Ethical Investments

- Towards a Sound Theory and Screening Methodology

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Sammanfattning/Summary

This study aims to test and develop methods for environmental and social screening of companies in order to support informed investment decisions. Among others the report deals with the following questions:

- What are the characteristics of current ethical screening methods?
- What steps and criteria should be included in an ethical screening?
- What are advantages/disadvantages of intuitive methods versus analytic methods?
- How should gathered information be evaluated?
- Does social screening differ from environmental screening?

The available literature on ethical screening and decision making has been evaluated. Also, the current screening practices in Sweden and elsewhere were mapped and analysed. Subsequently a flowchart for ethical screening was developed and the method was tested in three case studies.

The overall conclusion of the study is that it is both common and motivated that different objectives are used for ethical screening. These different objectives lead to different preferences regarding methods for screening. But to conduct a more elaborate screening, competence concerning companies' ethical practices and the capital market is essential.

We acknowledge that intuitive and informal steps always will be present in a screening process. But, to ensure comparability, we believe it is crucial that the overall approach is analytic, formalised, and transparent

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Foreword

This study was carried out from 1999 to 2001 by Markus Åhman, Lars Zetterberg and Marcus Carlsson Reich at IVL Swedish Environmental Research Institute, and by Olof Zaring and Rolf Wolff at Chalmers University of Technology. Skandia Insurance Ltd and the Swedish Environmental Protection Agency jointly financed the study. Skandia has also generously provided access to different types of data.

The report was written at Scancor, Stanford University, California, and we gratefully acknowledge Scancor's hospitality.

Abstract

This study aims to test and develop methods for environmental and social screening of companies in order to support informed investment decisions. In the report we deal with the following basic questions:

- Is ethical screening possible?
- What are the characteristics of current ethical screening methods?
- What steps and criteria should be included in an ethical screening?
- What are advantages/disadvantages of intuitive methods versus analytic methods?
- How should gathered information be evaluated?
- Is it possible to rank companies?
- What kind of data should be collected?
- How can these data be evaluated?
- Does social screening differ from environmental screening?

The available literature on ethical screening and decision making has been evaluated. Also, the current screening practices in Sweden and elsewhere were mapped and analysed. Subsequently a basic theoretical flowchart for ethical screening was developed, with the following steps:

1. Defining the Screening Objectives
2. Defining Screening Criteria
3. Collecting of Data
4. Evaluation of Companies.

This method was tested in three case studies, in which the screening was made for a hypothetical investment universe.

The overall conclusion of the study is that it is both common and motivated that different objectives are used for ethical screening. These different objectives lead to different preferences regarding methods for screening. But to conduct a more elaborate screening, competence concerning companies' ethical practices and the capital market is essential.

We acknowledge that intuitive and informal steps always will be present in a screening process. But, to ensure comparability, we believe it is crucial that the overall approach is analytic, formalised, and transparent.

CONTENTS

1 Introduction

During the last few years, an increased interest in ethical fund saving has been observed.[*] Today, approximately one and a half percent of the private fund saving in Sweden is placed in ethical funds, but the growth-rate is strong. In USA some 10-20% of the total fund saving is in some form environmentally and/or ethically screened (SIF, 1999). Thus, the Swedish market for ethical screening will most likely increase in importance.

Ethical investment is often seen as an important step towards a sustainable society, and it is sometimes even argued that ethical investment increases profit on savings in the long run. However, one issue that can easily create a crisis of confidence in ethical investments is the screening process (the assessment of what companies to include in ethical investments). The screening processes used today often lack in transparency, are difficult to communicate or are incomplete or even lack connections to the environmental and ethical impact of the assessed corporations (cf. Stone, 2001).

1.1 Objective of the Study

This study aims to test and develop methods for environmental and social screening of companies in order to support investment decisions.

In the report, the following basic questions are dealt with:

- **Is it possible to perform ethical screenings?**
- **What are the characteristics of current ethical screenings?**
- **What should be included in an ethical screening?**
- **What methods are preferred: intuitive or analytic methods?**
- **How should the information be evaluated?**
- **Is it possible to rank companies?**
- **What data should be collected?**
- **How can these data be evaluated?**
- **In what ways does social screening differ from environmental screening?**
- **How does one handle the acquired data?**

1.2 Delimitation

This study concerns what is commonly called Ethical Investments (EI). We are almost exclusively dealing with portfolio selection and methods for the assessment of companies for investment purposes. However, we recognise that this is not universally accepted as a comprehensive definition of EI. Other activities, most notably Shareholder Advocacy and Community Investments are by some investment managers considered just as relevant in the EI concept as portfolio screening. Those activities are not treated in this study, not because we dispute that they may indeed have a place within the definition of EI, but because they simply fall outside the scope of this study.

In this study, we assume that ethical screening is separated from the financial screening (see figure 1.1 below). It is not evident that this is the best way of including ethical issues

[*] In this report we use the term "ethical fund", which covers as a common nominator all fund products that are ethically, environmentally and or socially screened.

in the screening of a company, but it is the approach most commonly used by financial institutions. The financial screening was therefore not included in this work.

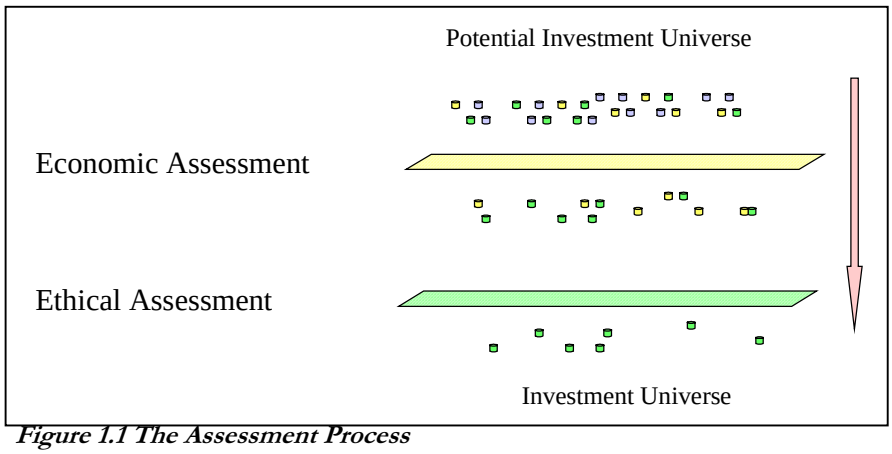


Figure 1.1 The Assessment Process

1.3 The Project's Research Process

First, the literature on ethical screening and decision making has been studied. Also, the current international practices were described and analysed. In the next step, a basic theoretical flowchart for ethical screening was developed. This flowchart was tested, including several sub-methods for the different steps in the screening process. Three case studies were conducted, where the screening process was performed on a hypothetical investment universe.

1.4 Structure of the Report

As a result of our research, the screening process has been structured into a flowchart of four universal steps. All steps of the screening process were studied, and for each step, different methods and approaches were tested and analysed. As the characteristics of the problems encountered in the screening steps differ, each step is covered within a separate chapter in the report.

As the case studies are important for the results of the study, they have been described in the text where appropriate. The report is structured as follows:

Chapter 2
Background material on how ethical screening is conducted today, to what extent, and by who is presented. Four major and interesting actors and their methods are mapped and analysed. Financial return from ethical funds is also discussed.

Chapter 3
In a theoretical description, important concepts and theoretical standpoints are defined. The problems of ethical knowledge and decision making are discussed, and the structure of the proposed screening process flowchart is defined and motivated.

Chapter 4
The first step of the screening process, the establishment of the screening objective, is treated. The main distinction is between whether the objective of the ethical screening is to save the world or to maximise profit.

Chapter 5
The operationalisation of the screening objective development, i.e. the establishment of issues of relevance and development of screening criteria, is the second step of the screening and is treated in this chapter.

Chapter 6
The third step of the screening flowchart, the issue of data gathering, is dealt with, through the description of the first case study: data collection.

Chapter 7
In a second case study, a simplified evaluation method was tested.

Chapter 8
The subject of evaluation is developed in full. Several approaches are analysed, and a preferred line of assessment is suggested.

Chapter 9
In this chapter uncertainties in the screening process are discussed.

Chapter 10
In a discussion chapter, the central issue of the decision making process in ethical screening is treated.

Chapter 11
The conclusions are presented as answers to the questions posed in the scope of the study in this chapter.

1.5 Our Research Context

The research presented here is part of a larger research context in which environmental and corporate social responsibility plays a central role. Several studies and projects have influenced us in writing this particular report.

In 1999 the research team completed an international study of some 110 environmental funds. We were interested in understanding a.) how environmental funds are composed, b.) what criteria portfolio managers used and c.) whether and why these funds were financially successful or not. This study showed that so-called "environmental funds" were differently structured than ordinary funds. Criteria for selection of investments were basically and foremost based on "environmental" aspects. Financial performance was very often a neglected demand and financial performance of environmental fund products very often was poor. Especially technology oriented funds were volatile due to the fact that the companies that were included very often acted in "political" markets, that is they were dependent on subsidies and when these subsidies were withdrawn from the markets, company performance was poor.

In 1996 we initiated and were involved in a project within the oil industry, including five global companies (Amoco, BP, Conoco, Shell and Statoil). This study attempted to understand environmental impacts and social responsibilities of these companies and what management processes that are needed to implement sustainable operations and products. We developed a methodology that dealt with these issues along the value chain and came up with a system for capturing, assessing and comparing CSR in the oil industry (Wolff/Zaring, 2000).

From 1996 through 2001, we have developed methods that allow banks to assess environmental risks. These assessments are used as a part of a larger credit risk assessment.

In 1997, we developed a method to assess the economical burden carried by a company due to environmental issues. The method was tested in a case study involving two Swedish companies.

In 1998 we started a study on defining and developing environmental performance indicators for Swedish industries, across business sectors. One main finding of that study was that it is possible to find a common ground for environmental indicators across and within business sectors.

Finally, a study on how and if environmental information can influence investors has been conducted the last years. One finding of that study is that the structure of the financial market in itself has an influence on whether and how environmental information is used in the investment decision process (Zaring, 2001, forthcoming).

In conclusion, we claim that an understanding of the overall context is crucial for the ethical screening of companies. Understanding companies' ethical practices is a basis for financial evaluation. The structure of the financial market in itself has an influence on the dissemination of environmental information. Depending on the screening process, little or much knowledge is required with regard to how a financial actor evaluates a company. Relatively little in depth knowledge is required when it comes to the negative exclusion of a company; much more substantial knowledge and information is required when it comes to selection of "best-in-class" companies. It is in this context that we believe we can make a unique contribution. In our research during the last eight years we have covered areas that are relevant for the understanding of the context in which screenings are conducted.

2 The Current State of Screening Practice[1]

2.1 Background

The interest in ethical investments has grown over the last decade. This general type of investments has been available at least since the 1920s in the United States, where it now can be considered to be a firmly established market segment (Stone, 2001; SIF, 1999). In Japan it is claimed that in 1999 assets worth 1,5 billion USD were managed under the requirements for ethical screening (Environmental Finance, 2000).

Table 2.1. ***Trends in U.S SRI (source: 1999 Trends Report, Social Investment Forum)***

(Billion US$)	**'97**	**'99**
Screening	529	1497
Shareholder advocacy	736	992
Screening and shareholder advocacy	84	265
Community investing	4	5,4

The European and Swedish interest has increased more recently. In Europe, as we are writing, some 70 funds exist that use ethical screening. In England, 12 billion pounds in assets are screened with some sort of ethical criteria. (Environmental Finance, 2000). The UK legislation taking effect in mid-2000 has intensified the attention at ethical issues in all types of funds in that market. Several Swedish fund managers have offered "environmental funds" or "ethical funds" aimed at consumers for at least some ten years. According to several reports the experiences of managing these funds have been mixed: some product types have failed, while others have been successful in certain respects (Naturvårdsverket, 2000). Additionally, the Swedish State pension funds have recently adopted new investment guidelines. These new guidelines require that some ethical screening be made for the assets in those funds, which will probably further increase the attention paid to the issue of ethical investments.

The focus of this report lies in the area of screening methods used to find the desirable components for an investment portfolio. The screening methods used today differ widely, and products can be further differentiated along this dimension in considerable detail. This section of the report starts with a general review of evidence about the markets for ethically screened investments. Then an analysis of four prominent methodologies is described. The section is concluded with an analysis of the strengths and weaknesses of ethical screening in financial terms.

2.2 Market Review

2.2.1 Volumes

The US market for ethical investments amounted to a market capitalisation of USD 1 497 billion in 1999. This amount comprised approximately 10% of the total market capitalisation at that time. This situation was preceded by a 183% market growth since 1995 (Social Investment Forum, 1999). In the spring of 1999 total assets under management in Scandinavian environmental funds amounted to approximately SEK 3,4 billion, and the Swedish portion of that amount represented around 1,5% of the total market capitalisation on the Swedish stock market. The British stock market is the

[1] This section is largely taken from Zaring (2001 forthcoming).

European market with the highest proportion of ethically screened investments with some 37% of the assets being screened in the year 2000 (Environmental Finance, 2000).

Several stock indexes have been developed to provide benchmarks in this market. On the regional level there are examples such as the DSI 400 and the Citizen's Index in the United States. Global index families are represented by the Dow Jones Sustainability Group index (launched in 1999), and the FTSE family of indexes (launched in early 2001). More specialised indexes are also available, such as the IMPAX ET-50 which supplies a benchmark for environmental technology funds, cf. Figure 2.3. However, the screening methodologies used by the index suppliers differ in significant respects as will be shown in our cases.

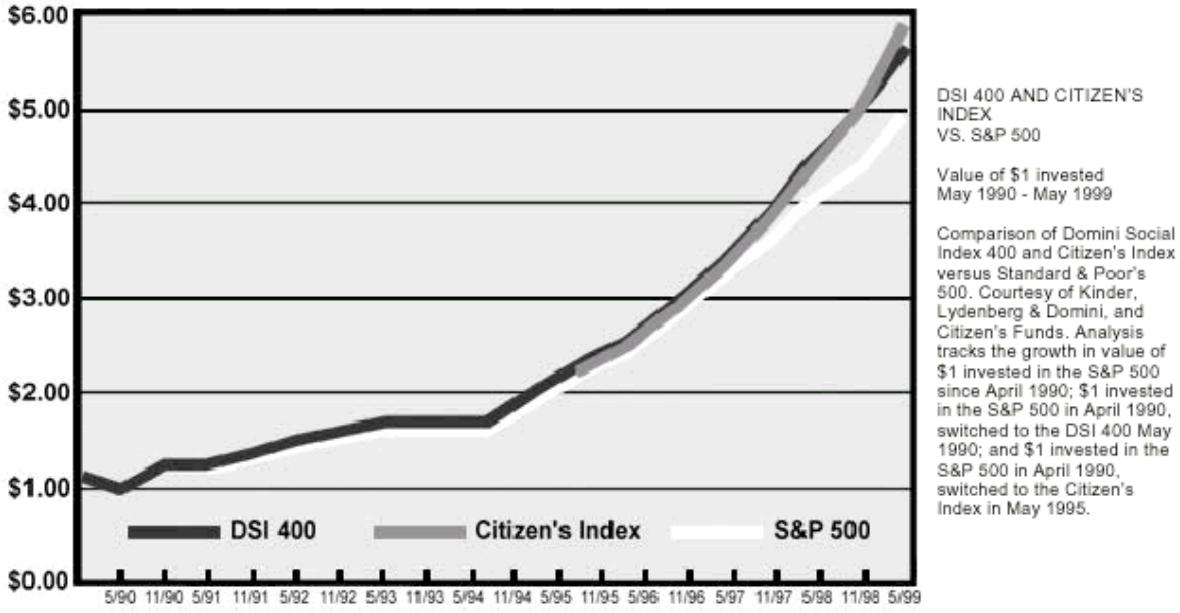


Figure 2.1. The historical development of the Domini Social Index 400 and Citizen's Index (Source: 1999 Trends Report, Social Investment Forum).

