure of the report and an illustration of the interplay between environment, Shareholder Value, and Corporate Governance

Chapters 7 to 11 describe the interplay between the company's environment and Shareholder Value on the basis of the seven Value Drivers in Figure 1

Chapter 12 contains a specific check list for mapping the correlations between the environment and Shareholder Value in the individual company. Chapter 13 describes three specific examples of how the correlations can be illustrated in selected key figures for Shareholder Value.

Finally, Chapter 14 suggests how the three elements, environment, Shareholder Value, and Corporate Governance, are connected and can be set in motion in the company.

There is a glossary of specialist terms at the end of the report.

4 Introduction to the company's environment

This section describes what we understand by "the environment" and the environmental conditions relevant to the company - ie. the company's environment. We have decided to divide and describe the company's environment in three elements: the company's environmental impact, the company's environmental regulation and the company's environmental work. We made this division because it is primarily these three elements which, each in their own way, affect the financial situation of the company.

4.1 The company's environmental impact

The company's environmental impact can be divided into direct and indirect impacts.

The direct impacts include the company's consumption of resources, as well as emissions, primarily from production. Companies with an obligation to prepare green accounts report on their direct environmental impacts in a mass balance with inputs of resources and outputs of emissions and waste.

The indirect environmental impacts of the company include the impacts the company causes outside its premises and its direct activities. For example, this may be through choice of supplier, where a company can choose a supplier on the basis of environmental criteria. Other possibilities may be use and disposal of the company's products. If the company produces televisions, the amount of energy the televisions consume will be very significant, as well as how they are disposed of. Are they easy to disassemble, and can the material be used again?

This type of consideration is the background to the lifecycle philosophy. Here, environmental impacts are calculated on the basis of the lifecycle of a product from extraction of raw materials to final disposal.

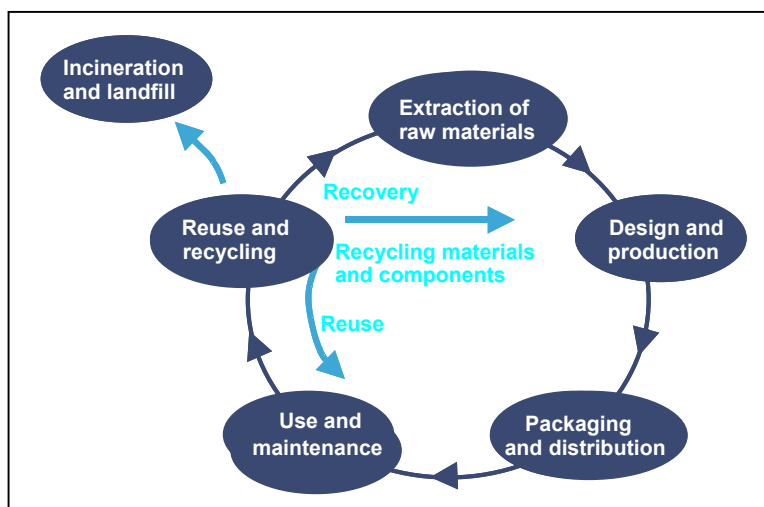


Figure 2: Lifecycle of the product

The environmental impact of the company is to a large extent determined by what it does. The production and activities of the company are therefore crucial for its environmental impact. Some sectors have large environmental impacts, others small. Therefore, naturally the financial significance of the environment is also different from sector to sector. However, this generalisation does not always hold true. Despite being not particularly pollution intensive, some sectors, such as the telecommunications sector, still place high priority on environmental impacts because they can be a marketing parameter.

4.2 The company's environmental regulation

The scope of a company's environmental impact typically determines the amount of regulation it is subject to from the authorities. Therefore, in Denmark a number of companies are categorised as pollution intensive on the basis of the environmental impact of their production. For example, this may oblige them to have an environmental approval for production, and some must prepare annual green accounts for their environmental impact.

A company's environmental approval stipulates a number of conditions to be met by the company's production. These may include noise restrictions or limitations on emissions of various pollutants. In other cases a company may only be permitted to produce a specific amount. So, environmental conditions establish the fundamental framework for the company's existence and how it may increase its volume of production. Furthermore, these conditions may mean that the company must invest in technology for air or wastewater treatment, or it may have to reorganise production processes. In addition to the conditions placed on the individual company, general environmental legislation on, for example, chemicals or waste will also be very important for the company. For example, this applies if a chemical vital for the company's processes is banned or if the company is subject to requirements to take back and recycle its waste.

As well as the environmental regulations in legislation, there are a large number of environmental taxes with direct influence on the financial operation of the company.

4.3 The company's environmental work

The environmental impact of the company can be reduced through the company's environmental work. Initiatives may be forced on the company through legislation. However, many companies also work on environmental improvements voluntarily.

Many companies have organised their environmental work in an environmental management system. Environmental management builds on a company working continuously on improving its environmental impact, and amongst other things it means that the company:

- Charts its environmental conditions
- Formulates an environmental policy
- Stipulates a level of ambition as environmental goals
- Prepares action plans for how these goals are to be achieved
- Evaluates environmental work periodically and, if necessary, makes adjustments to the goals and action plans

The company can work specifically to improve its environmental impact in a number of ways. In this respect there is a distinction between cleaning technologies and cleaner technology.

Cleaning technologies include cleaning pollution using air filters or wastewater treatment plants, for example. These technologies are also called "end-of-pipe" technologies.

In contrast to cleaning technologies, cleaner technology eliminates the environmental impact from the start. Cleaner technology can include:

- Reduction of consumption of resources, eg. processes using less energy or water
- Redesigning the product so that the materials in the product can subsequently be better reused
- Substituting hazardous substances with less hazardous substances

Moreover, more and more companies are working with the product-oriented approach briefly described in section 4.1 on the lifecycle philosophy.

5 Introduction to Corporate Governance

Corporate Governance lays down the framework for responsible corporate management.

Corporate Governance has come even more into the spotlight in the wake of the major financial scandals in the US. Throughout the world, reports with principles for good corporate governance have been issued. In Denmark, the most important contribution has been the Nørby Committee's report on Corporate Governance in Denmark.¹

The Nørby Committee defined Corporate Governance as *"The goals, according to which a company is managed, and the major principles and frameworks which regulate the interaction between the company's managerial bodies, the owners as well as other parties, who are directly influenced by the company's dispositions and business (in this context jointly referred to as the company's 'stakeholders'). Stakeholders include employees, creditors, suppliers, customers and the local community."*

The Nørby Committee's report deals with the following seven main areas under Corporate Governance:

- I. ***The role of the shareholders and their interaction with the management of the company:*** under this area, special priority is afforded to creating greater interaction between the shareholders and the management of the company, who have a joint interest in the company being as competitive as possible and creating as much value as possible. This means that shareholders must have better access to company information and they must be given good opportunity to exercise influence at general meetings.
- II. ***The role of the stakeholders and their importance to the company:*** another aspect of good corporate governance is that the company maintains good relations with anyone affected by the company's activities. For example, this may be employees, neighbours, customers, or interest organisations. Specific initiatives include drafting policies for relevant areas such as the environment and the social area, as well as ongoing dialogue with stakeholders.
- III. ***Openness and transparency:*** this means that the company should report and provide information about both financial aspects and supplementary aspects such as the environment, health and safety, ethics, and social responsibility. This information is necessary for dialogue with both shareholders and stakeholders.
- IV. ***The tasks and responsibilities of the board:*** the board of directors should be more systematic in taking responsibility for the company's overall strategic management, financial and managerial control of the company, and ongoing assessments of the work of the board of management. This requires more

¹ The Nørby Committee was set up on 2 March 2001 by the Minister for Business and Industry at that time, Ole Stavad. The job of the committee was to assess the need for recommendations on corporate governance in Denmark and make proposals for such recommendations, if necessary. The result of this work was the Nørby Committee's report on Corporate Governance in Denmark, with recommendations for good corporate governance in Denmark. The Committee was composed of Lars Nørby Johansen (chairman), Jørgen Lindegaard, Waldemar Schmidt and Mads Øvlisen. In December 2003 the Copenhagen Stock Exchange's Committee on corporate governance published its proposals for adjustments to the recommendations for corporate governance. These proposals have no effect on the contents of this report on the Environmental Shareholder Value.

information sharing and good dialogue between the board of directors and the board of management.

- V. **The composition of the board:** in order that the board of directors can carry out its duties in an appropriate manner, it is also important that the board is composed so that it possesses all the relevant knowledge and competences. Moreover it is important that the board is changed regularly and that regular assessments are carried out of the work of the board, the board of management, and cooperation between the board of directors and the board of management.
- VI. **Remuneration to the directors and the managers:** performance-related pay is recommended based on results so that the interests of management better correspond to those of the shareholders.
- VII. **Risk management:** the establishment of systems for risk management is stressed as this is a requirement for creating the knowledge necessary to manage the company.