As can be seen in figure 2.1, and figures 2.2 and 2.3 below such indexes can provide excess returns in specific time periods.

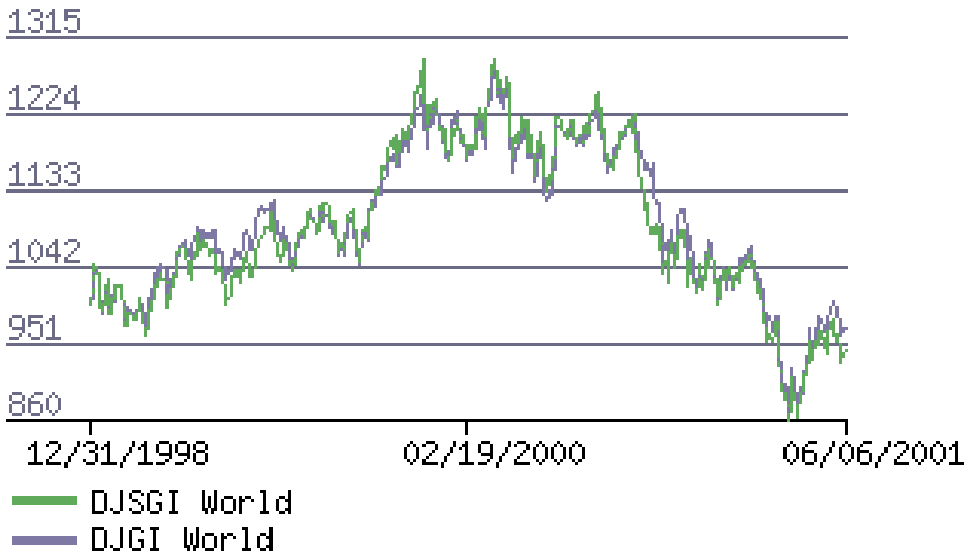


Figure 2.2. The historical development of the DJGSI.

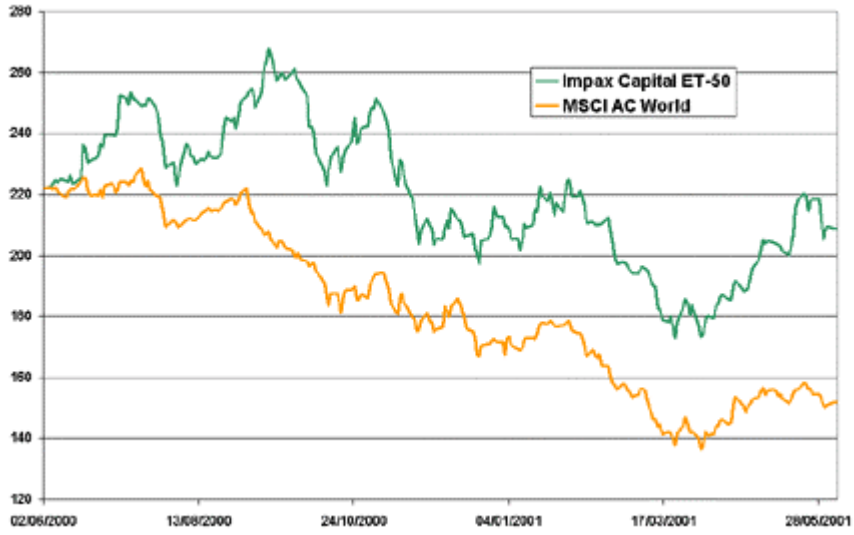


Figure 2.3. ***The IMPAX Capital ET-50 index.***

2.2.2 Actors

Most socially screened products are either supplied by specialised money management firms, such as KLD (Kinder, Lydenberg, and Domini & Co. Inc.), Calvert or SAM (Sustainable Asset Management AG), or based on screenings performed by consultants such as EIRIS or IRRC (Investor Responsibility Research Center). Several actors in the field combine both types of services, SAM and Impax Capital to name two. The traditional actors in the financial market, such as index publishers, banks, or insurance companies, usually employ the services of such specialists to deliver their ethically screened products, an example being Dow Jones' use of SAM to perform the ethical screening for the Dow Jones Sustainability Group Index. The size of each actor range from one-person operations to comparatively large consulting companies. There are also ongoing attempts at forming networks of institutions active in this field. One such network is SIRI (Sustainable Investment Research International), which includes KLD

among its members. Historically, specialised investment and money managers as well as many of the consultants were often connected with religious organisations or other interest groups. The purpose was to provide screening services for the management of the organisations' assets, usually by excluding what they considered morally inferior companies.

2.2.3 Aims and Methodologies

Investment and money managers have several different approaches to ethical investing. Funds often combine different approaches such as:

- screening, e.g. "negative" or "positive" screening, and
- shareholder advocacy, or
- direct investments in desirable activities such as environmental technology oriented (cf. "community investing" in Table 2.1)

Ethical investing may refer to all investment and money management activities undertaken according to certain ethical aims instead of, or in addition to, purely financial considerations. Ethical investments usually involve the screening of investment portfolios according to certain ethical criteria as well as financial criteria.
American fund managers usually use more than one approach for ethically responsible investments. 88% of the managers surveyed by the Social Investment Forum in 1999 used three or more criteria: most ethically screened mutual funds screen out tobacco, alcohol, and gaming securities, as well as companies involved in weapon manufacturing. Most also refuse to invest in nuclear energy, as well as in companies with poor records on environmental performance, workplace issues, sexual and gender diversity, or human rights. The criteria are usually used to exclude companies that violate any of the criteria. However, in some cases the criteria are used to find positive examples and include companies rather than exclude them. The criteria in use are usually similar in Europe and other parts of the world.

2.3 Descriptions of Different Screening Practices

The diversity in products in the area of ethically screened investments may be daunting to the prospective investor. The products may be categorised according to the *aim* of the product, e.g. an "environmental", "ethical" or "sustainability" fund. They may be categorised according to the *actions performed* during the management of ethically screened investments such as according to the different types of screening methods used; or by using shareholder resolutions ("shareholder advocacy" in Table 2.1) to influence companies. Another typical action performed is to set aside part of the returns on the assets of a fund for charities and the like. Furthermore, the products may be aimed at certain market niches such as consumers or institutional investors. The funds also use different investment universes, e.g. regional or global indexes. In this section the results of an in-depth study of some selected ethical screening methodologies are reported. The aim was to find the most representative screening methodologies of different kinds in current use. This part of the study is based on data collected by directly contacting four companies doing ethical screening. Company representatives with different internal functions were interviewed several times in each company, and documentary data on the screening methodologies was collected.

The selection of funds to be profiled started with a broad scanning to identify a gross list of ethical funds. The material on ethical funds gathered initially covered more than one hundred such funds. The next step was then to select a few funds for in-depth study, and the following characteristics were sought in the selection process:

- Funds with a comparatively high amount of assets under management
- Financially successful funds
- Funds which have a unique screening process

Funds considered to screen assets for symbolic reasons were excluded. Also, funds with an obvious mismatch between the fund's aims and the quality of the screening process and screening results were excluded.

Four screening processes and their related funds or indices were subsequently selected:
- The DSI 400 Index and KLD's associated research process covering North American stocks.
- Robur's Environmental Fund and the related screening process covering Nordic stocks
- The Dow Jones Sustainability Group Index and Sustainable Asset Management's screening process covering global stocks.
- Storebrand's Global Principle Fund and the related screening process covering global stocks.

KLD's Ethical Research and the DSI 400 Index

KLD screens companies for the DSI 400 index, which is based on the Standard & Poor 500-index (S&P 500). The screening was made for the first time in 1990, cf. figure 2.1 above. Areas covered by the screening are "community"[2], "diversity", "employee relations", "environment", and "product quality". No hard environmental data is used in the screening. Quantitative environmental data such as data on emissions are not collected or analysed during the KLD assessment (such data are referred to as "hard data" in Table 2.1 below). Traditional exclusive screens are used in addition to the qualitative profiling, these screens include "involvement in military contracting", "alcohol", "nuclear power", "gambling", and "tobacco".

The screening process activities consist of a research procedure resulting in the creation of company profiles, which are stored in a database, called *Socrates*. The profiles show the ethical strengths and weaknesses of each company on the S&P500. These profiles are used to decide what companies to include in, or exclude from, the DSI 400 index. The decisions to add companies to the index are based on the profiles but also on the need to stabilise the index so that it tracks its "mother index", the S&P 500. The output universe, the DSI 400, contains 80% of the input universe.

2.3.1 Robur's Screening Process and The Robur Environmental Fund

The idea behind Robur's Environmental Fund, of Sweden, is to select best-in-class companies from the Nordic countries. "Environment" is the only ethical area covered by the research and the fund focuses on "environmental management" and "environmental performance". The fund was started in 1996.

The MSCI Nordic Index is used as the input universe. Companies' with a market capitalisation below a certain level are excluded in a first step. The analysis then proceeds by categorising the remaining companies into groups with similar environmental

[2] Words within citation marks in this section are direct quotes of the nomenclature used by the different actors described here.

characteristics. The evaluation then has a number of consecutive decisions, each of which decreases the number of companies that are left in the screening process. Prior to each decision additional information is gathered and analysed. However, no hard environmental data, such as quantitative data on emissions, is evaluated in the decision process. No formal or quantitative weighting method is used, but rather a "holistic" approach.

The output universe has no defined size or percentage of the input universe. In average the screened output universe is 10-20 % of the input universe. This percentage varies significantly between industries.

2.3.2 Sustainable Asset Management (SAM) and the DJSGI Index

Sustainable Asset Management AG (SAM) of Switzerland conducts a screening based on the concept of "Corporate Sustainability". This is defined as finding the companies, which create "long term shareholder value by grasping the opportunities and avoiding the risks caused by "economic", "environmental" and "social" changes". Hence, the selection process could be seen as a form of financial analysis using supplementary and unusual data. The screening was made for the first time in 1999. The process creates and maintains an index called the Dow Jones Sustainable Group Index (DJSGI) of some 200-250 components, based on an input universe, the Dow Jones Global Index, of some 2000 components. Thus, the output universe contains roughly 10% of the input universe.

SAM focuses on opportunities and risks associated with stakeholders' opinions and reaction to economic, environmental and social change. SAM's evaluation process consists of two different parts: the annual assessment of companies and the continuous media monitoring. The annual assessment is made by using a formalised weighting system to rank companies. The maximum score is 72 points, which is equally divided between "social", "environmental", and "economic" indicators. The annual assessment is based on the information given in questionnaires sent to the companies in the Dow Jones Global Index. Quantitative environmental data, such as data on emissions are collected and analysed during this assessment. This is referred to as "hard data" in Table 2.1.

2.3.3 Storebrand's Ethical Screening Process and the Global Principle Fund

Storebrand's Principle Fund, of Norway, and its related screening process covers environmental issues and lately also human right's issues. The fund was started in 1996. The goal for the fund is to select companies which are among the top 30% companies on environmental and human rights performance, and at the same time are among the top 30% financial performers of the fund's input universe, the MSCI-World Index. The input universe is the whole MSCI-World Index of 1200-1300 companies.

The evaluation system is based on eight environmental indicators: "global warming", "ozone depletion", "material intensity", "toxic releases", "energy intensity", "water use", "product characteristics", and "quality of environmental management". These indicators are weighed during the assessment. The environmental and human rights' evaluations are made separately. Depending on what industry is being evaluated the indicators are given different maximum weights.

2.4 Analysis of Implicit Screening Theories and Objectives

The ethical screening of companies and the creation of financial products based on such screenings are guided by very different theories that explain the aims of the screening.

These theories are rarely explicit, rather are they hidden in the methodology applied. These implicit theories held by the actors in the ethical market niche guide product development and may principally be interpreted along three dimensions: financial, environmental and social. Combinations along these dimensions create a possible space for product development. In Chapter 2 it was described that ethical screening companies could be grouped according to the degree of formalism in their screening methods. In figure 2.4, the four screened products have been mapped according to an approximate estimation of the intuitiveness or formalism; numbers are only for illustrative purposes. It can be seen that different screened products form different sets and that some products are subsets to other. The depiction of the product illustrates that different screening processes may be based on different implicit theories.

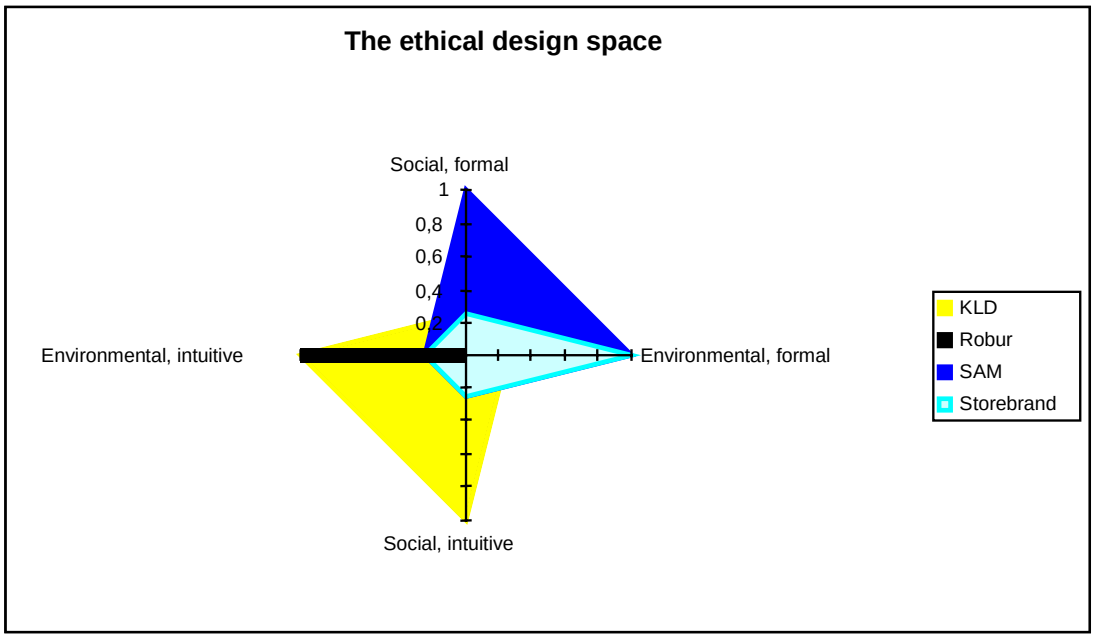


Figure 2.4. An example of describing the different implicit theories in the "ethical design space". Robur's product only uses the environmental dimension and is shown as a line.