The basic philosophy in all seven areas is that good corporate governance should secure a triple win-win situation for the company's management, shareholders, and stakeholders. Shareholders gain greater insight and more Shareholder Value. Stakeholders gain greater insight and their voice is heard by the company. The company earns goodwill from its stakeholders and is better able to raise capital from its shareholders.

5.1 The Environment and Corporate Governance

In the longer term, the success of any company depends on the sustainable development of society; economically, socially, and environmentally. Companies need society in order to have access to resources, potential markets, and goodwill - or a "license to operate". Corporate Governance is therefore also about the fact that companies must manage their environmental responsibilities in such a way that they maintain their opportunities to exist and expand their activities.

The Nørby Committee describes this observation as follows (page 37):

"In its decision-making and dispositions, company management must work to create long-term value added in the interests of the company and the shareholders. However, it is not enough that management focus exclusively on the interests of the shareholders. Safeguarding the interests of the shareholders is best taken care of through including consideration of other stakeholders to an appropriate degree."

Corporate Governance does not necessarily mean that environmental work should be afforded higher priority by the company. However, it does mean that senior management is clear about the existing level of environmental work and manages the company on the basis of knowledge about the opportunities and risks rather than acting on the basis of 'gut feeling'.

The Nørby Committee report mentions the environment as a parameter to be taken into account in connection with relations with stakeholders (area II), company reporting (area III) and the company's risk management (area VII). But this report shows that the environment is also connected with Shareholder Value. Therefore there is a direct connection to the interests of shareholders (area I). As the environment is an area significant for shareholders, stakeholders, and risk management, it must also be part of the work of the board of directors on strategic management (area IV). This requires the board having competence in managing environmental conditions (area V). Furthermore, environmental results can also be part of goal setting in performance pay (area VI).

These relationships will be further analysed and described in chapter 14 in which the three elements of Environment, Shareholder Value and Corporate Governance are integrated.

6 Introduction to Shareholder Value

Shareholder Value was originally introduced by A. Rappaport in 1986. The philosophy behind Shareholder Value is simple - it deals with maximising the long-term returns to the shareholders of the company. Returns to shareholders correspond to the development in the market value of the company (stock-exchange price) and the regular dividends paid. Therefore, the company's management must primarily make decisions that create the greatest possible value for shareholders - ie. Shareholder Value.

Traditionally, companies have defined their strategic goals as, for example, growth in revenue and accounting profit. Key figures for their success would be accounting key figures such as earnings per share. The problem with this approach is that growth in revenue and profits show accounting values, but not necessarily economic values. From an economic perspective, the income statement is not a complete picture of the actual operating value the company is adding or the value the company will add in the future. Therefore there is a need for other key figures to illustrate Shareholder Value.

6.1 Calculation of Shareholder Value

Rappaport uses future free cash flow in his model as a figure for Shareholder Value. The model examines the specific plans and investments arising from the company's strategy and the cash flows in and out of the company these will imply in the future. The balance between cash flows in and out of the company is termed "free cash flow". The total of all future cash flows leads to the total value of the company (Blumberg et al., 1996).

Overall the calculation looks like this:

Shareholder Value = Value of company (Corporate Value) - debt	
Where the value of the company according to A. Rappaport's model (1986) is calculated as follows:	
Corporate value =	Capital value of the free cash flow in the budget period
	+ Capital value of the free cash flow after the budget period
	+ Market value of non-operating assets at the start of

The Corporate Value is dependent upon the following seven Value Drivers:

- Fixed capital investments
- Working capital investments
- Sales growth
- Operating Profit margin
- Tax rate

- Value Growth Duration - future
- Cost of capital

According to the Shareholder Value philosophy, management will choose between alternative strategies in order to maximise the free cash flow and thus the capital value of the cash flow which can be transferred to investors (Elling et al., 1998).

There are several methods of calculation stemming from the Shareholder Value philosophy. Therefore, there is no single figure that unequivocally shows the Shareholder Value of a company, but the philosophy is basically the same with focus on free cash flow and an assessment of the future opportunities to increase investors' returns. The following sections 6.2-6.4 describe selected key figures for Shareholder Value, and these will be analysed in relation to environmental conditions in chapter 13. The analysis have been completed in relation to these key figures as these figures are typically those investors and financial analysts have access to and examine in company reports.

6.2 Economic Profit (EP)

Economic Profit (EP)² is one of the methods which in recent years have become more widespread for management of Shareholder Value. EP shows the financial added value created by a company in a single year. If EP is positive, financial value has been added, while a negative EP means value has been lost (Madsen & Barslev, 2002).

EP is composed of three main components:

- Net Operating Profit After Tax (NOPAT)
- Capital invested
- Weighted Average Cost of Capital (WACC)

Economic Profit is calculated using the following formula:

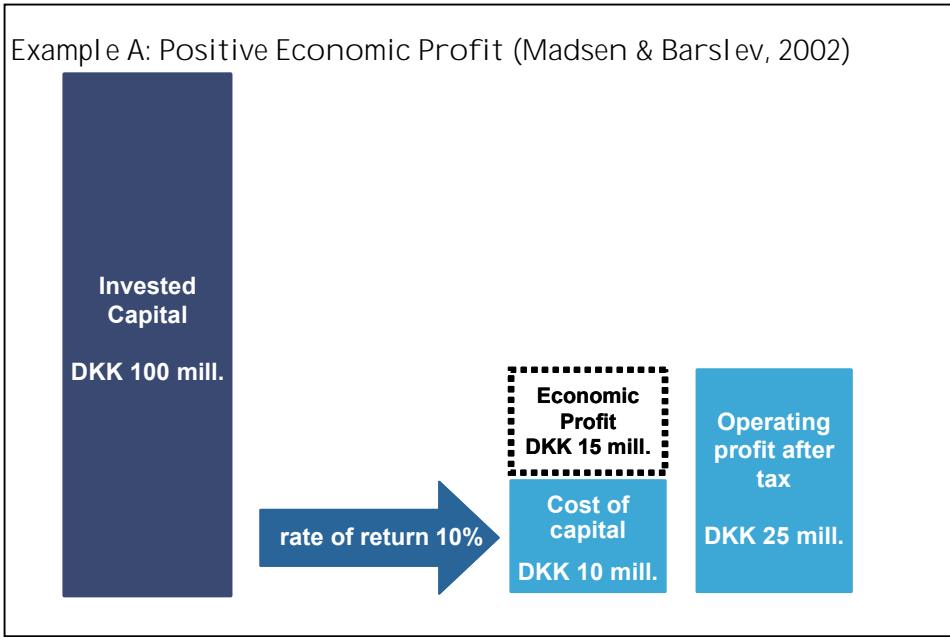
$$EP = \text{NOPAT} - (\text{Capital invested} \times \text{WACC})$$

For example, assume that a company has a net profit after tax (NOPAT) of DKK 25 million.

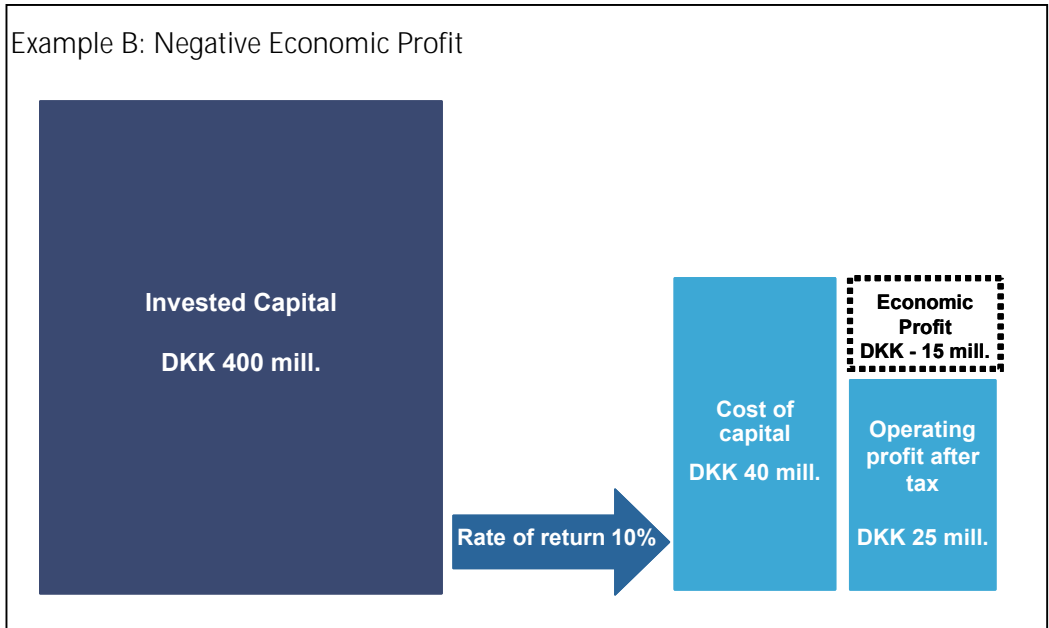
Is a NOPAT of DKK 25 million good or bad? This depends on the amount of capital invested and the return required by investors.