Some such theories claim that a focus on financial performance will provide the best outcome for the environment and society in the long run, as the market will sanction damaging companies company behaviour. Another "environmentalist" theory would claim that economic interests are always directly hurting the environment and therefore restrictions should be imposed on all economic activities. The financial market can – through focusing environmental aspects – create additional sanctions within that market. A third theory claims that social responsibility is the guiding principle for companies and economic performance, for the companies' shareholders and its employees, is part of that responsibility. Based on these dimensions we are able to classify some representative fund products that exist.

2.5 Analysis of the Screening Profiles

While no generalisations can be made based on this analysis it is evident that some conclusions can be drawn. A variety of common components are used in different combinations, reflecting a **heterogeneity** in the rationale and aims of the screening. The usage of particular components is somewhat **polarised** as to certain aspects reflecting a difference in style between different actors: some use an intuitive approach while some are rather formalistic. The most important characteristics pertain to, cf. Table

2.1 below:

1. **The use of environmental data.** Certain of the screening analysts collect and use hard environmental data while some do not. This does not seem to be connected with the resources available for analysis (number of analysts), but rather reflect the competencies of the respective research teams.
2. **The characteristics of the decision making once data have been collected.** Some use an analytical and formal approach based on quantitative weighting, while other use an intuitive and informal approach based on individual judgements of analysts in combination with experts in the form of panels.
3. **The resource needs deemed necessary to screen companies.** The same general population of companies, such as the MSCI-world or the Dow Jones Global Index can evidently be researched by a small as well as a large research team. This could indicate that some screening approaches are more efficient than others are.
4. **Data verification by using independent data sources**. Some analysts consider it necessary to verify data supplied by companies, while others consider it unnecessary. This does not seem to be related to the size of the research team which otherwise would have been an obvious explanation.

Table 2.1. Summary of the findings for the four screening processes.

Findings	KLD Ethical Research	Robur	Sustainable Asset Management	Storebrand
Differences in the input universe	Annual screening of companies in the S&P 500 (regional), no reassessment of a company once it is included.	Screening every other year of the companies in the MSCI (regional) Nordic Index	Annual screening of the companies in the Dow Jones Global Index	Annual screening of the companies in the MSCI Global Index, preceded by a financial screening of the companies in the index.
Resource requirements[3]	Uses a large number of in-house analysts.	Small in-house research team.	Uses a large number of in-house analysts.	Small in-house research team.
Approaches to information gathering	Questionnaires employed generally. Response rates for vary between 25-70% mainly depending on the type of collection (interviews/mail) method and the input universe's geographical dispersion.			
	No verification of data provided by companies. No hard environmental data are used.	No verification of data provided by companies. No hard environmental data are used.	Verifies information provided by companies. Hard environmental data are used.	Verifies information provided by companies. Hard environmental data are used
Formalisation and use of judgmental decisions in screening.	Informal decision making based on analysts' evaluations. Best in class and exclusion used to rank companies.	Informal decision making based on analysts' evaluations. Best-in-class ranking of companies.	Quantitative weighting in a formal scoring procedure used to rank companies. Best in class and exclusion used to rank companies.	Quantitative weighting in formal scoring procedure used to rank companies. Best-in-class ranking of companies.

[3] "small" team here refers to a handful of analysts, while "large" refers to a larger group with often organised with specialists for different issues.

2.6 *Financial Return from Ethical Funds*[4]

2.6.1 Financial Market Research

In the academic field, one interesting area of research on financial markets is based on the notion that a financial market has two basic categories of actors, cf. the seminal work of Berle and Means, and the more contemporary developments on agency theory, (Berle and Means, 1932; Jensen & Meckling, 1976). According to this theory one category of actors, the principals (in this case the investors), hold assets that can be freely invested with the aim of increasing the total assets. Such investing is assumed to be made by buying securities, usually stocks or bonds, issued by the managers of companies. The securities are bought on the assumption that they will provide a future return to the holder, the investor, of the security. The agents of the investors, such as company managers, act under the obligation to deliver the returns on invested assets to the principal. They are expected to promote the interests of their investors in all their actions. In real life the principal would be any investor and the agents would be the managers of the firms issuing securities such as shares of equity. Research has often had the aim of developing schemes for ascertaining that managers act in the interest of the shareholders in the company, i.e. that they should have disincentives for diverting assets for personal use or incentives to deliver the returns to the investors. One such scheme mentioned elsewhere in this chapter is ”shareholder value”, cf. Rappaport (198x).

The investor buys and sells shares based on the information provided by the managers of firms and the investor can compare different firms according to his or her preferences. This results in investment decisions to buy the shares of particular firms. Thus the aggregate of the decisions to buy or sell shares set the price on securities by analysing information about future returns to be delivered by firms' managers. This comprises the capital market.

Now, one might ask what this has to do with the environment or ecological sustainability? The relevance is based on the fact that companies use natural resources to increase the wealth of investors. The managers, as agents of a firm’s investor, strive to produce more goods and services at a higher profit margin. This leads to managers’ searching for larger amounts of cheap raw materials, less costly production processes, and efforts to increase output prices. Usually, or at least often, this behaviour has resulted in a degradation of the natural environment.

In economic theory this “traditionalistic view” on the role of corporations and its managers has been associated with Milton Friedman (Friedman, M., 1962, 1970, Friedman M. and Friedman, R., 1980). His position can be summarised as follows:

- Business leaders have a prime responsibility to owners of shares to maximise shares value. Managers act as agents of shareholders. They have as such no mandate to embark on socially responsible projects, if and when these activities do not contribute to enhanced abilities to generate firm profits. In addition, managers should not refrain from profitable investments that – of course – should satisfy all legal constraints. Managers own personal social agenda should thus not be confused with their shareholder responsibilities.

[4] This section is largely taken from Zaring (2001 forthcoming).

In the Friedman world "the social responsibility of business is to increase profits" (1962:133). In Friedman's terms corporate social responsibility is a "subversive doctrine": "Few trends would so thoroughly undermine the very foundations of our free society as the acceptance by corporate officials of a social responsibility other then to make as much money for their stockholders as they possibly can. This is a fundamentally subversive doctrine" (op cit., 133).

Further Friedman's argument says that managers do not have comparative advantages when it comes to implementing social programs. These arguments are, of course, convincing to some extend. We do claim though, that the social agenda since the 60s has changed considerably. Today, more than 50 of the 100 largest economies in the world are companies. More than 85% of the world's financial development resources are controlled by business. Governments are weakened and the corporate world plays an ever more important role for solving poverty, environmental and other social problems.

However, aside the "traditionalistic view", one class of investors nevertheless hold a preference for selecting firms that have a beneficial influence on the environment, and that use resources in a more ecologically sustainable way. Assuming that the capital market function as described in figure 2.5, such an investor would then analyse the information about resource use and environmental impact provided by firms' managers to select stocks to invest in.

However, the pricing of environmental information does not function effectively in everyday practice (Zaring 2001 forthcoming). Environmental information is not forthcoming from corporations in a way that can be readily used by investors in their decision-making processes. Even if companies delivered such information it is notoriously difficult to interpret. This means that it can be very difficult to establish whether an investment is truly ecologically beneficial to investors.

This ambiguous situation has also created a new role and market for the producers of "environmental" and "ethical" funds in effect acting as the middlemen of investors with an interest in environmental issues. Such producers, such as fund need an assortment of specialist consultants to increase the credibility of their product offerings. As was shown earlier in this chapter, this situation is already very much a reality. To conclude, one could say that the part of the capital market that caters to this class of investors requires a different structure, where there is a third class of actor in the market, in addition to the principal and agent. This latter actor, known as the principal agent, intermediates in a market in which information about investments is exceedingly complex (Bricker and Chandar, 2000).

Thus, the capital markets role and functioning in relation to sustainability is potentially an important one. However the need to analyse complex environmental information makes the market more complex and introduces hindrances and filters in the reciprocal information flows between the principal and agents operating in the environmental market-segment. It might prove difficult to establish whether the agents of "environmental investors" really act according to the wishes of their principals.

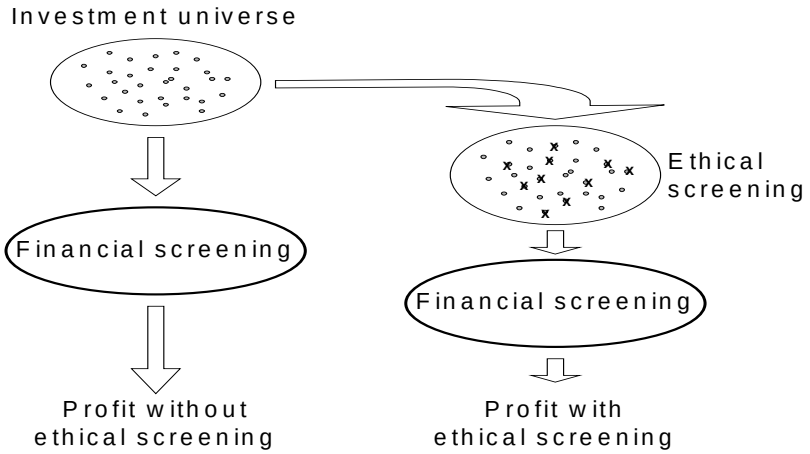


Figure 2.5 Conceptual picture of profit with and without ethics screening

2.6.2 Is Ethical Investments and Shareholder Value a Contradiction?

In order to sort out the issues related to the discourse on shareholder value versus social responsibility we built on Pava/Krausz (1996) which is a comparative study of the association between social responsibility and financial performance. The study is an analysis of 21 studies conducted in the time span of 1972 to 1992 and reports as their "single most important observation, that 12 out of the 21 studies reported a positive association between CSR and financial performance" (op cit., 9).

The following five arguments one can find in the related literature:

1. *Socially responsible firms are identical to non-social responsible firms*. This could be due to the fact that CSR is ill-defined and/or that many companies are adapting to legal demands, whether they have own codes of conduct or not. Information about CSR is crucial and the last decade the amount of reporting and screening has contributed to a much more informed investment and public sector. It is our firm believe, that social responsible firms in fact are differently managed then those that are not.

2. *The experiments to test the association between social responsible firms and financial performance have not been carefully designed or controlled.* This argument states a difference, although the differences are not empirically substantiated due to lack in rigorous data and clear concepts.

3. *A conscious pursuit of corporate social responsibility goals causes better financial performance.* Clarence Walton (1992:60) wrote: "Corporations will be around a long time and durable organisations exist by doing things right – right in the fullest sense of the word". This expresses, although in different words, our own conviction that financial performance in the long run is a reflection of a company's inclination to pursue actions that are in accordance with the society they are part of. In the long run corporate social responsibility also makes "good business sense". Pava/Krausz's study (1996) supports this standpoint.

4. *Only firms, which perform better in terms of financial criteria, can afford a conscious pursuit of corporate social responsibility goals.* Financial performance allows for the performance of discretionary social actions. This is reported in Roberts (1992:599) who presents empirical evidence of economic performance leading to higher levels of

CSR. Economic performance, of course, directly affects the financial capability to institute social responsible programs.

5. *Sometimes, a conscious pursuit of corporate social responsibility goals causes improved financial performance.* Two types of "socially responsible actions" can be said to exist: those that, according to Friedman, are net costs for companies and those that are not. It is the second category that, according to Pava/Krausz's study (1996), contributes positively.

3 Theoretical Problem Analysis

3.1 Definitions of Important Concepts and Scientific Standpoints

3.1.1 Ethical Investments

This study concerns what is commonly called Ethical Investments (EI). We are almost exclusively dealing with portfolio selection and methods for the assessment of companies for investment purposes. However, we recognise that this is not universally accepted as a comprehensive definition of EI. Other activities, most notably Shareholder Advocacy and Community Investments (see Chapter 2) are by some investment managers considered just as relevant in the EI concept as portfolio screening. Those activities are not treated in this study, not because we dispute that they may indeed have a place within the definition of EI, but because they simply fall outside the scope of this study.

Other terms are sometimes used to describe similar or even identical practices as EI. In the United States, the term Socially Responsible Investments is the most widely accepted. We chose to use the term Ethical Investment since it is the most widely accepted term for the phenomenon we are working with in Europe. We also argue that the term ”Ethics” incorporates environmental as well as social issues, i.e., ethical behaviour means taking environmental as well as social responsibility into account.

We believe EI must incorporate three dimensions: Financial, Environmental and Social Responsibility. In this sense, the term has great similarities to Sustainability and Corporate Social Responsibility. Indeed, one could well argue that this study is all about developing methods for measuring and using CSR and sustainability aspects in investment situations. However, we prefer the term Business Ethics rather than Corporate Social Responsibility, for the same reasons as we choose Ethical Investments rather than Socially Responsible Investments. Furthermore, the study focuses on the environmental and social dimensions of business ethics. The financial aspects are so much penetrated in the financial literature, that we decided to not include this at all in our report.

So to summarise, this study concerns Ethical Investments, with the focus on methods for screening companies with regard to their Business Ethical performance. We divide Business Ethics into two main areas: environmental issues and social issues.

3.1.2 Is Ethical Knowledge Possible?

An intensive debate whether ethical knowledge is at all possible has been going on and off for the last two and a half thousand years. Some people have the belief that the term ”ethical” has no real meaning. Particularly when more classical ethical issues, like moral, what is right and wrong, what is true etc., are discussed, this opinion is common. The argument is based on the judgement that each person has her own set of values, opinions and feelings, and that ethics thus is just a matter of individual opinion. If you embrace this concept of ethics, sometimes labelled ”emotivism”, ethical knowledge is impossible and ethical inquiry is pointless (Mackenzie, 1998).

The approach of this study is that ethical knowledge is, at least to some extent and in a given cultural and sociological context, possible and has real content. To comfort the sceptic reader, according to Mackenzie (1998), much recent work in ethics argues that the emotivists’ lack of confidence in the value of empirical ethical knowledge is misplaced. Furthermore, there has been little doubt that the environment is a proper subject for

empirical inquiry. With this, we do not attempt to put an end to the debate over ethical knowledge, but we now believe we have made our scientific standpoint on the issue clear.