If, as in example A, investors have a required rate of return of 10 per cent, and they have invested DKK 100 million, then there is a cost of capital of DKK 10 million. When the cost of capital is deducted from the operating result of DKK 25 million, the economic value added is DKK 15 million. Thus the company has been able to make a higher rate of return on the capital than the rate required by the investors (Madsen & Barslev, 2002).

² EP is also known as Economic Value Added, EVA™, and this is a trademark of Stern Stewart & Co.



Alternatively, if investors invest DKK 400 million with the same required return, the economic value added will be - DKK 15 million. Thus, the company does not meet the return required by investors.



Therefore, EP is a good measure of whether the company is living up to investors' required rate of return, which is crucial for Shareholder Value, measured as dividends and the market value of shares.

Expectations for the future EP of a company are reflected in the market value of the company. The present value of all the future Economic Profits is also called the Market Value Added (MVA). In theory, the market value of a company is the present

value of all the future Economic Profits - or MVA - plus the capital the company has invested. This relationship is illustrated in the figure below:

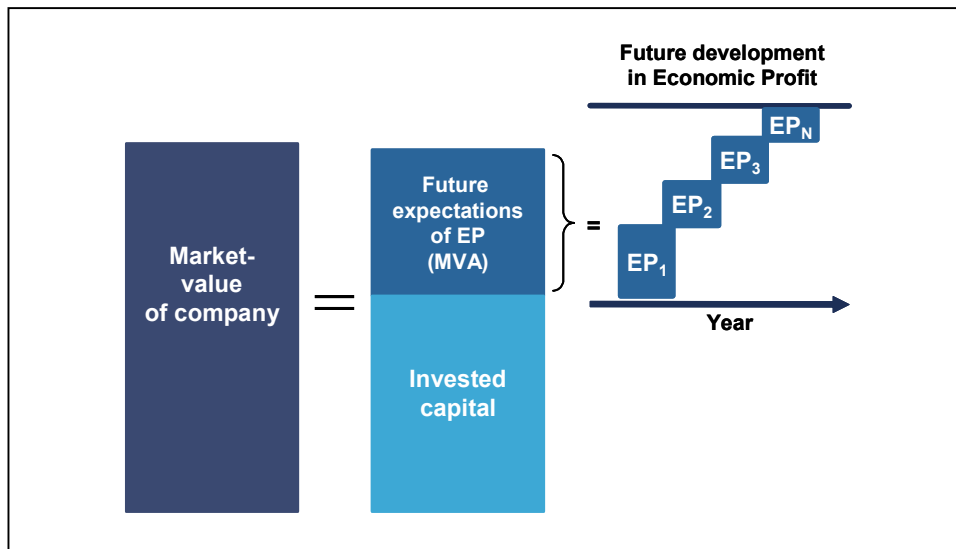


Figure 3: Relationship between the market value of a company and the future Economic Profit (Madsen & Barslev, 2002).

Management to maximise future Economic Profits is therefore management to maximise market value.

EP is improved when:

- Investment is made in new activities, where the return exceeds the expected required returns
- Operating improvements are carried out
- Loss-making activities are reorganised, outsourced or sold
- The weighted average cost of capital is minimised

6.3 ROCE

ROCE stands for Return On Capital Employed. ROCE is calculated as the profit before financial items divided by the average capital employed, and it is expressed as a percentage. Average capital employed is total liabilities less non-interest bearing liabilities.

The formula for ROCE is as follows:

$$\text{ROCE} = \frac{\text{Operating profit}}{\text{Average capital employed}} \times 100$$

Unlike Economic Profit, ROCE cannot show whether a company is adding or losing value for its investors. Despite this, it remains an important key figure, because it is an expression of whether the company is developing efficiently. If the company becomes more efficient, ROCE will increase.

For example, operating efficiency can indicate whether or not an excessive amount of money is tied up in stock.

6.4 Profit margin before depreciation - EBITDA%

EBITDA stands for Earnings Before Interest, Taxes, Depreciation and Amortisation. When EBITDA is compared with net revenue, the resulting profit margin before depreciation is also called the EBITDA%. The operating profit margin is one of the seven Value Drivers in Rappaport's Shareholder Value concept, and it is also one of the key figures in the assessment of Shareholder Value.

The EBITDA% is calculated as the profit before financial items and depreciation divided by the net revenue, and it is expressed as a percentage.

The formula for profit margin is as follows:

$$\text{EBITDA\%} = \frac{\text{Result before financial items and depreciation}}{\text{Net revenue}} \times 100$$

In everyday language, the EBITDA% can be expressed as: how much do I earn on each monetary unit of sales?

6.5 Relationship between the environment and Shareholder Value

Shareholder Value is a good concept relating to the environment because it takes a forward-looking accounting view contrary to backward-looking accounting, which is the traditional view (Schaltegger & Figge, 2000). This harmonises with the company's environmental work where the effect is not usually seen until well beyond the accounting year.

Traditionally, the environment has only been regarded as a cost imposed on the company through legislation and requirements of different interest groups. However, this report will illustrate that environmental work results in both costs, savings and income and must therefore be controlled as any other financial activity of the company. This requires an understanding of how the environment affects Value Drivers and key figures in order for management to have a decision-making basis. The following chapters describe the interplay between the environment and the seven Value Drivers and the key figures for Shareholder Value.

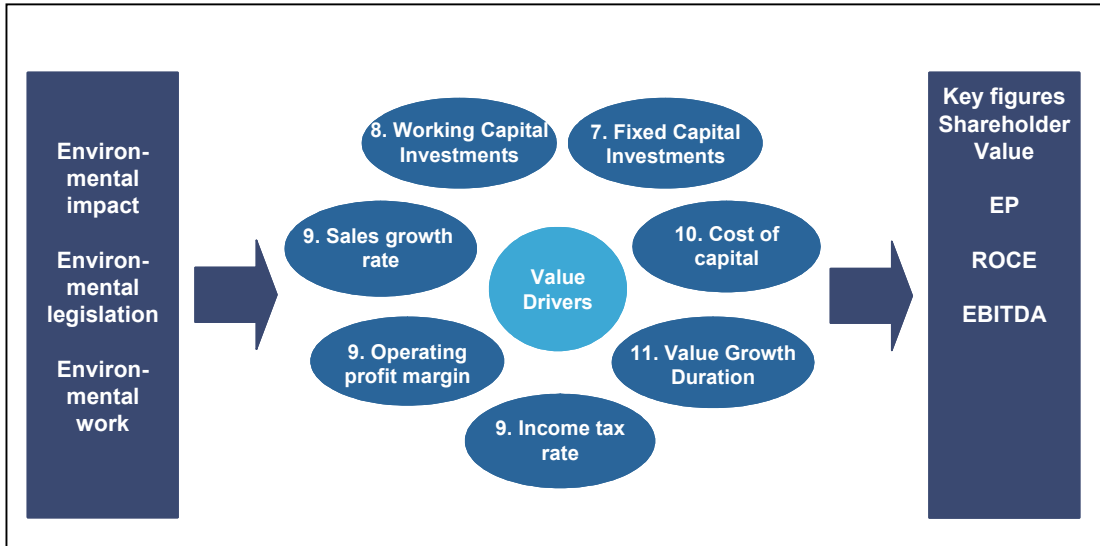


Figure 4: Overview of the analysis of the interplay between environment, Value Drivers and key figures

The figures shown next to each Value Driver refer to the subsequent chapters.

7 Fixed capital investments

Investments in fixed assets are investments in "assets that are intended for permanent ownership or use by the enterprise" (schedule 1, C. 2. of the Danish Act on Commercial Enterprises' Presentation of Financial Statements, etc.). For example, this may be real property, technology or patents.

Fixed capital investments are important for the company's free cash flow, because investments tie up money and thus, at first, reduce the free cash flow. At the same time, investments are obviously required for the company to carry out its activities and create earnings.

An investment may increase Shareholder Value when it entails greater income than the cost of capital of the investment. From a Shareholder Value point of view, the best investments are thus those that are less capital intensive but yield a high return (Schaltegger & Figge, 2000).