3.1.3 Environmental vs. Social issues

As will be discussed later in the report, we disaggregate the screening criteria into several sub-criteria. We will not define every sub-criterion here, but the two main ones already mentioned are environmental issues and social issues. We define them as follows:

Environment

Surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation (ISO 14 001:1996, definition 3.2). Surroundings in this context extend from within an organisation to the global system. The working environment, with its aspects of occupational health and safety, is in this study not included in the term 'Environment'.

Social Issues

Business ethics is here defined as an organisation's set of values and their implications for the community. What is considered good business ethics in this context is defined by the Universal Declaration of Human Rights, and Worker rights issues as reflected in the main ILO conventions (such as: 87, 98, 138, 105, 29). By "Community" we mean the community in which an organisation operates, including all relevant stakeholders. The community extends from within an organisation to the global area of company operations.

3.2 Problem-Solving, Decision Making and Judgements

Three theoretical concepts that are used in this report have to be clarified in order to make the reader understand what we mean with these: decision making, problem solving and judgement.

The large body of economic and decision theory is about rational decisions. Decisions are made on alternatives in order to solve problems. Decisions can regard many or few problems. Problem solving is about generating alternatives. It is assumed in decision-making theory that rational decisions are about choosing amongst these alternatives.

Much of research has been devoted to relatively simple decisions. In reality though, problems are interconnected and shape complex situations. Ackoff has characterised these situations:

> *"Managers are not confronted with problems that are independent of each other, but with dynamic situations that consist of complex systems of changing problems that interact with each other. I call such situations messes. Problems are abstractions extracted from messes by analysis; they are to messes as atoms are to tables and charts… Managers do not solve problems: they manage* ***messes****"(Russell Ackoff, 1979: 103).*

Practical situations are "messes" with a number of fundamental characteristics. They are not problems and thus, for the most part, they have no simple solutions. It could be said that many practical challenges are about dealing with messy situations. In messy situations, actors must respond to two demands: efficiency and adaptation. While efficiency demands are a matter of improvement of existing routines, adaptation is about an organisation's long-term ability to survive. Adaptation is about learning, i.e., an

organisation's or decision maker's ability to replace accepted routines and accepted knowledge with new strategies and new knowledge.

All actors – whether they are scientists or social scientists, investment managers or politicians – actually make three types of assessments: reality assessments, value assessments and tool assessments (Vickers, 1960/1995). These assessments are made within the framework of what Vickers calls "appreciative systems":

> *Appreciative systems are a key element in organizing and regulating human systems… They include the ability to create and alter organized patterns with subtlety, they discriminate signal from noise, the interaction of theme and variation, to harmonize disparate ideas, to mute dissonation through selective attention (Vickers, 1995:82).*

Appreciative systems are a positive concept about how people handle complex and contradictory situations. Situations are complex and can be put in contrast with the rational concept of economic research: decision.

3.3 Preparatory Discussions for the Case Studies

3.3.1 Structure of the Screening Process

The majority of the results and conclusions shown in this report are based on the case studies performed during the project. However, before the case studies were commenced, significant effort was put into designing a tentative structure and content of a screening process. This tentative structure was based on literature studies, workshops, and interviews with fund managers and corporate representatives, as well as own experiences from previous work.

In order to understand how the screening process actually takes place and how it can be structured one needs to see how it fits in the market: contacts with customers/suppliers (savers/screened companies), information flows, decision points. A conceptual description of these aspects of the screening process might look as in figure 3.1 below. The asset manager's sphere is the screening process. The consumer's sphere is the decision whether to invest or divest in the ethical fund. The corporation's sphere is the maximisation of shareholder value.

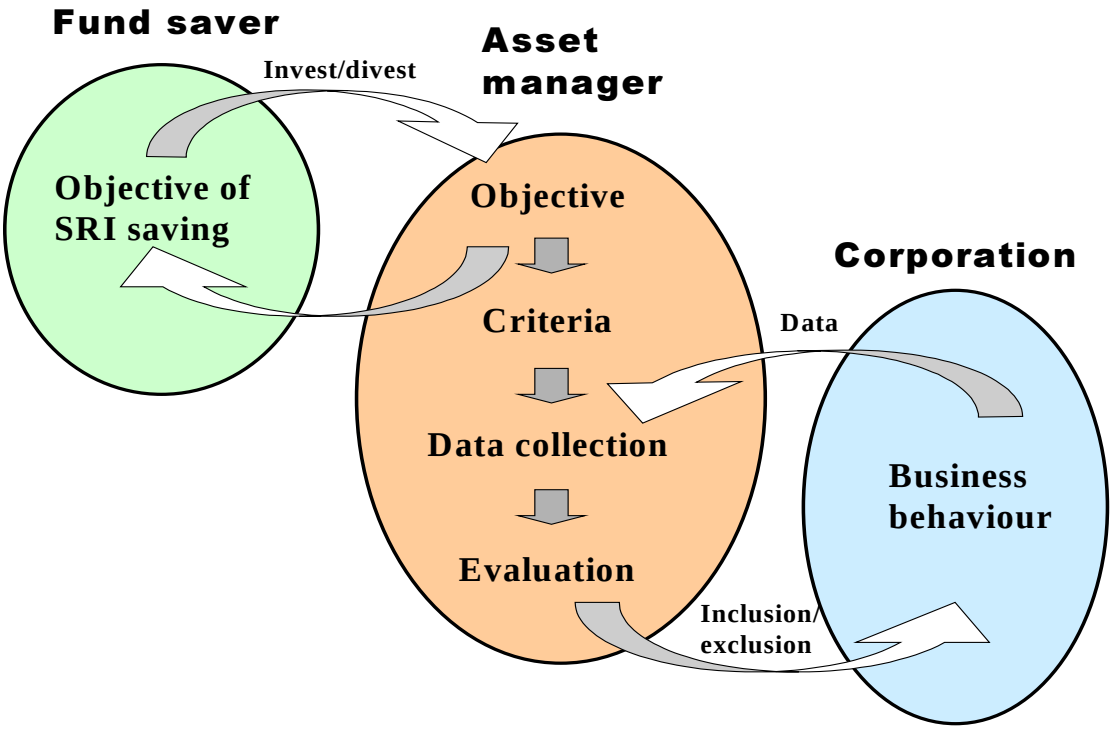


Figure 3.1. A conceptual description of the information and decision flows in ethical fund saving

The regular means of communication of environmental and social performance for the fund manager with the fund saver is the fund's objective and selection criteria. A more active fund saver might also look at the inclusion/exclusion of specific corporations (or having their attention drawn to this issue by media). Even more active fund savers might look deeper into the evaluation and validation procedure of the fund, but according to our background research this is not normally the case. The normal channel of communicating environmental and social performance between fund manager and fund saver is still the objective and criteria. Thus, if the fund saver finds the fund goal well stated, he will only divest if it comes to his attention that these goal are not fulfilled.

The tentative structure for the screening process was the following:

1. Definition of overall screening objective
2. Definition of screening criteria
3. Data collection
4. Evaluation and decision

This structure was followed throughout the case studies, and proved to work well. It helped to provide a clear understanding of what is done, when it is done and by whom, and it also aided us in the communication with different stakeholders of the screening.

In a sense this division was already a result of the study, even though many issues discovered during the case studies altered the way we look upon the screening process and its different steps. But for the sake of readability and understanding of the case studies, we present it to the reader here rather than at the end of the report.

3.3.2 Basic Requirements

We believe a number of basic requirements should be put on an ethical screening. These requirements or characteristics are very similar to the demands put on financial analysis, or on any data analysis for that matter. Two words often occur in this context: Validity and Reliability. Essentially, the basic requirements presented here specify, explain and provide a mean to achieve the meaning of those two words. It is thus our belief that an ethical screening process must show:

1. **Structure**. Structuring and organising the process provides in itself learning and understanding of the different problems that need to be addressed. A good structure also enables the decision-maker, as well as other stakeholders, to find and delve down into details of the process if necessary.
2. **Transparency and repeatability**. The process must be clearly understandable, and all decisions taken must be possible to communicate and motivate. Here, transparency is essential.
3. **Ability to handle different types of data**. Since ethical screening, maybe to an even larger extent than traditional financial analysis, relies on many different sources of information and qualitative as well as quantitative data, the screening process must enable us to use data of different types and formats.
4. **Scientific significance**. If confidence in ethical screenings is to be ensured and our understanding of the impacts of ethical screenings and how they should be performed is to increase, a scientific approach and methodology must be applied.

As will be shown in later sections of this report, these basic requirements affect many of the choices that have to be made when designing all steps of the screening process.

Furthermore, the basic information that the screening process is based on must also meet a number of criteria. These criteria or characteristics are very similar to the ones laid on traditional financial information. Since, which will be shown later in the report, an ethical analyst seldom have access to complete and perfect information, it makes sense to talk about the information as *indicators* of the ethical performance. The basic purpose of an indicator is to condense and focus complex information, thereby facilitating the solution, understanding and communication of a problem. There are a number of studies regarding the fundamental requirements for indicators and indicator sets, whether they be used for economic, social or environmental management purposes (e g Hansén et al 1999, Carlsson Reich et al. 2001, Åhman et al 2001 forthcoming). The fundamental requirements that must be met by the indicators used in an ethical screening are formulated in table 3.1.

Table 3.1 Requirements for an indicator set

Requirement		
Scientific	**Functional**	**Pragmatic**
Clear in value - showing no uncertainty in which direction is good and which is bad *Clear in content* - presenting easily understandable units that make sense *Appropriate in scale* - not over or under aggregated *Hierarchical* – in order for a user to delve down into the details that are necessary *Sensitive* – the indicators must be sensitive to changes in the system under study *Verifiable* – possible to verify by third party	*Policy relevant* – for all stakeholders in the system, including the least powerful *Compelling* – interesting, exciting and suggestive of effective action *Leading* - so that they can provide information to act on *Possible to influence* – indicators must measure parameters that are possible to change *Comparable* – if the same indicators are used in several systems, they should be comparable *Comprehensive* – the indicator set should sufficiently describe all aspects of the system under study	*Feasible* - measurable at reasonable cost *Tentative* - so that they are up for discussion, learning and change. *Timely* - compile without long delays *Participatory* - make use of the information that people can measure for themselves *Understandable* – possible to understand by all stakeholders *Few in number* not to many to handle

4 Establishing screening objectives

Essentially, the screening objective answers the question "Why should ethical issues be introduced in the portfolio selection?". It is very important to understand that the objective will affect the whole screening methodology: what issues are relevant, what indicators should be used, what information is needed, what evaluation method should be used and so forth.

We distinguish between two radically different reasons to perform an ethical screening:

1. Saving the world objectives
2. Profit Maximising objectives

With a **Saving the World** objective, the aim of the ethical screening is to, directly or indirectly, change the way companies do business, with the overall goal to change our world to a better place.

In the public debate in Sweden environmental funds have mostly been discussed in terms of "saving the world". This debate has been strongly oriented towards the private investor segment and the deregulation process in the Swedish pension system has especially encouraged financial institutions to heavily market their "ethical funds". The simple variant of these products is based on negative exclusion. Through exclusion of "bad" companies an ethical profile is accomplished in the invested universe. This at least is the claim. Here, two discussions are relevant. One is about what the exclusion really accomplishes; the other is about the selected companies and whether their profile really is better ethically.

The theory is that by excluding these kind of economic activities "bad" companies are suitably punished for doing things that the investors do not agree with ethically. It is reasonable to assume that the punishment effect is rather weak, due to the fact that the market for investments is so huge that consumer funds do have a limited impact on company's abilities to raise money on the stock market.

What could have an impact is the publicity effect, when it comes to the knowledge of consumers and the public that a company is having a business that is questionable from an ethical standpoint. The brand value of a company might take damage and thus lost trust in the brand might produce a risk.

The **Profit Maximising** objective reflects the belief that the share of a company with a high ethical performance will do better on the share market than the shares of a company with a lower ethical performance. In this study, we do not distinguish between this opinion, and the belief that companies with a high ethical performance will do better in their respective markets, and therefore be a better investment on the share market. That is, we do not discard the assumption that share price can be connected to financial performance. Someone with the Profit Maximising objective may or may not have a desire to save the world, but in this work we do not consider it to be the driving force behind the ethical screening.

Of course, it can be argued that there are almost always commercial forces behind ethical screenings performed today in the sense that they are done (or commissioned) by financial institutions with an interest to earn money from the products that they sell, in this case an ethical fund. Furthermore, some people say one objective supports the other,

others even state it impossible to achieve one without the other and that the two objectives are really one and the same. It is quite obvious that the universe in which investments are decided on is shaped as an outcome of both basic objectives, constituting a continuum (figure 4.1). Thus, these two basic objectives can be used to derive all possible objectives for an ethical screening.

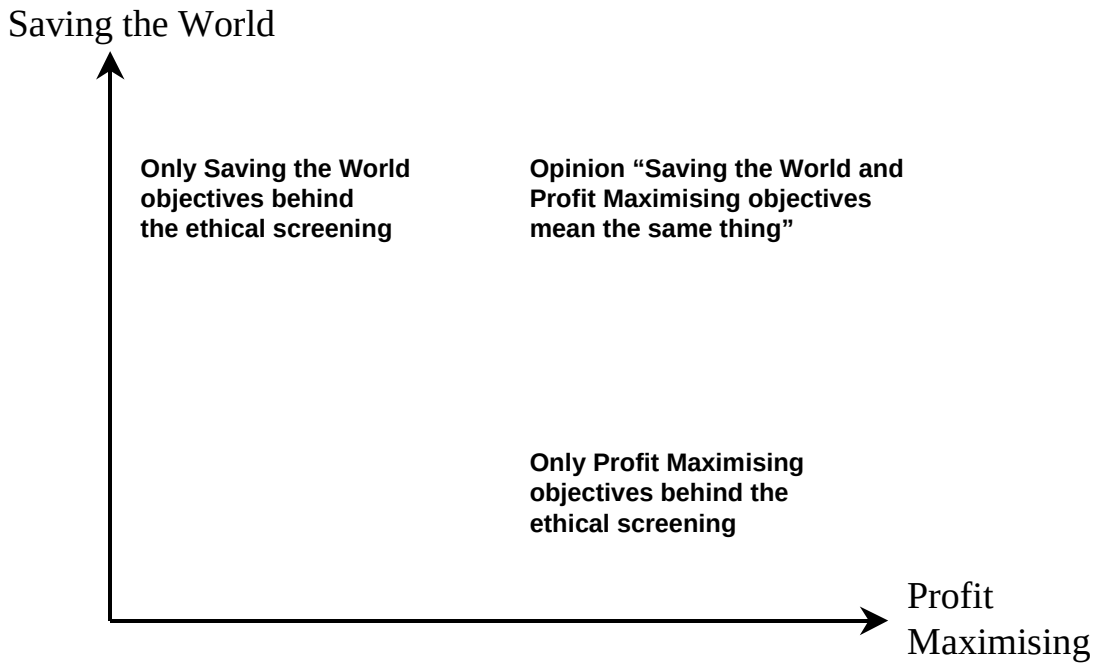


Figure 4.1. A continuum of theories to understand the implicit aims of a screening process.

5 Defining issues of relevance, parameters, and screening criteria

Once the screening objectives have been established, the next step is to identify relevant issues to analyse. In order to assess company performance concerning the issues of relevance, parameters for measuring these need to be developed. Finally, the criteria for the parameters have to be set. In this chapter, each respective step is discussed.

5.1 Defining Issues of Relevance

The issues of relevance are derived from the screening objective. They can be defined as a specification of the objective. For example, a fund wanting to invest in companies contributing to environmental sustainability, the issues of relevance could be non-contribution to global warming, economising with scarce resources, and not spreading accumulative toxic substances in the biosphere.

In order to show the scope of relevant issues, we wanted to develop a set of issues and measurable parameters that could be used for several potential screening objectives. This meant developing a long list of potential parameters covering all potential issues that can be relevant in a screening situation. As this comprehensive list is very long, it would normally need to be reduced to a specific list that match those issues that are relevant for the current screening objective in the particular application.

5.1.1 Environmental Issues

Generally, when analysing a company's environmental performance the following issues may be important to consider:

- Environmental pressures and impacts from the production process:
  - Emissions to air, water and soil and their impacts
  - Production of waste and its impacts
  - Resource efficiency: use of energy and other natural resources and its impacts
- Environmental pressures and impacts from the products:
  - Emissions, waste production and resource use during the product's life cycle
- Management of environmental issues at the company:
  - Strategy, vision and commitment
  - Environmental organisation
  - Stakeholder relations and communication
  - Design for environment
- Risks of environmental impacts and incidents

This list is aimed at covering all relevant issues and has been developed in this project through internal workshops. In this process, we have used lists that have been developed and tested by the project group over the last four years. There may be other relevant issues that do not fit into the above schematisation, but generally it is quite exhaustive.

5.1.2 Social Issues

Assessing the social performance of a company may include the following issues:

- Social issues, internal:

  - Strategy, vision and commitment
  - Bribery and corruption
  - Labour, gender, sexual and political rights
- Social issues external:
  - Stakeholder relations and communication
  - Human and political rights
  - Community capacity building

For example, production of ethical risk products (such as weapons or tobacco) would be classified under stakeholder relations, as they have an effect on stakeholders. This list has been developed in the current project through literature studies and internal workshops.

5.2 Defining Measurable Parameters

Once the issues have been defined, they have to be translated into measurable parameters. For instance the issue "global warming" needs to be described in terms of "emissions in tons of carbon dioxide and methane" etc. The issue "environmental organisation" needs to be translated into terms like "does the company have a person responsible for environmental issues?".

In order to describe environmental pressures we have used a list of environmental impact categories from the guidelines for performing life cycle assessments (LCA Nordic, 1995). The impact categories and examples of measurable parameters are listed in the table below:

Environmental impact	Examples of measurable parameter
Climate Change	CO_2, CFC, HCFC, CH_4, N_2O, NO_X, CO
Stratospheric Ozone Depletion	CFC's, HCFC's
Acidification	SO_2, HCl, NO_X, NH_3
Eutrophication	NO_X, NH_3, NO_3-, NH_4+, P
Ground Level Ozone	VOC, CO
Ecotoxicological effects	emissions of Cd, Hg, benzene etc
Biodiversity	endangered species
Energy and Resource use	energy carrier, resource types
Land use	usage per land category
Water use	water use
Health Issues - toxic substances	chemical lists
Health Issues - not toxic substances	NO_X, VOC, CO, soot
Working environment	toxic substances, noise, etc

The amount of parameters needed to describe the relevant issues often becomes very extensive (a so-called “long list”). This happens when the issues that need to be measured are complex. Often it is necessary to reduce the amount of parameters to make them manageable. Thus, the purpose of developing a reduced number of indicators is to condense and focus complex information into a limited number of parameters, while sustaining an acceptable level of compliance with the screening objective and the issues of relevance. This trade-off is an important part of defining parameters. In table 3.1 in section 3.3.2, requirements for indicator selection are presented. These requirements fit well for the requirements of defining parameters.

An iterative process is often necessary for identifying what needs to be measured. First, a long list of parameters relevant as a measure for each of the issues is defined. A number

of these parameters can be used for several issues; e.g. the environmental parameter "energy use" can usually be used as a parameter for both resource efficiency and climate change. The qualitative parameters are often the most versatile, e.g. a strong management commitment to social issues can indicate good performance for several social issues. This long list is then boiled down into a short list in order to make it more manageable. Usually it is necessary to include parameter for only the most important aspects of the issues of relevance.

The many trade-offs between indicator requirements can make the indicator construction difficult: it is easy to narrow down the selection too fast, ignoring viable indicators. The following methodology for constructing sets of indicators is recommended:

1. Produce a "long list" of indicators that will fulfil the objective.
2. Develop a "short list" of prioritised indicators (with the following considerations in mind: relevance, simplicity, validity, time-series data, availability of affordable data, ability to aggregate information, sensitivity, reliability)
3. Verify that the short list corresponds to, and fulfils, the objective.

5.2.1 Comparability of Data

Since ethical funds can include companies from all business sectors, it would be preferable if all companies could be compared to each other. However, companies differ very much, and especially large, multinational companies often have diversified businesses, making this comparability very difficult to achieve (Hansén et al, 2000). There are three main factors reducing the comparability of data:

1. Regional differences.
2. Type of business
3. Company Size

Companies active in different geographical regions function in different conditions. In one country, some ethical issues can be very important, whereas in others the same issues can be of little relevance. For example, for a company in northern China, the company's water consumption may the most important environmental impact, but if an identical company would be located in Sweden where water is abundant, this would probably be of minor importance. Furthermore, some ethical risks are connected to the culture and legislation in the area where the company is active, impeding comparability.

Companies active in different business sectors have different environmental and social impacts. For example, a bank has completely different concerns than a mining company. Designing general parameters for these companies that cover their most relevant performance is very difficult.

A company's size does of course affect its emissions measured in absolute numbers. Thus, those numbers tell us very little about whether a company can be said to have a good ethical performance relative to another company of a different size.

5.2.2 System Boundaries and Measure of Added Value

One way of addressing at least the two latter problems shown above, is by relating the environmental and social impact of a company to the value it produces. Since the financial reporting systems are well established and already in use, it makes sense to use them as a template in this context.

An indicator recommended for a company's produced value is the turnover (WBCSD, 2000). However, the turnover reflects all the value added throughout the supply-chain (in a producing company everything from the extraction of natural resources to the delivery of the good to the customer), and not just the value produced by the company itself. So in order to be consistent with the system boundaries used to measure a company's turnover, the environmental and social impact from the company's suppliers, their respective suppliers, and so on, should also be included in the measure of the company's own impacts. But to do this would be a very difficult and time-consuming task that lies beyond the scope of ethical screening. Instead, the chosen basic system boundary for the measured impacts normally is what is commonly called gate-to-gate, meaning the company's own activities. But care should be taken, as for some areas a strict application of those system boundaries would produce misleading results. For example, many of the social effects of a company's activities may be indirect, and in the environmental field questions like energy use and transports are normally necessary to treat differently.

An alternative to turnover as a measure of the company's produced value is the term added value. This indicator is more consistent with the gate-to-gate system boundary, and can thus be said to be a better reference to use in this context. Added value is also one of the indicators recommended by WBCSD (World Business Council for Sustainable Development) and GRI (Global Reporting Initiative) (WBCSD 2000, GRI 2000). However, several other case studies have shown that companies are often reluctant to publish their added value, which unfortunately makes it difficult to use (Hansén et al 1999, Hansén et al 2000, Åhman et al 2001 forthcoming).

A third possible indicator of a company's produced value is the number of employees. This indicator has the advantage that it is general, concrete, and easy to understand. This should make the potential reporting errors fewer.

5.2.3 Business Specific Issues and Parameters

In order to illustrate the differences in different business sectors, four sectors were studied more extensively:

1. Iron and steel
2. The financial sector
3. Life sciences
4. IT and telecommunications

The selection of business sectors was based on a desire to view business sectors with different characteristics and with a wide span of ethical issues on their agenda.

Iron and steel

The iron and steel industry was chosen as an example of an energy, labour, and resource intensive sector that is often associated with having large environmental impacts. The processes involved range from extraction of natural resources through mining, transports of large volumes of goods, to high precision steel manufacturing. All those processes have their own specific ethical problems associated with them, and what type of products that a company produces will affect what issues that are particularly important to them. To gain an insight into this business sector, independent iron and steel experts were used, as well as interviews directly with iron & steel producing company representatives. Some of the most important issues for this business sector include emissions of dust and heavy metals, systems for reducing fugitive emissions of particles, systems for reducing the risk

of leaching from landfills, and issues concerning the company's effects on the local communities.

The financial sector can almost be seen as the opposite of the iron and steel industry. Financial institutions provide services rather than physical goods, they are generally not resource or energy intensive, and they are not normally associated with a large direct environmental or social impact. However, it is our belief that financial institutions can have significant indirect effects on a company through their investments. Thus these types of companies provided interesting examples for this study.

The main focus of the finance specific issues is to investigate the finance company's interest and commitment to ethical issues. Questions include whether "ethical" products are offered to customers, whether environmental and social issues are taken into account in underwriting processes, and whether the company has signed international agreements for the promotion of ethical issues in the financial sector.

Life sciences, including chemical and pharmaceutical companies, have a number of very specific issues, some of them lying on the border between environmental concerns and questions about the fundamental rights of mankind. One such issue is of course the ongoing debate over genetic engineering and genetically modified organisms. Other problems connected to the life science industry regard product safety, use of hazardous substances, and animal testing.

The IT and Telecom sector went through a rapid growth during the period 1998-2000. It is interesting to see how and what ethical issues could be measured in such a transforming and dynamic sector and how high the awareness of such issues was within the companies. The IT and telecom sector is relatively diverse: it includes telecom operators, hardware producers, software producers, etc. Thus, it includes both producing companies and service companies, and basically everything in between. One thing in common in the sector is that it is not very energy intensive or resource intensive (at least concerning bulk resources, such as energy and "simple" materials). An environmental issue for the producing companies in the sector that could be of importance is the complex materials and chemicals used: metals in electronic components, heavy metals in batteries, flame retardants in plastics and electronic components. These are very complex and diverse issues, many of which the long term environmental and toxicological effects are not known. Another issue for the IT and telecom sector that sometimes is disregarded is the indirect effect on society: changes in lifestyle, modes of communication and working, and commuting. These indirect effects are even more difficult to assess, but may have a much larger impact on the environment than the direct effects from production.

5.3 Screening Criteria

Once the objectives, issues of relevance, and parameters have been defined it is necessary to define where the borderline is: what company performance is considered sufficient for clearing inclusion in the ethical fund in question, and what company performance should lead to exclusion? This process we call "setting the screening criteria". Depending on the level of detail of the objective, the issues of relevance, and the parameters, criteria can be presented at a very general level, such as "good environmental performance", or at a very specific level, such as "the company may not have more than 1% of turnover coming from weapons production". The criteria are often accompanied with a more specified

description of what they signify ("by good environmental performance we mean efficient resource use and proactive environmental work"), or even further defined by more sub-criteria ("by efficient resource use we mean maximum 25% of energy use from fossil sources").

There are (at least) two types of criteria, normally referred to as positive and negative criteria. The criteria can also be used in two different ways: as cut-off criteria or as relative criteria. By cut-off criteria we mean there is an absolute level for specific criteria that decide whether or not a company can be included or excluded in a fund. This absolute level is not tradable for company performance towards another criterion. By relative criteria we mean that the company performance towards one criterion can be traded for performance towards another criterion.

5.3.1 Positive and Negative Criteria

Negative criteria are used to exclude companies with certain activities or products, or companies that act in unacceptable ways. Typical examples are criteria that states that companies that manufactures weapons, extracts fossil fuels, or uses child labour should not be invested in.

Positive criteria are really just negations of negative criteria. Normally they are aimed at finding leading and pioneering companies in the social and environmental field. An example of a type of positive criterion is the "best-in-class" approach, where the aim is to find the most progressive or sustainable companies. Positive criteria can also be connected to certain business sectors. The starting point is an ethical screening of certain sectors that are thought to have a higher ethical performance than others are. By investing in companies within those business sectors or product segments that are thought have the brightest future in a "sustainable" business society, one hopes to earn more money and/or forward the work towards a sustainable society.

5.3.2 Cut-off criteria and Relative Criteria

The easiest way to use criteria is to use them as cut-off criteria, i.e. that the answer to a criterion is either positive or negative, and that this answer either qualifies or disqualifies a company for a fund. Examples of this are the exclusion of tobacco producing companies, or the inclusion of companies that donate more than 1% of profit to charity.

Sometimes it is hard to find an absolute criterion for an issue, and sometimes it is also necessary to weigh the compliance with different criteria against each other in order to measure the fulfilment of an issue of relevance. For example, the carbon dioxide emissions and methane emissions of a company are both important issues for the fulfilment of the criterion "contribution to global warming", but it might be difficult to set an absolute cut-off level of acceptable emissions, especially when comparing different types of companies or business sectors. A company that uses a production process that emits large quantities of methane but at the same time has invested in bio energy production and thus emits almost no carbon dioxide should perhaps still be considered suitable for an ethical fund. When digging deeper into social and environmental issues it is common that screening processes call for some form of relative judgement: developing cut-off criteria for all issues is very time consuming and, if brought to a very detailed level, would eventually probably exclude all companies. In cases such as this it could be necessary to use relative criteria.

5.4 Discussion

Using relative criteria brings in the need for some form of evaluation method. In the cut-off criteria, the evaluations are basically already done in the goal formulation, and are thus fully transparent. Introducing a multidimensional evaluation step between the data collected from the companies and objective of the screening requires a lot of work to be rendered transparent. Very often this step is done by an expert panel, which makes communication of the evaluations done difficult. In this aspect, cut-off criteria are preferred. However, there are instances when cut-off criteria can not be used, and relative criteria are necessary to fulfil the goal in an adequate way. In these instances, the criteria that are included in the evaluation process should still be kept to a minimum, in order to make the evaluation process as simple and transparent as possible.

6 Data Collection – Case study 1

6.1 Objective and Scope

The issue of data collection was mainly investigated through case studies. The primary objective of the first case study was to investigate direct methods for data collection (first-hand data from companies). No single screening objective was defined. Instead, the aim was to develop a questionnaire that could be used to collect information comprehensive enough to meet several screening objectives and criteria. The questionnaire was then tested practically by sending it to an assortment of international corporations.