7.1 Environmental investments

Investments in fixed assets in the environmental area may be divided into the following groups:

- Installations for the remediation of harmful impacts on the environment
- Installations for pollution abatement
- Cleaner technology

7.1.1 Installations for remediation of harmful impacts on the environment

Installations for the remediation of harmful impacts on the environment include investments in the establishment of remediation wells to prevent contamination from spreading to groundwater resources, etc. This type of investment is required by law and must be implemented in order for the company to be able to continue operations in the future. Such an investment does not result in any form of earnings or goodwill, since it merely remediates damage and does not create value. Shareholder Value is consequently reduced.

7.1.2 Installations for pollution abatement

Installations for pollution abatement include cleaning technologies or the so-called "end-of-pipe" solutions, such as water treatment plants, desulphurisation systems and filters. This type of investment is typically ordered by the authorities on the basis of regulations on the maximum volumes of specific substances the company is permitted to emit or discharge. In some cases however, companies decide independently to remediate beyond the legislative requirements. This is the case with eg. emissions of SO₂ which, from 2003, are subject to taxation in Denmark. By reducing its emissions, the company may thus reduce its taxes. Other companies choose to carry out further remediation in order to improve the company's and the product's environmental profile in connection with marketing.

Like investments in remediation of harmful impacts on the environment, investments made because of legislative requirements have a negative effect on Shareholder Value. However, investments that lead to tax savings may contribute to increasing Shareholder Value. Investments made with a view to green marketing will be dealt with in chapter 9 "Earnings: sales growth and operating profit margin".

7.1.3 Cleaner technology

Cleaner technology is a very broad concept encompassing the types of technology that improve the company's environmental performance by changing production processes. This could be through a reduction of resource consumption and emissions or by replacing an environmentally hazardous chemical product with one that is less hazardous. Cleaner technology may also include changes to product design so that the product can be taken back after use and recycled.

Like installations for pollution abatement, investments in cleaner technology may be caused by authority requirements, however they will often be made at the initiative of the management as part of production improvements and optimisation.

Resource consumption savings will be seen directly as a reduction in the company's operating costs. Likewise, the company may achieve savings by recycling parts of old products. Emission reductions may also result in financial benefits if the emissions are subject to taxation. Substitution of a hazardous chemical with another one that is less hazardous may also reduce operating costs, since there will often be a reduced need for personal protective equipment and safety procedures in connection with production. At the same time, the risk of accidents that could entail future costs for remediation of the impact is reduced.

However, the associated savings in time and resources are often forgotten in the assessment of the investment, because the expenses are hidden in different accounts in the company's management accounting system. This subject will be dealt with in further detail in chapter 8 "Working capital investments", since it is a general problem that the associated environmental costs cannot be identified clearly in the total operating costs.

7.2 Investments in cleaner technology in connection with CO₂ emission allowance trading

A very current example of how the environment could have a direct influence on Shareholder Value, is CO₂ trading which was placed on the agenda with the adoption of the EU Directive on greenhouse gas emission allowance trading in July 2003.

7.2.1 The EU Directive

The first stage of emission allowance trading will commence on 1 January 2005 and will first cover companies with plants over a certain production capacity within energy production, oil refining as well as the metal, mineral, glass, paper pulp and paper industries.

The companies subject to the directive will, at the beginning of each calendar year, be allocated a number of allowances in accordance with a national allocation plan. At the end of the year, the companies must surrender allowances corresponding to the amount of CO₂ they have emitted during the year. If a company does not have sufficient allowances to cover its emissions, it becomes subject to a penalty of EUR 40 per tonne CO₂ in 2005-2007 and EUR 100 per tonne CO₂ in 2008-2012.

The market price of CO₂ is very uncertain and depends on many circumstances.

7.2.2 Significance for Shareholder Value

The allowances can of course be compared to a tax, since the company must pay for CO₂ emissions exceeding its allowances. However, where the company can only save tax if it reduces its emissions, allowances can be sold if the company reduces emissions so much that it has excess allowances. A company that invests in reducing its CO₂ emissions will thus be able to increase earnings through sales so that the investment, simply speaking, pays for itself faster.

With a view to Shareholder Value, the company must consider the following questions:

- Should the company try to reduce its own CO₂ emissions or should it buy allowances?
- Is it decisive whether the price is DKK 50 or DKK 100 per tonne CO₂?

The answers depend on several things, including the options the company has to reduce emissions and how expensive they are compared to buying allowances as well as whether the company is growing rapidly at a national or international level and thus needs more allowances.

7.3 Summary

On the face of it, investments in environmental fixed assets will reduce the free cash flow by tying up funds. However, if there is a chance of saving environmental taxes or saving on operating costs, the investment will, in the long term, be able to improve earnings and thus Shareholder Value.

Therefore, we can distinguish between different types of environmental investment which differ significantly as to their impact on Shareholder Value. With regard to accounting only, there will be no difference, however, between an installation for remediation of harmful environmental impacts and one for cleaner technology since they are both fixed assets with a value-in-use for the company. However, with respect to investors it could be of significance to emphasise if an investment is a pure necessity for the continued operation of the company or if it also gives savings or earnings.

8 Working capital investments

Working capital investments reduce the free cash flow, but like investments in fixed assets, they are required for the company to carry out its activities and create earnings. Working capital investments cover for example consumption of materials, pay, and ongoing maintenance.

8.1 Environmental Management Accounting

There is a large number of relationships between environmental initiatives and the working capital investments of companies. Some are very obvious and will be clear from most companies' management accounting systems, while others are hidden in large cost pools. Because of this lack of transparency, it may thus be difficult to assess how the environmental work of the company affects the working capital investments and thus also Shareholder Value.

There are, however, methods to create greater transparency in relation to companies' operational environment costs. Together, these methods are called Environmental Management Accounting (EMA).

The central purpose of Environmental Management Accounting is to link the environment and management accounting closer together and thus provide management with information on the relationship between environment/energy and finance, so that it is able to make better decisions that save money and lead the company towards its goals in a speedier and more efficient manner; the decisions that provide the most cost-effective solution for society when achieving environmental objectives.

Environmental Management Accounting may be based on the theory of Activity-Based Costing where all types of cost and income are calculated in relation to selected activities so that it becomes clear where there is potential for saving or change. This also applies to Environmental Management Accounting because it relates costs and income to environmental activities. The next section gives examples of the types of costs.

8.2 Environmental working capital investments

It is no surprise in relation to management accounting that it can be problematic to give a general adequate definition of environmental working capital investments or operating costs. For example, maintenance costs, production costs and indirect costs are typically defined differently in different companies. The same may apply in relation to the financial environment information where some costs and income amounts are clearly related to the environment, some costs and income amounts are clearly not related to the environment, and some costs and income amounts are in a "grey area".

This section describes a number of cost types and their connection to the environment.

8.2.1 Operation of environmental plants and environmental work

Some of the costs that are clearly related to the environment are direct costs of the operation of environmental plants like wastewater treatment plants or of the environmental work carried out in the company. This also applies to costs of environmental certification or similar.

Such costs may include chemicals, water and electricity for plants as well as wages for staff participating in environmental work.

As applies for investments in fixed assets, the working capital investments of environmental plants will only increase the free cash flow if, in operation, it is possible to save taxes on discharges or sell CO₂ quotas.

The costs of the work with environmental management in a broader sense may, however, pay for themselves in various different ways. Because environmental work aims at reducing resource consumption and emissions, there is a possibility that the projects also entail financial benefits from optimisation of production processes.

8.2.2 Resources

The most evident connection between the environment and working capital investments is the consumption of materials and energy. From both an environmental and a cost-related point of view, the consumption of materials and energy must be as low as possible per product. Environmental projects focusing on resource savings will also lead to cost savings and thus improved Shareholder Value. Since the costs of materials and energy are usually registered, these types of savings will be clearly identifiable in the management accounting system. Therefore, this is typically the first type of project to be implemented in companies introducing environmental management.

8.2.3 Indirect costs

However, several types of cost may be reduced when resource consumption is made more efficient than is immediately apparent from management accounting.

The figure below shows a simple production process for a clothing manufacturer. In each of the three process steps, part of the fabric is cut off or spoiled so that it becomes waste. In this process, the company incurs costs for the materials proper, but energy, machine time and pay have also been consumed to process the material that becomes waste.