6.2 Introduction

We begin with the somewhat obvious statement that before data can be analysed and evaluated, it has to be at hand. To accomplish this, some sort of data collection must be performed. The aim is to collect objective data, so the ethical screening can rely on verifiable data and not only on individual opinions or beliefs.

This is not the same as saying that individual experiences and previously gathered knowledge can not, or should not, be of use in an ethical screening process. But if one cannot show, in a clear and well-documented fashion, on what data the decisions are based, and how those data have been collected, then there is no way of motivating the decision. Furthermore, which is an even greater problem, it will be very difficult to *consistently* make well-founded and correct decisions in similar situations. Ultimately, if the data collection process is inconsistent or not transparent, the risk of losing stakeholder confidence as well as making incorrect decisions and consequently not achieving the objective(s) of the screening are increased manifold.

6.3 Data Sources

In the case study, once a list of desired and prioritised indicators had been identified it became evident that not every indicator was possible to measure for all companies. Some were irrelevant for certain business sectors but crucial for others, some indicators were impossible to quantify and some were not possible to measure at all, not even qualitatively. Thus there was a gap between what we *wanted* to measure and what we actually *could* measure.

Several different methods of collecting data were tested in this case study: Each of these methods provided us with different kinds of data.

6.3.1 Official Statistics

Official statistics proved to be of little use for evaluating individual companies. An important reason for this was that national statistics, which was one of the sources used, is not disclosed so that individual companies can be identified. And even if it would be possible to get individual company data, they would be limited to one single country (in this case Sweden). Since multinational companies were studied, this would have been a clear problem. Although environmental data from both the Swedish and US EPA were investigated, and some information of use was found, a much better data coverage and higher consistence in system boundaries would be needed. For other types of official

data, such as UN information of human rights issues and health problems, or NGO reports and figures, there were other problems. Again, data was seldom tied to individual companies, and the level of aggregation was often too high. Furthermore, such statistics often have a national or regional focus, not a company focus. So, as mentioned above, official statistics proved most valuable for identifying relevant ethical issues.

6.3.2 Questionnaires

In order to get reasonably comprehensive data for every company in a format that would provide comparability between companies, it was concluded that data had to be collected directly from the companies. The development and use of questionnaires is discussed later in this chapter in more detail, but some general conclusions on questionnaires as data sources are:

- In terms of volume of information, the questionnaires proved to be the most effective means of data collection.
- It is possible to design a questionnaire that is general enough to cover most ethical issues for most business sector, without large parts becoming irrelevant.
- A general questionnaire can be sufficient for many screening situations, but if a more thorough analysis is to be performed, business sector specific sections are needed.
- Clear and concise instructions to the respondents are vital in order to get high quality responses.
- System boundaries need to be clearly defined and understood by both the analyst and the respondent.
- Added value is often the most preferable measure of a company's benefits to society, when constructing ethical indices, but since companies are seldom willing to disclose figures for this measure, turnover or number of employees may be a better indicator.
- Response frequencies differ significantly between countries and continents. European companies showed a significantly higher response frequency than US companies.

6.3.3 Company Publications

Company publications such as annual reports and press releases can be useful in an ethical screening. However, the case study did not find any example of a report that gave all the information a questionnaire could gather. This can partly be due to the lack of a standardised format for ethical information, and partly because the nature of ethical information is sometimes perceived as negative for the company, and is therefore not shown in the annual reports.

6.3.4 Media Sources

In order to crosscheck answers, additional information has to be collected from the corporations. In this study a media database was used to gather information about all companies included in the case studies. Two databases were tested:

- One database containing a combination of linked business information databases, including articles from some 900 publications
- A second database also containing a combination of linked business databases and news services, with articles from more than 8 000 sources

In the case study, special attention was given to labour and human rights issues. Since problems and concerns in connection with those issues often are controversial, the companies might not be very communicative. This made the media search very important as a source of information. The database was searched for articles containing the company name plus a number of key issues, such as labour rights and human rights. The hits in the database were analysed manually in order to guarantee that the company in question really was connected to the issues. The relevant articles were saved in a digital library for each company. If many articles covering the same issue were found, only one was saved as documentation of the aspect in question.

6.3.5 NGO Databases

In addition to the media databases described above there are other indirect information sources, such as NGO databases, consumer groups, legal records, etc. In this study we only briefly tested different NGO databases, with various results. An advantage of these types of sources is that they often report on specific ethical issues before the more mainstream media do. They can also be more radical and critical than mainstream media can, thereby providing an "early warning" for potential future problems.

6.4 Structuring and visualising information

The aim of the structuring process is to enable the user of the information to compare different companies or benchmark an individual company against a set of criteria or data. Furthermore, it is important that the impact on the screening result emanating from how the information is structured is minimised. It is most likely that the collected data differs in many ways between companies, e.g. in terms of amount of information available, transparency of data, comprehensiveness and how up-to-date data is.

6.5 Case Study

In a screening process, there is a difference between what *needs* to be measured and what actually is *possible* to measure. The problem is also one of being able to operationalise the need for information without losing sight of the screening objective or ending up with indicators that are too loosely correlated to what they are supposed to measure. This risk is particularly evident with qualitative issues.

In this case study, there were three main areas of interest that was intended to measure:

1. Past company ethical performance
2. Current company ethical performance
3. Potential future company ethical performance

Data collection was made through a questionnaire and through a media search.

The questionnaires were designed after several internal workshops, literature studies and interviews with the environmental managers of four multinational companies. In this process, a number of questionnaires used by different fund managers were studied, as well as documents used in other contexts such as environmental management systems, risk assessment and work with environmental performance indicators[5]. The three main

[5] Wolff and Zaring et. al. (2000). DJSGI, ISO 14 040, Hansén et al 2000, Åhman et al 2001 (forthcoming), Zetterberg and Åhman, 2001 (forthcoming)

areas of interest listed above were broken down in different segments, and this also formed the basic structure of the questionnaire:

1. General
    a. General Data About the Respondent
    b. Top ethical Achievements and Priorities as Described by the Respondent
2. Environmental Questions
    a. Top Management and Commitment
    b. Environmental Organisation
    c. External Communications
    d. Risks and Liabilities
    e. Resource Efficiency and Design For Environment
    f. Quantitative Information
3. Business Sector Specific Questions
    a. Subcategories vary depending on business sector
4. Questions Relating to Corporate Responsibility and Ethics
        a. Business Ethics
        b. Community
        c. Stakeholder Relations
        d. Management Risks
5. Comments and Opportunity for Feedback from the Respondent

The next step of the process was to compile a long list of potential questions for the segments of the questionnaire, totalling some 350 questions. The long list was then shortened using number of criteria as a filter (see table 3.1 on indicator criteria).

Many of the criteria in table 3.1 have much in common with the type of demands normally laid on financial information and corporate performance indicators in general. This may be no surprise to the educated reader, but is nevertheless an important note.

The resulting short list consisted of some 175 questions. A few of the questions were overlapping and some areas were over-represented, so the final list had some 60 questions common for all business sectors on it, and some 20-40 questions in the business specific sections.

The list of some 60 questions is still quite large, but as mentioned in the objective of the case study no specific screening objective had been determined. Therefore even this "short list" of 60 questions can be seen as a long short list applicable to a wide range of screening objectives.

Again, the basis for the questionnaire was literature studies, workshops, and interviews. Environmental and ethical managers were contacted, as well as industry experts and scientists. The contacts with experts and scientists were particularly important, and their opinions weighed heavily in the design of the questionnaire.

For some areas, constructing good questions proved difficult. Particularly for areas like human rights and social issues, it is hard to ask direct questions without risking that the company will give positive answers regardless of their actual performance.

Constructing the questions, some basic rules for the design of questionnaires were applied. Some of the most central ones were (Ejlertsson 1996):

- Use of a language that is easy to understand
- The questions should be unambiguous
- The questions should be neutral and not leading
- Double negations should be avoided

With only a few exceptions, all questions regard factual matters. In order to be able to compare data amongst companies, facts, not the respondents' opinions, is what should be documented. However, the respondent is always between us and the actual fact, so what we will get is the respondents *interpretation* of the facts (Trost, 1994). Furthermore, in the questionnaire there are also few *open* questions, i.e. questions where there are an unlimited number of response alternatives. Even though the historical ethical records of the corporations were of interest, there are very few retrospective questions in the questionnaire. The most important reason for this is that the current and future situation was considered more important in this study. Since the number of questions had to be kept to a manageable number, the issues with less priority take up a smaller portion of the questionnaire.

6.5.1 Testing the Questionnaire

The questionnaire was in a first step sent to 27 companies, selected from the Dow Jones Sustainability Group Index. The reason for using companies from this index was that in this early stage of development, a group of companies with a relatively high level of awareness of ethical issues were desired. This should make it possible for them to react more constructively to the questionnaire than the average company, and also provide feedback as to how a questionnaire should be designed in order to reflect their ethical performance in an appropriate way.

In a second step, the questionnaire was sent to some 150 companies. No previous ethical screening had been done on this sample.

6.5.2 Results

Response Frequency

The first questionnaires were sent out in early February 2000, with a deadline for responses set to late March 2000. The questionnaire was, when possible, sent to two named persons at each corporation: the head of investor relations and the head of environmental affairs. A reminder phone call or e-mail was sent to the corporations that had not replied at the deadline. The overall responses frequency was 52 %, but with significant differences between European, North American (U S and Canada) and Asian companies. For European companies, the response frequency was 58 %, for North American 50 % and for Asian companies the response frequency was 25%.

The second round of questionnaires was sent out n September 2000. The overall reply frequency was 31 % for European companies the response frequency was 62 %, for North American 17 %, and for Asian companies the response frequency was 25%.

The completed questionnaires were read and checked for inconsistencies, faulty answers, misunderstandings etc. In some cases, additional questions were sent to the replying company to clarify certain answers.

The companies provided only limited feedback on the quality and design of the questionnaire. The quality of the companies' responses varied significantly. Some

companies replied to every question in full, with additional reports and references provided, whereas others only replied only to selected portions of the questionnaire. Several companies also referred to their annual reports instead of answering the questions directly. In some cases, the information was indeed found in the documents that companies referred to, but more often than not it was incomplete or structured in a different way than needed.

Several companies delivered answers that where clearly the result of misunderstandings, or the use of different system boundaries than he ones stated in the questionnaire. This was particularly evident in the quantitative sections of the questionnaire.

Several company representatives described problems when filling out the questionnaire. These problems had different characteristics: some did not understand the questions for language reasons, some could not see why they should fill out the questionnaire at all, others needed support from in-house ethical experts. A majority of the respondents gave the impression that several persons at the company had been involved in the completion of the questionnaire.

A number of companies stated that some portions of the questionnaire were irrelevant for their type of business.

Administrative Time Aspects
A significant amount of time was required just for the administration of the questionnaires. The documents were sent to the head of Investor Relations and the Environmental Manager at each company, and just finding the correct addresses to these persons proved to be a time-consuming task, particularly for the American and Asian companies.

After sending the questionnaire, an effort was made to get answers from those companies that had not replied before the deadline. Companies were reminded through phone calls and by sending e-mails and letters. Some completed questionnaires were received several months after the original deadline.

Data Quality and Data Assurance
In this study, much effort was put into background research and forming the questionnaire so that a high level of data quality and detail could be reached. Unfortunately, this study still shows that it is very hard to achieve a high data quality or data assurance. There are several reasons for this. First, the fact that the companies themselves deliver the information is a source of error. Being selected for an ethical fund is by most companies regarded as positive. It has been shown that questions that may have positive consequences for the respondent, regularly receive high proportion of positive answers, even if this is not based on real facts (Ejlertsson, 1996).

Another source of error is the respondents' interpretation of the questions. Even though much effort was put into the construction of the questions, the respondents have interpreted some questions in different ways, resulting in incomparable answers.

A third, and very important source of error, is the system boundary. In the questionnaire, the respondent was asked to provide ethical data for the same system boundaries as for the financial information. This proved to be difficult for some corporations. Often, ethical data was only reported for some part of the company or industry group.

Furthermore, for the quantitative issues it was clear that companies treated for example the energy they bought differently: in some it was included, in others it was not.

Several companies also declined to answer the questionnaire stating the reason that they had sold parts of the company or merged with another corporation. Therefore they could not report data in the form that we asked them to. But since financial data still has to be reported by law, this reason is only valid as long as an ethical reporting standard has not been developed and implemented to the same extent as financial reporting. We conclude that companies are still unaccustomed to combining ethical data with financial data.

Lack of knowledge and competence is another important source of failing data quality. Many companies do not have the knowledge base to measure and report ethical data, and when they receive a questionnaire like the one used in this study, they cannot deal with it in an appropriate manner. For example, just getting the right person to complete the questionnaire proved difficult. Furthermore, no authorisation process was used in the study. Such a process might involve the requirement for the CEO to sign the completed questionnaire for it to be valid. Since no such procedure was required, the questionnaire could, at least in theory, have been completed by whomever received, even if that person was not qualified or had the proper authority to do so.

Quantitative issues: Climate impact from companies

Based on the quantitative data collected, the companies' contribution to climate change has been estimated. The parameter chosen for indicating climate change was emissions of carbon dioxide emissions, CO_2, per year. Of the 47 companies that answered the questionnaire, 24 gave figures of their CO_2 emissions. In order to compare the companies with each other, the emissions had to be related to the companies produced value, thus compensating for differences in size of the companies. As a measure for produced value, we have chosen three parameters: "total number of employees", "total sales" and "added value" (see discussion on this in section 5.2.2 "System Boundaries and Measure of Added Value"). We believe that the measure "added value" is the most relevant one to use, but it was also the measure that was most difficult to obtain from the companies.

Of the 24 companies that reported data on CO_2 emissions, 24 reported data on employees, 22 companies reported data on total sales, and 12 reported data on added value.

There is a considerable element of error in the reported data due to several reasons:

- Misunderstandings of units of measurement. There are clearly several incorrect answers due to the usage of false units. For instance, the reported values on sales are probably incorrect for the companies A, C, E, O and P (21 % of the companies). We can guess that they have used 1 000 USD instead of the unit asked for, million USD. Also, the CO_2-emissions is probably incorrect for company E and we can not rule out that this may be the case for other companies as well.
- Inconsistent use of system boundaries. If a company reports CO_2-emissions from a part of the company (like a plant), and report the number of employees from the whole company, then the indicator "CO_2 emissions per number of employees" will not be correct. We can not determine if this has been the case in our case study.

One reason for these errors is probably that companies are not used to reporting quantitative environmental data, and that there does not exist a formalised system for how to report these data.

We calculated three indicators as "CO_2-emissions in tons divided by number of employees", "CO_2-emissions in tons divided by sales in million USD" and "CO_2-emissions in tons divided by added value in million USD", see figure 6.1 below.