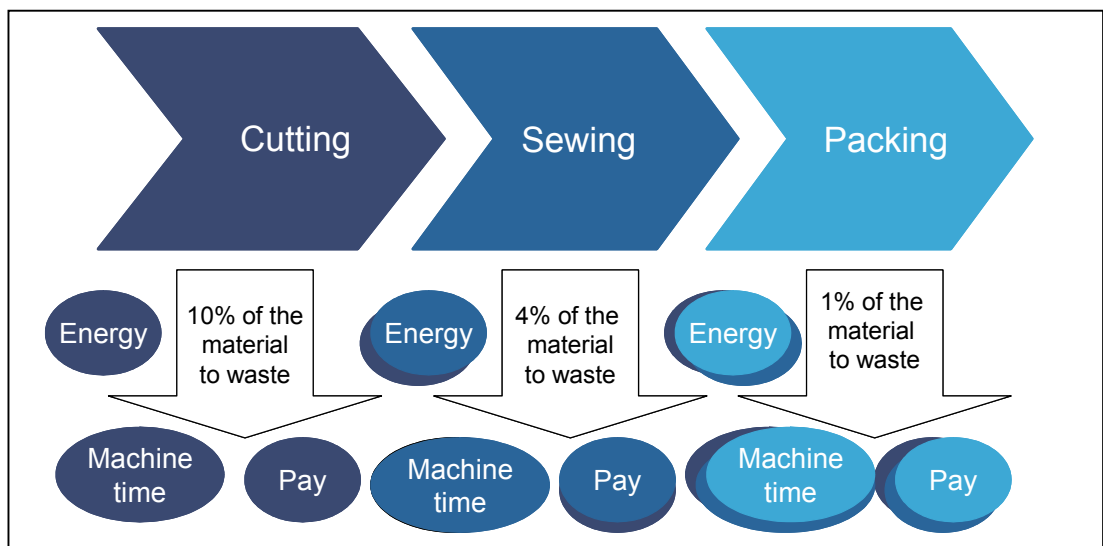


Figure 5: Hidden environmental costs of waste generation in a clothing manufacturer

The total costs of losses to waste are thus significantly higher than the costs of the materials and the taxes to be paid for waste removal which are the factors registered in most companies. As a consequence hereof, a reduction of waste arisings will also mean significantly greater financial savings, which is important to consider in connection with investments in projects for waste reduction or when the costs of environmental work are assessed.

8.3 Summary

On the face of it, working capital investments reduce the free cash flow, but if the environmental plants and the environmental work create tax savings and savings on other operating costs, these environmental working capital investments may have a positive influence on the bottom line.

In many companies, the operating costs are related to environmental conditions hidden in overall cost pools that make it unclear what the individual environmental initiatives lead to in terms of financial savings on working capital investments.

Until greater transparency has been achieved in the cost structures, it is difficult for management to assess the impact of the environmental initiatives on working capital investments and, ultimately, on Shareholder Value.

With greater transparency, the company will be able to supplement its accounting information with information indicating how the working capital investments have developed as a consequence of environmental work and thus to justify its environmental initiatives to investors.

9 Earnings: sales growth and operating profit margin

In order to create Shareholder Value, the company must be able to create earnings. In this connection, the important factors are: sales growth, operating profit margin and tax on income.

In this section however, we will only look at sales growth and operating profit margin, since tax on income is not relevant in an environmental context. This is because Danish income taxation has no direct relation to the environment, so there is no tax-related benefit or penalty for companies with regard to environmental initiatives. However, it is possible to save on specific taxes as mentioned in the investments section.

Sales growth is an important parameter to create a free cash flow, since this is the way greater amounts of money can be earned. However, growth is not an objective in itself if it does not create a greater profit. It is therefore important to compare sales growth with the operating profit margin.

In order to achieve the greatest possible earnings, we basically need to sell as much as possible (sales growth) at a given price, which should preferably be as high as possible. Of course, this requires that the company's product is attractive to customers - and preferably more so than the competitors' products.

As a basis for the further analysis of the relationship between earnings and the environment, we have decided to take as our point of reference the competitive situation of the company as described in Michael E. Porter's Five Forces model (1980, 1985).

According to Porter, there are five overall parameters that decide the competitive situation of the company.

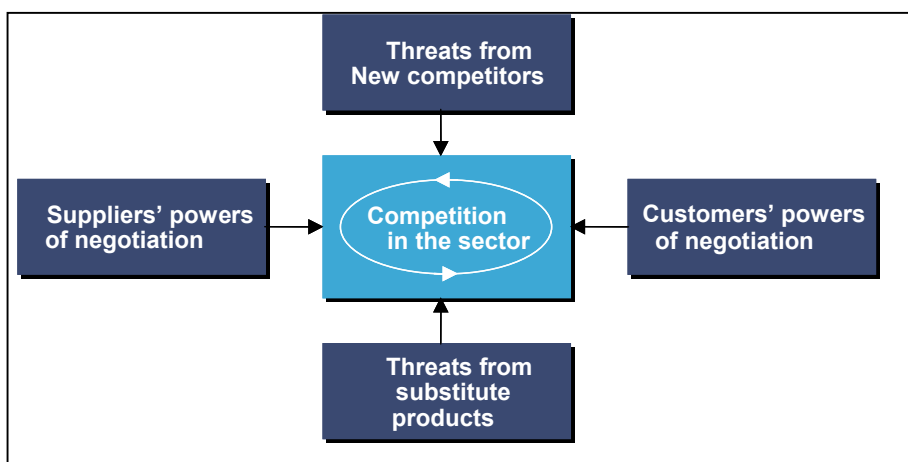


Figure 6: Porter's Five Forces model

The five factors of the model give rise to the following general questions (Lægaard & Vest, 2003, p. 60-61):

1. What is competition like between the existing players in the sector?
2. Which threats are there from new competitors in the sector?
3. Which threats are there from substitute products?
4. What is the bargaining power of the customers?
5. What is the bargaining power of the suppliers?

The rationale of the model is that the earnings potential of the sector decreases the stronger the five forces are. However, companies may be positioned very differently within a sector, and the company that is strongest with regard to the five forces "wins" the earnings.

In the following sections, the five forces will be described and we will assess how the environment can push the forces in different directions.

9.1 Competition in the sector

The level of competition within the sector depends, amongst other things, on how many competitors there are and their size in relation to each other. Moreover, it is important if the sector is experiencing growth and the market is increasing, or if there are internal battles over a stagnating market. In addition, it is significant for competition if the products of the sector are very similar and where it is easy for customers to change from one product to another. Very homogeneous products lead to a higher risk of price competition and reduce the loyalty of customers because it is easy for them to switch to a competing supplier.

Some of these parameters are not immediately possible to change, but the company basically has two options to improve its competitiveness in relation to the other companies: competition on price or product differentiation. Here, environmental conditions may have a significant influence.

With regard to competition on prices, the production costs can be reduced as a consequence of making environmental performance more efficient and thus give rise to reduced prices. Legislative environmental requirements requiring environmental investments may, on the other hand, make production more expensive and thus place the company in a less favourable competitive position. However, this disadvantage is not important if the same legislation applies to competitors as well. Over the years, some companies have reduced costs by "dumping" the environment. However, since this poses a great risk for the company's reputation and since more and more countries now apply the "polluter pays" principle, such a strategy could backfire.

It is also possible to differentiate products environmentally. The company may market its product as environment-friendly and will thus give it an advantage over products that are less environment-friendly. Of course, this requires that the company can document that the products or the production is more environment-friendly. Some companies do this through environmental certification of production or by having their products ecolabeled. Other companies choose to make an environmental information label that talks about the product's environmental impacts, or they provide more general information about their environmental performance in environment or sustainability reporting.

9.2 Threats from new competitors

Threats from new competitors depend particularly on the access barriers and how the established companies are generally expected to react to a new company in the sector.

Environmental conditions may form access barriers for new competitors. If a country has restrictive environmental legislation, it may be difficult for companies from abroad to meet these requirements and thus enter the market. For example, this has been pivotal in the Danish debate on the return system where legislation on the use of glass bottles kept companies out of the Danish market.

Established companies may also form barriers by having a certain environmental standard and by having created expectations of this among consumers.

9.3 The bargaining power of the customers

The more dependent the company is on individual customers, the greater the bargaining power of those customers and thus the possibility for them to put pressure on the price and make requirements for the product. As described in the section about competition in the sector, the bargaining power of customers is also dependent on the extent of product differentiation in the sector and how easy it is for customers to switch to a competitor.

Again, the environment could be a parameter that could strengthen the company's product in relation to the customers. According to information from the European Commission on the eco-label, the Flower, four out of five consumers are willing to pay more money for a product, provided that it is checked by an independent organisation. The company could thus stand stronger in relation to certain customer groups if it has an environment-friendly product.

9.4 The bargaining power of the suppliers

The bargaining power of the suppliers depends on how easy it is for the company to switch suppliers and whether the supply risks becoming a restriction of the development of the company.

If a company commits itself to environment-friendly purchases, this may increase the bargaining power of the suppliers because the choice of suppliers is reduced. The environmental product itself may also be limited. For example, this applies to FSC labelled wood that guarantees sustainable forestry, because there are relatively few suppliers in relation to the total market.

9.5 The threats from substitute products

Substitute products include products from other sectors that may cover the same need and thus displace the company's product from the market. This consideration is very relevant with regard to the environment.

One example could be energy generation being substituted by the production of insulation materials. It could also be car production being substituted by public transport or similar. In view of this, the company must be aware of the environmental trends and assess whether its product has an environmental profile that makes it likely that some customers will try to find substitutes. Some companies start at their own

initiative. Years ago, a company like Royal Dutch Shell redefined itself from being an oil company to being an energy company, and the company now also works with alternative types of energy.

The focus on the environment could thus contribute to business innovation which is very important to create long-term Shareholder Value.

9.6 Summary

Environmental conditions may entail both risks and opportunities for the company when it comes to earnings.

It will vary from company to company whether the environmental initiatives lead to a more or less expensive product.

In some sectors, environmental concerns will be a minimum requirement from customers so that there is no benefit to be gained by living up to them, but in fact a risk is taken if the company does not live up to them. In other sectors, a green image or a product that is environmentally advantageous has a competitive edge in relation to current and future competitors. Likewise, the threat from substitute products could be smaller if the company has an environmentally sound alternative. It could, however, entail a risk if the company is dependent on special environmentally certified suppliers.

Conversely, a company that has less control of its environmental conditions or is not optimising its products environmentally could run a risk of being driven out of competition by new, more environment-friendly products or substitute products. It may also face customer requirements that could be difficult to meet. The risks may not be great at the moment, but any company must consider possible future risks.

Thus, it is not possible to say that environment-friendly companies will generally have higher or lower earnings than less environment-friendly companies. This would require an analysis of the competitive conditions of the individual company.

10 Cost of capital

Cost of capital or WACC (Weighted Average Cost of Capital) equals the return the company's investors and lenders expect on their investments. As described in the section on Economic Profit, a company increases value for its investors if it creates a profit that is higher than WACC and thus reduces the Shareholder Value if the profit lies below WACC. The required rate of return of investors and lenders will depend on the company's risk profile. The greater the risk, the greater the required rate of return.

This makes the company's management style and risk management important parameters in relation to Shareholder Value. These are also parameters that are central to the concept Corporate Governance (the relationship with Corporate Governance is described in further detail in chapter 14).

10.1 Environment risks

In the Nørby Committee's report on Corporate Governance in Denmark, the environment is mentioned as an important factor companies ought to include in their risk management:

"Risk management also focuses on procedures for damage control, the formation of contracts, safety at work, environmental issues and safeguarding physical values." (The Nørby Committee, 2001, p. 62)

Environment risks may include:

- Environmental incidents where costs are incurred for subsequent remediation or measures to reduce the extent of pollution.
- Ban on the use of specific chemicals or materials. A company could risk that a chemical is being phased out and that it will thus have to convert its production.
- The company's product is banned or loses its market due to environmental conditions. For example, the future CO₂ allowances could reduce the demand for fossil fuels. This could also apply to consumer boycotts of special products like genetically modified foods.
- Introduction of legislation on extended product liability through which the company becomes obliged to take back products after use for recycling.

If the company does not always keep up-to-date with future legislation and expectations from society, it thus runs a risk of losing its production or customer base.

10.2 Management of environmental risks

Many risks are, of course, sector specific, but there may be great differences as to how different companies in the same sector manage risks. A clear example of this is

shown in the CERES report "Corporate Governance and Climate Change" (2003). The report analyses how 20 of the world's companies have decided to approach the greenhouse effect in their business strategies and governance practices. All companies in the report are within the oil and auto industries. Two industries where the production and products lead to large emissions of greenhouse gases.

The analysis is made on the basis of a "Climate Change Governance List", identifying 14 specific actions that companies are taking to implement governance responses to climate change.

Climate Change Governance List

Board level

1. Assign a committee of directors with direct oversight responsibility for environmental affairs.
2. Conduct a formal board-level review of climate change and monitor company response strategies.

Management level:

3. Place the chief environmental officer in a position to report directly to the chief executive officer or the CEO's executive committee.
4. Make attainment of greenhouse gas targets an explicit factor in employee compensation.
5. Have the CEO issue a clear and proactive statement about the company's climate change response and greenhouse gas control strategy.

Reporting

6. Include a statement on material risks and opportunities posed by climate change in the company's securities filings.
7. Issue a sustainability report based on the Global Reporting Initiative or comparable "triple bottom line" format, which includes a discussion of climate change and a listing of the company's greenhouse gas emissions and trends.

Emissions data

8. Calculate and register greenhouse gas emissions savings or offsets from company projects.
9. Conduct a system-wide inventory of the company's emissions and report the results directly to shareholders.
10. Establish an emissions baseline (dating back at least 10 years) by which to gauge the company's emissions trends.
11. Make projections of future emissions and set firm, company-wide targets to manage and control them.
12. Hire a third party auditor to certify there are no material misstatements of the company's emissions data.

Other actions

13. Participate in an external voluntary greenhouse gas emissions trading program.
14. Purchase and/or develop renewable energy sources.

The analysis assesses the extent to which each of the 20 companies has conducted the 14 actions. The result of the study showed that there were great differences within the sector. The Europe-based oil companies had implemented all 14 actions, while their American competitors had only followed four or five. The auto companies ranged between five and ten actions, so there were also certain differences in this area, but the picture was not as clear geographically.

As the example illustrates, there is no difference in the potential risk the companies are subject to, but there are great differences in the way risks are managed and thus what the risk becomes for the individual company.

The actions mentioned in the 14 points are also included in the Nørby Committee report which recommends "***that the board ensures that there are appropriate systems for risk management in place and, moreover, ensures that such systems meet the requirements of the company at any time. (...) The risk management system must define the risk and describe how this risk is eliminated, controlled or hedged on a continuous basis.***" (The Nørby Committee, 2001, p. 62)

It is, of course, also important to tell investors that the company is managing its environmental conditions. More and more companies include environmental information in their financial reporting.

10.3 Access to special funds

Besides the fact that investors generally assess the risk of a given investment, good environmental management also gives access to special ethical funds that emphasise that the companies in which they invest are among the most environment-friendly companies or meet a specific code.

11 Value Growth Duration

Value Growth Duration concerns the future value creation in the company. In pricing shares, the market implicitly assigns a finite time period to the company's expected ability to create Shareholder Value. This is the period in which the return on an investment or a product is higher than the cost of capital. This period is called Value Growth Duration (VGD), and according to Rappaport (2002), the period ranges from 15-25 years for companies with proven competitive advantages to a duration approaching zero for poorly positioned competitors or those in highly competitive industries. A very clear example of a VGD period could be a patent period where the competitive advantage disappears when the patent expires.

11.1 Environmental risks and opportunities

Like WACC, VGD will be dependent on future risk aspects. This may include future environmental legislation or changes in consumer attitudes which could affect production costs or earnings.

Companies that do not include environmental conditions in their risk management thus risk being overtaken by companies that have prepared for these risks.

Since VGD concerns the future and thus many unknown factors, it is more complicated to quantify the impact of the environment on Shareholder Value, but there are examples of assessments of the impact of future legislation on the competitive conditions of a business sector.

Repetto & Austin (2001) have prepared a method for analysing the impact of future legislation on companies' financial position and the competitive situation of the business sector. The method has been applied in the American paper industry (Repetto & Austin, 2001) and in the oil industry (Austin & Sauer, 2001). In a number of environmental areas within each industry, scenarios have been set up for possible legislative initiatives, and the costs of such initiatives for the individual companies have been assessed. The analyses clearly indicate which companies are best prepared to manage future legislation and thus the company's future risk profile.

12 Keeping a check on Environmental Shareholder Value

Chapters 7-11 draw a picture of the general relationships between Shareholder Value and the company's environment. The questions below could form a good basis for mapping the extent of the knowledge of these relationships in a company and whether a company works with them in a structured manner. If not, the questions can be used as a check list of items to focus on in such a mapping. A company can ask itself the questions or investors and other stakeholders can ask the company the questions.

Fixed capital investments

- ***Are environment savings and costs considered in connection with investment assessments?***
- ***Are environmental conditions considered in connection with the assessment of, for example, new technology?***

Working capital investments

- ***Does management know the financial significance of environmental conditions for the company?***
- ***What environment-related costs does the company have?***
- ***What environment-related income or savings does the company have?***

Sales growth and operating profit margin

- ***Does the company know the environmental conditions of its market?***
 - ***Is the environment a parameter in the existing competition on the market?***
 - ***Are there environmental barriers to new competitors?***
 - ***Are customers interested in environmental conditions?***
 - ***Are there bottle-necks for environment-friendly supplies?***
 - ***What are the threats from substitute products that are more environment-friendly?***
- ***Are environmental concerns included in product development?***
- ***Does the company provide information on the environmental conditions that its stakeholders generally and its customers in particular are interested in?***

Cost of capital

- ***Risk management:***
 - ***How does management ensure that the company complies with environmental legislation?***
 - ***Does management know the company's environmental risks?***
 - ***Does management receive information on an ongoing basis regarding environmental developments, so that it can control them?***
 - ***Does the company know its stakeholders and their attitudes?***
 - ***Does the company communicate with its owners and stakeholders on the issue?***
- ***Is the environment being included in assessments when buying and selling divisions or other companies?***
- ***Does the company report on environmental conditions of interest to the investors?***
- ***Does the company's reporting illustrate the relationship between the environment and Shareholder Value?***

Value Growth Duration

- ***How does management keep up-to-date on future environmental legislation and ensure that the company complies with it?***
- ***Has management prepared a strategy for future environmental legislation?***
- ***Have financial assessments been prepared of the future impact of environmental legislation on Shareholder Value?***

13 Calculation example for the interplay between the environment and Shareholder Value

This chapter gives three examples of how the company's environmental conditions could impact Shareholder Value and how this could be underlined in the key figures.