Figure a) CO2-emissions per employee

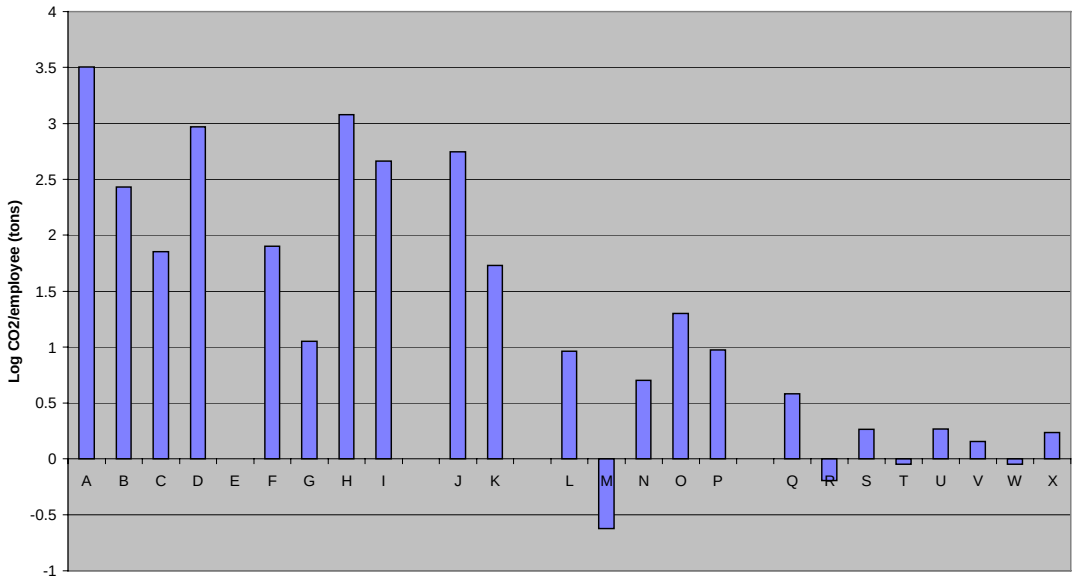
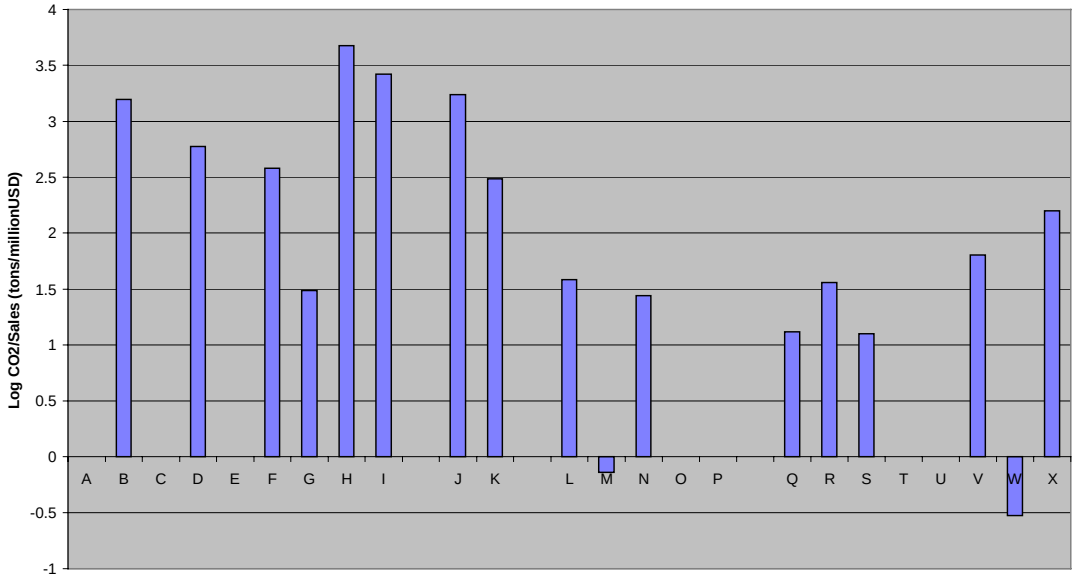


Figure b) CO2-emissions per total sales



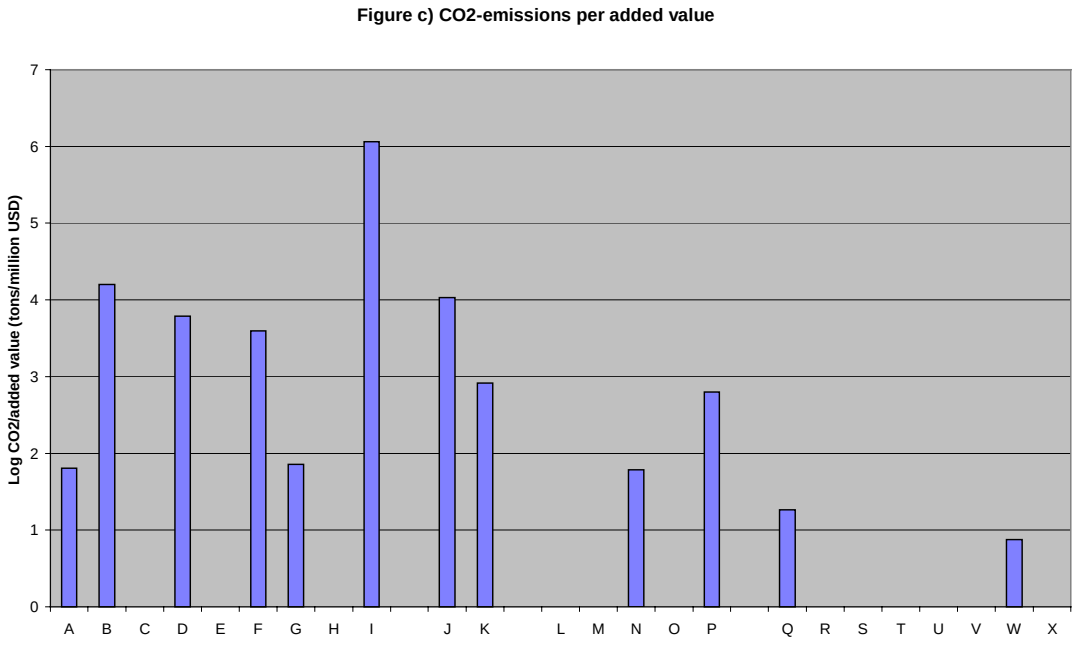


Figure 6.1. CO_2-indicators for 24 companies from the sectors "Chemical Industry" (companies A to I), "Others" (companies J and L), "Telecom" (companies L to P) and "Finance"(companies Q to X). The indicators are calculated as CO_2-emissions in tons divided by number of employees (fig a), CO_2-emissions in tons divided by sales in million USD (fig b) and CO_2-emissions in tons divided by added value in million USD (fig c). Note that the scale shows the logarithm of the indicators. A letter in the diagram represents each company, as the company names can not be revealed. If a company is not represented by a bar in the diagram this is due to missing data or inconsistencies in data. There are large uncertainties in the data that these indicators are based on. For details, please refer to the text.

Firstly, we can also note that there are large variations within each sector for the indicator "CO_2-emissions per employees". Within the finance sector the values vary between 0.6 and 4 tons per employee. In the telecom sector the value varies between 0.2 and 20 tons per employee. In the chemical sector the values vary between 10 and 3000 tons per employee. We have not been able to determine if these large differences are due to errors in the reported data or if such large variations actually exist.

Secondly, we can note that there is significant sector dependence in the indicator "CO_2-emissions per employees". The finance sector shows the lowest values, followed by the telecom sector and chemical sector. The difference between the finance sector and the telecom sector is, on average, a factor 5 and between the finance sector and the chemical sector a factor 500.

6.5.3 Results Media Search

The media search resulted in more hits on American than European corporations. If this depends on actual differences in ethical performance, or whether American corporations generally are more present in media, is unsure. It was also concluded that the database size, the corporation size, and the media interest in relevant issues are of major importance for the media search result. Furthermore, what keywords are used also plays a fundamental role for what results that are generated. Therefore it is difficult to use the number of hits as a quantitative indicator for ethical performance. In the case of a media search not resulting in any hits on a specific corporation, this is no guarantee that the

corporation in question has a spotless performance concerning the relevant issue, as there are many other factors deciding whether or not a media search results in hits.

However, there are instances when the media search has resulted in information that was not provided by the corporations. In some cases there were reasons to believe the information was deliberately withheld.

6.6 Discussion on Data Collection

It is clear from this case study that the construction of a questionnaire for collecting ethical information from companies is a difficult, but not impossible task. The balance between asking about everything you need without drowning the companies with questions is a hard one to handle. This is particularly true if you need to collect an information base that should cover many different screening objectives, which was the case in this study. Like in every analytical situation, the problem is to minimise the amount of input to the process without losing too much information. The results in this case study indicated that some questions worked well, some needed developing, and a few questions could probably be left out altogether. This shows the importance of testing a questionnaire thoroughly before using it in real situations.

For some areas of interest, using a questionnaire is somewhat problematic. In general, the questionnaire worked better for environmental issues than for ethical issues. For areas like human rights, social issues or legal problems, it is evident that the respondent has very strong incentives to give the answer he or she believes would be the best for the company. For example, very few corporations would probably openly admit that they have supported military coups or taken to force against its own employees. Nevertheless, it is a fact that such events take place. For that type of information, it is therefore necessary to use another source than the companies themselves.

The low response frequency from non-European companies, and American companies in particular, may have several explanations. American companies do traditionally have well functioning Investor Relations department, with a high standard of reporting to stakeholders (Öberg, 2001). The companies in this study were all large and well known, and it is therefore unlikely that they should differ in this respect. However, ethical reporting in the sense that the term is given here, is still relatively undeveloped in the US compared to the situation in Europe (IRRC, 2000). Furthermore, US corporations express a higher resistance to reveal environmental data in fear of legal consequences. This is somewhat paradoxical, since ethically screened funds have a significantly larger market share in the US than in any European countries. However, even if the response frequency can be raised, for example by an increased number of reminders or maybe even visits to the respondent, the results of this case study show that it is necessary to develop routines for how to handle non-responding companies.

If one needs to do an in-depth analysis of a company or business sector, it is evident that business sector specific questionnaires have to be used. In order to do this, experts have to be consulted, and preferably also business sector representatives. Contacts with those people provide important information of what the most significant ethical aspects are for a certain company or business sector.

For many business sectors, business sector specific ethical issues are of major importance, especially for environmental issues. These issues tend to change over time,

as new technologies are developed, and as new issues are raised. The development of business sector specific questions is a very resource consuming activity. Therefore, to get a good coverage of a broad range of business sectors is a very demanding process.

The choice of system boundaries will most probably affect the results of a screening like the one the information collected in this study is intended for. The results show that the instructions and definitions of the system boundaries, given to the respondents, were not clear enough. Misunderstandings and different interpretations have taken place, even though some differences in applied system boundaries can be explained with that the respondent have used already compiled data. A good way to detect misunderstandings, as well as to analyse the results, proved to be using different measures of produced value, related to the measured impacts, and then comparing the result.

The case study clearly shows the need to use indirect sources as a complement to direct sources when collecting data. This is particularly true for issues that may have a negative impact on the ethical performance of the assessed corporation, as the only actor with full insight into all issues of the corporation, namely the corporation itself, has incentives for keeping the information to itself. This is more often the case for issues like human rights, work environment and labour issues than for environmental issues. Consequently, indirect sources may be more important for analysing social issues than environmental issues. There is probably a relationship between the effort spent in collecting information and the comprehensiveness of the collected data, but there is no way of guaranteeing that all relevant data has been collected on a corporation.

6.7 Conclusions Data Collection

The main conclusions on data collection were:

- A questionnaire can be a very good way of obtaining valuable information about the ethical performance of a company, but it will never deliver all necessary information about a company. Other information sources have to be used as well.
- The same quality requirements should be laid on ethical data as on financial data, but since the reporting systems for ethical data are still underdeveloped, it is difficult to achieve the same data quality assurance.
- The questionnaire worked better for environmental issues than for ethical issues.
- It is necessary to be prepared for, and have good routines for how to handle non-responding companies.
- U S and Canadian companies show a lower response frequency than European companies.
- Expert knowledge and business sector specific competence is essential when deciding what information to ask for. If the questions are not perceived as being relevant, the response frequency drops and the quality of the answers deteriorates.
- A good instruction of how to complete the questionnaire is necessary in order to get consistent and comparable answers. Especially the system boundaries have to be clearly described so that the respondent easily understands what data to include and what not to include.
- Several different indicators of a company's produced value need to be used. This is necessary both to detect misunderstandings and false information, and to enable a good analysis of the results.
- Direct information from the companies seems like the only way to get comprehensive environmental data, especially "hard" data.

- Companies seem unaccustomed to combining financial and ethical data; data is often reported with different system boundaries.
- Data collection is time-consuming, and an analysis of what information will be needed and what value the following assessment can add is important.
- Indirect sources, such as media or NGO databases, are important in order to obtain comprehensive information about a company.
- Indirect sources are particularly important for the analysis of social issues.
- There is a significant need for quality assurance in the reported data. This includes giving clearer instructions in the questionnaires, performing quality checks in the reported data and acquiring data from additional sources.
- In order to increase the quality of environmental quantitative data and reduce the costs for reporting them we recommend that a formalised system for reporting these data in a standardised format is developed.
- Evan if there are significant errors in the reported data that we investigated, we believe that quantitative environmental information can be used as a basis for evaluating companies.
- Since the acquisition and evaluation of quantitative data is difficult and costly it would be tempting to leave out this information in an ethical screening process. We believe, however, that this information is highly relevant and that it needs to be included in the screening process. Only these data will show the actual environmental impact of a company.

7 A Simplified Evaluation Method – Case Study 2

7.1 Background

In September 2001, Skandia collected data from some corporations for one of its portfolios, using an updated version of the questionnaire from case study 1. The results from this questionnaire were communicated to this research project so that the project could benefit from the data. This will hereafter be called case study 2. This case study was to a large extent based on the results from the first case study, even though it started before Case study 1 was fully completed.

7.2 Objective and Scope

The main objective was to test a complete but very simplified evaluation method.

7.3 The Testing of the Questionnaire

Questionnaires were sent to some 80 companies in Europe and North America. The companies were selected from one of Skandia's portfolios. Thus, no ethical screening had been done on the sample, as was the case in Case Study 1. The questionnaire was sent out in September 2001, and the deadline set to November 2001. The same procedure for late respondents as in case study 1 was repeated. The response trend was similar to the in Case Study 1, with significantly higher response frequency for European companies than for North American companies.