All the examples are for the fictive company ESV A/S which produces electric appliances.

Below are the key figures from ESV A/S' 2003 annual report. The figures have been calculated on the basis of the income statement and the balance sheet which can be found in appendix A. These figures form the basis of the calculations of the significance of the environment for the Shareholder Value of ESV A/S.

The company's key figures	1999	2000	2001	2002	2003
EBITDA (%)	10	9	9	9	9
NOPAT (DKK million)	30.4	32.6	44.6	46.1	48.7
ROCE - Return On Capital Employed (%)	19	18	20	17	16
Economic Profit, EP (DKK million)	17.3	17.8	26.7	24.7	24.6

Table: Key figures for ESV A/S as they appear without environmental economic calculations

13.1 Investment in cleaner technology and the effect on EP

In 2002, ESV A/S made an investment of DKK 6 million in cleaner technology. The purpose of the cleaner technology was to reduce ESV's annual CO₂ emissions by approx. ten per cent. Since ESV A/S has a large own production of energy, the company will be subject to the EU's CO₂ emission allowance trading system. It is expected that ESV A/S will have a CO₂ emission allowance for 2005 onwards, which entails an obligation to reduce emissions by approx. ten per cent. If the investment had not been made, ESV would have to expect to buy allowances or, at worst, pay an allowance fee of EUR 40 per tonne for each of the years 2005-2007 and EUR 100 per tonne for the years 2008-2012.

We will now study the effect of the future savings on the investment and the Economic Profit (EP) for the investment year 2002. Since we do not know the market price for CO₂ allowances, ESV decides to apply the allowance fees that are known.

The table below shows the expected savings in allowance fees discounted to present value in the investment year 2002.

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Expected no. of tonnes CO ₂ without investment	11,700	12,400	12,500	12,600	13,000	13,000	13,500	13,500	14,000	14,000	14,500
Expected savings with investment, measured in allowances (tonnes CO ₂)	-	-	-	1,100	1,100	1,100	1,250	1,250	1,250	1,250	1,250
Value of allowance fees saved (DKK '000)	0	0	0	328	328	328	931	931	931	931	931
Discount factor 8%	1.000	0.926	0.857	0.794	0.735	0.681	0.630	0.583	0.540	0.500	0.463
Present value of the allowance fee saved (DKK '000)	3,255	-	-	260	241	223	587	543	503	466	431

Table: Calculation of the present value of the allowance fee saved

The discounted value of DKK 3.255 million is deducted from the invested capital which would correspond to setting the investment of DKK 6 million at DKK 2.645 million, taking into account the saving from the investment.

The required rate of return on the invested capital is 8 per cent for ESV A/S, and as can be seen from the figures for the company (table 1), the net operating profit after tax (NOPAT) of ESV A/S in 2002 was DKK 46.1 million. On the basis of these figures, we have the following result:

	Calculation without regard to the allowance fee saved	Calculation with regard to the allowance fee saved
Invested capital (DKK million)	268.0	264.7
Economic Profit (DKK million)	24.7	25.0

Table: Comparison of Economic Profit including and excluding environmental saving

If the savings from the investment are taken into account, the EP thus becomes DKK 300,000 higher than in the traditional calculation.

13.2 Resource efficiency and the effect on ROCE

In 2002, ESV A/S implemented an optimisation process leading to a reduction in consumption of materials of 2 per cent. Moreover, the process entailed that the inventory of raw materials was also reduced by 2 per cent.

In order to assess whether the result was worth the investment, management decides to find out what the effect of the process was on the finances of the company. We calculate what ROCE and Economic Profit would have been in the optimisation had not been implemented.

<i>Key figures</i>	<i>2002</i>	<i>2003</i>
NOPAT including resource optimisation (DKK million)	46.1	48.7
NOPAT excluding resource optimisation (DKK million)	43.5	46.0
Capital employed including resource optimisation (DKK million)	173.0	158.0
Capital employed excluding resource optimisation (DKK million)	173.3	158.3
ROCE including resource optimisation	40%	47%
ROCE excluding resource optimisation	38%	44%
EP including resource optimisation (DKK million)	24.7	24.6
EP excluding resource optimisation (DKK million)	22.1	21.9

Table: Calculation of traditional key figures and figures as they would have looked if the environmental project had not been implemented

As can be seen from table 4, the optimisation has entailed that:

- Net Operating Profit After Tax (NOPAT) has increased as a consequence of the reduced resource consumption.
- The capital employed has fallen as a consequence of the minimisation of the inventory.
- These two effects together result in an increase in ROCE of 2 per cent and 3 per cent in 2002 and 2003 respectively.
- In terms of improved Economic Profit, this means increased value of DKK 2.6 million and DKK 2.7 million in 2002 and 2003 respectively

13.3 Product Liability (take-back obligation) and the effect on EBITDA

In 2002, ESV A/S made provisions of DKK 8 million for costs related to the implementation of the future directive on take-back schemes for waste electrical and electronic equipment. The directive means that the manufacturer becomes responsible for the financing of collection, treatment and disposal of end-of-life and scrapped products. The directive is not expected to enter into force until 13 August 2005, but it also includes collection of products sold before this date.

The provision was calculated on the basis of the 2002 revenue. The obligation to finance take-back of products sold before 2002 is disclosed in the annual financial statements as a contingent liability due to uncertainty as to the financial extent of the obligation. In 2003, the provision was adjusted to DKK 10 million due to the change in the 2003 revenue. In the long term, ESV A/S expects to be able to recover part of these costs through the sales price, but this has not been possible for 2002 and 2003.

The significance of the provisions for earnings, EBITDA and Economic Profit are calculated below.

<i>Key figures</i>	<i>2002</i>	<i>2003</i>
EBITDA including take-back obligation	9.2%	9.1%
EBITDA excluding take-back obligation	10.0%	10.3%
NOPAT including take-back obligation (DKK million)	46.1	48.7
NOPAT excluding take-back obligation (DKK million)	51.4	55.3
EP including take-back obligation (DKK million)	24.7	24.6
EP excluding take-back obligation (DKK million)	30.0	31.2

Table: Calculation of key figures including and excluding take-back obligation

As can be seen, EBITDA would have been 0.8 per cent and 1.2 per cent higher if the company did not have to make this provision, and Economic Profit would have been DKK 5.3 million and DKK 6.6 million higher in 2002 and 2003, respectively.

14 Setting the three elements in motion

The environment, Shareholder Value and Corporate Governance. How are these things connected?

Shareholder Value and the environment alike represent business goals. Furthermore, as illustrated by the report there is a correlation between the two goals. This correlation is sometimes positive and sometimes negative. However, the two concepts seldom stand alone.

At present, only few companies are equipped for measuring and managing these correlations. The implementation of Corporate Governance principles aiming at both Shareholder Value and environmental objectives is the managerial approach to setting the correlations in motion.

Chapter 12 contained a number of questions for mapping the correlations between the environment and Shareholder Value in the company. Similarly, questions could be posed as to the specific challenges of the company's Corporate Governance and its correlation to Shareholder Value and the environment. The questions were built up around the items in the Nørby Committee's report, which was introduced in chapter 5. They may thus be used for determining whether the basic conditions for good management of Shareholder Value and the environment are met by the company.

The role of the shareholders and their interaction with the management of the company

Shareholders have an interest in having good access to company information. They are thus given good opportunities to exercise influence in an informed manner at general meetings. Shareholders may not immediately request environmental information if they do not see the financial relevance of such information. The company can, however, illustrate this through a correlation of Shareholder Value and the environment.

The role of the stakeholders and their importance to the company

Another aspect of good Corporate Governance is that the company maintains good relations with anyone affected by the company's activities. For example, this may be employees, neighbours, customers, or interest organisations. Specific initiatives include drafting an environmental policy as well as regular dialogue with stakeholders.

This environmental policy should provide the overall guidelines for environmental work. The policy must be realistic and reflect the level of the company's environmental work. Thus, the environmental policy will show the actual state of environmental work, and it may be supplemented by a vision for the company's environmental conditions in the longer term.

Environmental policy may also be seen as an area where the company formulates and accepts a responsibility to society. This responsibility should, preferably, tally with the expectations of investors/owners and society in general.

- ***Does the environmental policy tally with the expectations of owners and stakeholders?***
- ***Does the board of management support the environmental policy?***
- ***Does the board of directors support the environmental policy?***

- ***Does the board of management know whether the environmental policy reflects the actual environmental work?***
- ***Does the board of directors know whether the environmental policy reflects the actual environmental work?***
- ***Does the environmental policy reflect the actual environmental work?***
- ***Does the company know its stakeholders?***
- ***Does the company communicate with its stakeholders? What is this dialogue used for?***

Openness and transparency

Reporting is a pivotal element in "openness", which is one of the key ideas of Corporate Governance. It should be possible for the outside world to keep informed of whether the company meets its social responsibilities - both ethically, financially and legally. Moreover, openness and transparency are preconditions for qualified feedback from the company's stakeholders - including shareholders.

- ***Does the company report on the environmental conditions of interest to the investors?***
- ***Does the company report on the environmental conditions that its stakeholders generally are interested in?***
- ***Does the reporting illustrate the relationship between the environment and Shareholder Value?***

The tasks and responsibilities of the board of directors

In many companies, the environmental activities have mainly been placed with a management support function at operational level in the company instead of with the company's top management.

If the board of directors does not know the environmental risks and opportunities, decisions could be made on the wrong basis. This environmental knowledge does not necessarily mean that a decision would turn out differently. However, it does mean that the board of directors and the board of management have made the decision on an informed basis.

- ***Does the board of directors know the company's environmental risks and opportunities?***
- ***How is knowledge sharing effected in the organisation with regard to the environment?***
- ***Is the environment included as a parameter in internal management reporting?***
- ***Are there key figures for the environment and environmental economics?***
- ***Are environmental risks and opportunities being mapped systematically when major decisions are taken?***

The composition of the board

If the board of directors is to be able to consider the environmental risks and opportunities, it must have members with appropriate competences.

- ***Is knowledge about the environment included as a criterion when the board of directors is constituted?***
- ***What are the environmental competences of the existing board of directors?***

Remuneration of the board of directors and the board of management

- ***Is the environment included as a parameter in performance pay of the board of directors and the board of management?***

Risk management

- ***How does management ensure that the company complies with environmental legislation - now and in the future?***
- ***Does management know the company's environmental risks?***
- ***Is the environment being included in assessments when buying and selling divisions or other companies?***
- ***Does the company know the environmental profile of its market?***

The framework exists for making correlations between the environment and Shareholder Value and thus improving the company's basis for making decisions and seeing the value of environmental work.

At the level of the board of directors and the board of management, the tools lie in the principles of Corporate Governance and in a comparison of the environment and Shareholder Value in selected key figures. At the level of the board of management and in the daily management of production, the tool lies in the integration of the environment and operating economics in Environmental Management Accounting (EMA).

Since the environment affects companies differently, the mapping of the significance of the environment for the individual company is primarily a management task required for the company to know its risks and opportunities.

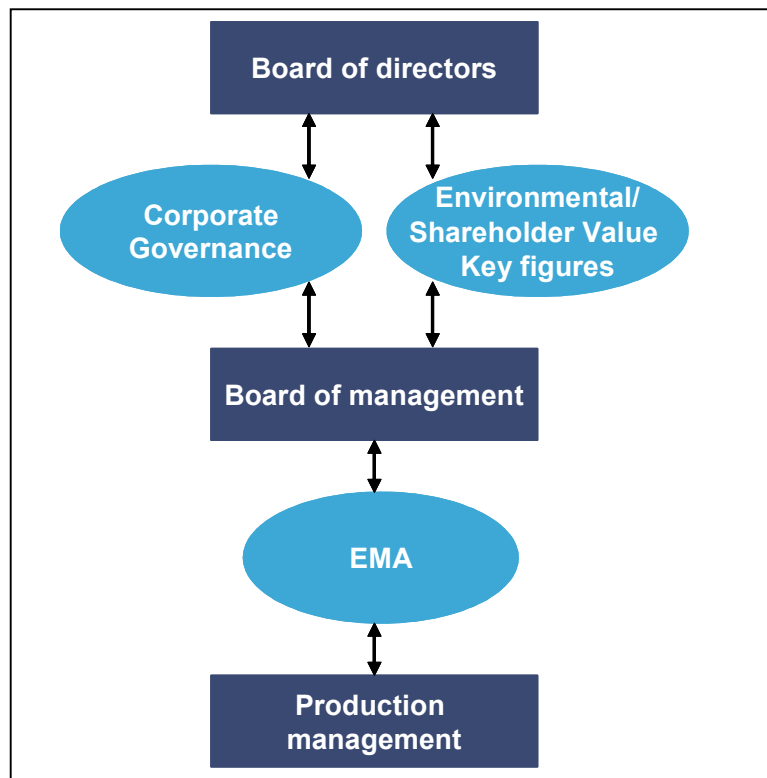


Figure 7: Tools for the company's environmental economics

The tools exist for combining the environment and financial aspects. It is a question of breaking down professional boundaries and deciding to use them.

15 Explanation of terminology

Assets	Resources controlled by an enterprise as a result of past events and from which future economic benefits are expected to flow to the enterprise
Capital value	Calculated present value of future assets and liabilities and equity
Corporate Governance	Lays down the framework for responsible corporate management
Cost of capital	Cost of capital = invested capital x WACC
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortisation.
EBITDA%	Profit margin before depreciation and amortisation Calculated as the profit before financial items, depreciation and amortisation divided by the net revenue
EP	Economic Profit EP = NOPAT - (Invested capital x WACC)
Liabilities and equity	Amounts owed by the company to, for example, shareholders and suppliers
Market value	The sales price at any given time
Non-interest bearing liabilities and equity	Equity capital and provisions
NOPAT	Net Operating Profit After Tax
ROCE	Return On Capital Employed Profit before financial items divided by the capital employed
Shareholder Value	The value generated by the company for its shareholders. This includes the developments in the company's market value (market price) and regular dividends paid to shareholders
WACC	Weighted Average Cost of Capital

Income statement and balance sheet for ESV A/S 2003

Income statement

DKK million

	1999	2000	2001	2002	2003
Net revenue	470	600	870	900	950
Production costs	410	523	759	785	828
Gross profit	60	77	111	115	122
Distribution costs	9	12	17	18	19
Administrative expenses	11	18	26	27	29
Capacity costs, total	20	30	43	45	48
Profit before financial items	40	47	68	70	74
Financial income	2	2	6	4	4
Financial expenses	3	4	4	5	6
Financial items	-1	-2	2	-1	-2
Profit after financial items	39	45	70	69	72
Profit before tax	39	45	70	69	72
Income taxes	9	14	24	24	25
Profit for the year	30	31	46	45	47
Tax percentage	24%	30%	34%	34%	34%

Balance sheet

Assets DKK million

	1999	2000	2001	2002	2003
Goodwill	3	3	2	2	1
Development projects	1	5	0	0	5
Intangible assets	4	8	2	2	6
Land and buildings	29	28	27	26	25
Plant and machinery	19	25	30	32	30
Other fixtures and fittings, tools and equipment	43	40	56	67	70
Property, plant and equipment*	91	93	113	125	125
Securities	8	17	20	42	33
Investments	8	17	20	42	33
Fixed assets	103	118	135	169	164
Inventory	75	96	139	144	152
Trade receivables	50	64	70	80	90

Other amounts receivable	10	12	15	14	19
Amounts receivable	60	76	85	94	109
Cash	5	6	6	2	15
Current assets	140	178	230	240	276
Total assets	243	296	365	409	440

Liabilities and equity <i>DKK million</i>	1999	2000	2001	2002	2003
Share capital	10	10	10	10	10
Retained earnings from previous years	62	87	113	154	194
Retained earnings	30	31	46	45	47
Dividend distributed for the year	5	5	5	5	5
Equity capital	97	123	164	204	246
Deferred tax	12	10	12	13	15
Provisions	20	21	15	19	20
Total provisions and deferred tax	32	31	27	32	35
Debt to mortgage-credit institutions	23	21	19	17	15
Long-term liabilities other than provisions	23	21	19	17	15
Short-term part of long-term liabilities other than provisions	2	2	2	2	2
Bank loans	15	14	17	15	17
Trade payables	40	61	101	89	73
Corporation tax	4	9	13	24	23
Other payables	30	35	22	26	29
Short-term liabilities other than provisions	91	121	155	156	144
Liabilities other than provisions (short- and long-term)	114	142	174	173	159
Liabilities and equity, total	243	296	365	409	440
*Annual depreciation on property, plant and equipment			10%		

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