7.4 The Screening

The list to be tested consisted of the following issues:

- Compliance with five selected ILO conventions concerning labour rights, commonly used in ethical screening
- Compliance with the UN conventions concerning human rights
- Compliance with the UN conventions concerning marketing on infant formula
- "Best in class" concerning environmental performance

An important part in the initial objective was to include quantitative performance data in the screening. However, the character of the screening issues differed significantly depending on what issue was analysed. For example, it is much easier to measure and quantify environmental aspects than, say, human rights issues. The variations in information available for the corporations assessed also put limitations on the screening.

The screening used a combination of cut-off criteria and "best in class" criteria. The output from the screening was "Suitable" or "Not suitable" for an ethical fund. For ethical issues like social and human rights, cut-off criteria were used. If, for example, a corporation was found to practice union busting or to have unacceptable working conditions for some of their employees, they were automatically considered as not suitable for an ethical fund. For environmental issues, a simple scoring system was used. Six environmental areas were included in this scoring system:

1. top management commitment
2. environmental organisation
3. environmental communication

4. relations with customers and suppliers
5. risk management
6. quantitative info

For each area, one or two key indicators were chosen to reflect the corporate performance in the area. The corporation simply got a point for every indicator for which they were perceived to have taken proper action, or in which they simply had provided relevant information. This evaluation was an indication of whether the corporation had considered the issues in question, and thus whether they are in a position to commence a quantitative environmental work. For example, in order to receive a point for environmental organisation, the corporation had to have a certified Environmental Management System for at least 30% or its operations. In order to receive a point for quantitative info, they had to provide relevant information on the quantitative data relevant for their business sector.

The environmental screening was based on the questionnaires, annual reports, and information from the companies' web sites. In addition to this, limited input also came from the media search, primarily for the Risk Management area.

7.5 Results Data Collection

Again, there was a significant difference in response frequency between Europe and North America. 53 % of the European companies had completed the questionnaire. If companies that sent some kind of information, like annual reports, were included, the response frequency for European companies was 64 %. For American companies, the corresponding figures were just 5 % and 14 % respectively.

7.6 Results Test of the Screening Process

Even though great effort was put into collecting a quality assured, comparable set of data for all corporations, major gaps or flaws still were present. These gaps were to some extent filled by the media search, but in order to get a complete set of data from all corporations, an unmanageable amount of time and effort would have to be invested. Therefore, the material available for the screening was incomplete, and most probably always will be so, independent of data collection efforts. It is thus important to have guidelines for how to handle these unavoidable gaps in data: are the corporations not providing sufficient data to be considered not suitable, is a smaller amount of data acceptable for a screening of these corporations, how much effort is to be put into extra information gathering? These guidelines will not solve the problem of data gaps, but will at least make sure they are dealt with in a structured and transparent way.

The data gaps discussed above lead to a limited amount of data available for the entire set of corporations to be assessed. This naturally limits the choice of indicators for assessing the criteria.

Even though the screening carried through was on a relatively simple basis, there were some problems with the generality of the rules of thumb for the screening process, especially concerning the environmental criterion. Namely, it was found somewhat unjust to judge all types of corporations according to the same criteria, regardless of business sector or area of operation. For example, corporations in the iron and steel sector normally have large emissions and sometimes also an intensive use of chemicals, but on

the other hand they normally have a good grip on their quantitative environmental performance, because of legislative demand. Corporations in the service sector normally do not have such large emissions, but on the other hand this leads to them having less control of their quantitative environmental data, and thus does not know what their major impacts are. Thus, the iron and steel corporations may be penalised for knowing their environmental impact, even though this knowledge should be a positive characteristic of the environmental performance, regardless of their actual quantitative performance.

When comparing the results from the screening process to the financial screening process, it was found that many of the issues were common in both types of screening. The following quotes are from Copeland et al, 1999:

- Valuation is typically more of an iterative process
- There is no perfect financial performance measure
- Financial performance measures have shortcomings, meaning that they demand complementary market measures, they can be manipulated, and that how the financial result is achieved is as important as the results themselves

In the 'Valuation' chapter, a more thorough discussion on the theoretical issues of screening and evaluation is presented.

7.7 Results Data Quality

In general, the amount of information available for the American corporations is smaller than for the European corporations. This is particularly true for the environmental issues. The response frequency to the questionnaire was considerably lower for the American corporations, and the information available from the corporations in other forms (environmental reports, environmental and ethical policies, etc.) was not as extensive as for their European counterparts. Even the quality of the information from American corporations seems to be less rigid. This is a problem both for the minimum level of data available for all assessed corporations, and for the comparison of American and European corporations, for reasons discussed above.

Through the questionnaires and the media search, a large quantity of information was gathered on the corporations. However, there were large differences in the amount of information provided by the corporations and found otherwise: some corporations had given the questionnaire a great deal of thought, while other questionnaires were less well completed, and the information found at external sources were not always complete.

7.8 Discussion

The second case study gave some insights in how to solve some issues raised in the aim, but it also raised many new questions that have to be dealt with:

- How do we handle multinational, heterogeneous companies? The information provided from corporations does not only reflect their ethical performance, but also their business surroundings: legislation, competition, consumer demand, etc.
- How do we assure data quality? The information provided directly from corporations can be complemented by other sources, but still this is no guarantee that correct

information is gathered. And in the case of contradicting data from different sources, which data source should be used?

- How do we minimise cost in terms of time and money required? There seems to be a relation between effort and certainty in the data collected but can this relation be quantified and how do you optimise the trade-off?
- What sources of information do we need to use? Is it enough with information directly from corporations, or do we need external information, and in that case from what sources? Are media databases and NGO databases reliable?
- What system boundaries should we use? Is it possible to convey the idea of a generic set of system boundaries? Does one have to accept the system boundaries used by the individual corporations, thus eliminating the possibility of collecting data with the same system boundaries and thus the possibility of comparing quantitative data between corporations?
- If we have multiple sets of criteria, how do we gather data that can form the basis for several screenings? The larger the amount of information, the larger the chance of incompleteness, and of inability of collecting all data.

7.9 Conclusions Case Study 2

- Difficult to compare companies that operates within different business sectors.
- Hard to compare data from different sources.
- Unsatisfactory data quality and non-responses present problems that need to be addressed.
- Simplified evaluation using cut-off criteria is cost-effective but does not reveal all aspects of a company's ethical performance.
- Valuation needs to be developed further.

8 Evaluation – Case Study 3

8.1 Objective and Scope of Case Study 3

The objective of case study 3 was to test a structured panel evaluation process. The case study will be presented in chapter 8.6 and onward, after some introductory chapters.

8.2 Limited Objectivity

Generally, we believe that the evaluation, and indeed the whole screening process, should be kept as free from hidden subjective opinions and value systems of individuals as possible, other than the values defined by the goal of the assessment. This is why we stress the need for transparency and how important it is to construct a screening process that is replicable and easy to understand. However, objectivity, desirable as it might be, has some fundamental limitations. Many of these have been discussed in the literature (Roy 1990, Ariansen 1993). This section will not penetrate all, or even most, aspects of objectivity. The discussion is limited to the issues we consider most relevant for this case study. Operations research directed at Multi-Criteria Decision-Making (MCDM) has shed important light on those issues. In the context of ethical screenings, one of the most important limitations of MCDM theory, in relation to objectivity, are the often ill-defined preferences of the decision-maker.

The objective of the screening, as discussed in earlier sections, is central in the screening process. This objective often reflects, or aims to reflect, the preferences of a decision-maker. In the case of ethical funds, the objective should be associated with the fund's customer or another external group of people: the decision-maker is thus a person or group of people external to the screening process. Even in the screening process, there is usually more than one person that act as agents for the fund savers. For example, many ethical funds use external experts or councils to advice the fund manager on certain decisions. Thus, the preferences on which the evaluation should be based are not identical with the actual decision-maker's preferences. It is indeed hard to see the fund savers as decision-makers, more than deciding whether to invest or divest in a specific fund.

So, like in many real-world problems, the decision-maker, as a single person handling the entire decision process, does not really exist. Instead, many people take part in the decision process, and we tend to confuse the one who ratifies or executes the decision with what is labelled the problem solver or decision maker. This may be an unavoidable situation, but it still is a problematic issue.

Even if it is possible to construct the screening process so that the decision maker does not become a "mythical" person or set of values, the preferences of, say, an ethical council or environmental expert hired by the fund manager are seldom as explicitly stated as we would like them to be. In and among areas of firm convictions lie often zones of uncertainty, half-held belief and conflicts or contradictions. Therefore we have to realise that the screening process itself, and particularly the evaluation step, contributes to answering questions, analysing problems, solving conflicts, transforming contradictions and destabilising certain convictions (Roy, 1990).

As a means of understanding decision processes and to help decision-makers make better decisions, much research has been invested in the field of mathematical decision models. Still, it is impossible to say that one decision is "better" than another one just by referring

only to a mathematical model. It is obvious that other aspects such as culture, organisation and the way the whole decision problem is framed will contribute to whether the decision can be considered as being "good" or "bad".

With this, we have recognised that subjectivity and uncertainty will always be inherent in the screening process. However, the subjectivity can be introduced at different stages in the process and with different degrees of transparency. Our opinion is that the subjective step, and steps dependent on individuals, should be kept to a minimum, and held as late in the evaluation process as possible. We now turn to discussing how to handle this fact in the best possible way.

8.3 Requirements for the Evaluation Process

As described above, ethical fund management is often based on a combination of linear, analytic and holistic (also called intuitive) decision processes. Sometimes, the whole ethical evaluation is left to a group of experts in the form of a council or advisory board, other times a fully automated and mathematical decision process is used. Some argue that since ethical data reporting is still not standardised or audited, which inhibit comparability, it is better to use a combination of experience, knowledge and collected information to get a general judgement of the company, than to use a strict and standardised decision model (Vickers, 1966/1990).

Although we recognise that there are still significant weaknesses present in the comparability of ethical data, and that this makes an assessment of such data difficult, we believe a linear/analytical approach is preferable to a strictly holistic, intuitive decision model. Here, we can refer to the list of basic requirements presented in chapter 3:

1. **Structure**. A key to making ethical screenings reliable and accurate is how they are structured. An analytical approach will force the decision-maker to structure the problem, thus gaining important understanding and knowledge before proceeding to the decision itself.
2. **Transparency and verifiability**. An analytic and logical process is much easier to keep transparent than a holistic and intuitive process where transparency is difficult, if not impossible to achieve. Furthermore, an analytic, logical and standardised decision model will also, almost by definition, ensure that the results can be verified and understood by a third party.
3. **Ability to handle different types of data**. Qualitative measures are often vital in the screening process. Sometimes quantitative factors may even be the result of qualitative aspects (e.g. a poorly organised company is probably more likely to handle environmental issues less effectively, which can show up in a higher energy consumption or larger emissions)
4. **Scientific significance**. There is still a gap between the scientific interests in financial and ethical issues, and the practical interest of financial institutions. Thus there is a need for formulating sophisticated yet practical and user-friendly screening methods, based on economic science and operations research, as well as environmental and ethical research. This may in itself not be an argument for not using holistic decision models, but we do believe that such models are more difficult to verify and analyse, thus making a scientific perspective harder to maintain than is the case with analytical decision models.

In addition to this, one can argue that in order to reach cost effectiveness without losing screening accuracy, some sort of standardisation and automation is required. This is also preferable in order to reduce the dependency of the screening on specific persons involved in the process.

8.4 The Nature of Screening Decisions

Very roughly, one can divide decisions into two types: mono-criterion decisions and multi-criteria decisions. An example of a mono-criterion decision is choosing the cheapest car in a shop. A multi-criteria version of the same situation would be choosing the best car, not only based on its price, but also on its colour, safety, environmental performance, and prestige value. There have been extensive research carried out on both types of decision types, and the analysis carried out of the subject in this study is therefore not exhaustive.

Financial decisions can be described as being dual-criteria decisions. When faced with decisions with two objectives, for example maximising return while minimising risk, traditional financial analysis and evaluation theory reduce the problem to one dimension. This can for example be done by breaking down the problem and then treating each aspect separately; e.g. first an acceptable level of risk is established, then the sole objective remaining is maximising return, under the constraint of the given level of risk.

It has been shown that this traditional approach has several shortcomings. Among the most important, discussed by Bhaskar (1979) and Zopounidis (1999) among others, are

1. When formulating a problem as a mono-criterion, optimising problem, financial decision-makers get involved in a very narrow problematic, often irrelevant to the real decision problem.
2. Humans make financial decisions, not models. In order to solve problems, it is necessary to take their experiences, knowledge and preferences into consideration.
3. For financial decision problems, a mono-criteria approach seems illusory, since in real life, such decisions are nearly always based on multiple criteria.

On the other hand, financial analysts are sometimes criticised for not being rational, for not basing their decisions on real facts, and for following market trends rather than actually evaluating the investment object. This criticism is sometimes also extended to the behaviour of the whole share market of today, where share pricing show a decreasing correlation to financial performance of the companies (Ernst & Young, 1997). Thus we have a divided image of how financial decisions are made and financial analysts behave. Financial analysts are by some described as being narrow-minded in their analysis, applying unrealistic decision models and not recognising the qualitative aspects of their decisions. Others accuse them of making irrational decisions, based rather on feelings and intuition than on real facts. To some extent, these somewhat schizophrenic descriptions can be explained by the fact that different financial players have different objectives and consequently use different methods. Analysts working with longer time frames are more inclined to use traditional evaluation tools than are day-traders, whose main concern is the reactions of the market during the very next hours, not the long-term financial performance of the analysed company. However, the irrational decisions may also be a reflection of the lack of sophisticated and user-friendly decision models based on scientific principles discussed above.

It is striking how well the arguments listed above correspond to the ones proposed by Zopounidis (1999) for using MCDM (Zopounidis uses the term "Multi-Criteria Decision Aid", but in this context this is interchangeable with MCDM) methods in financial decision making. This shows the close resemblance between the problems facing an ethical fund manager, and traditional financial decision problems. In many cases, the problems discussed in this report could just as well have been analysed in a purely financial context.

8.5 Multi-Criteria Decision Making – a Quick Overview

The development of multi-criteria analysis, or Multi-criteria Decision-Making (MCDM) as it is often called, started some 30 years ago. Zopounidis (1999) provides a good and relevant definition of the term:

"Multi-criteria analysis, often called multiple criteria decision making (MCDM) by the American School and Multi-criteria Decision Aid (MCDA) by the European School, is a set of methods which allow the aggregation of several evaluation criteria in order to choose, rank, sort or describe a set of alternatives./…/ Its principal objective is to provide the decision-maker with tools that enable him to advance in solving a decision problem (for example, the selection of investment projects for a firm), where several, often conflicting multiple criteria must be taken into consideration."

There is a whole research field covering MCDA, and the specialists distinguish between several categories of MCDA's. We will not go into a deeper analysis of these categories here, but very briefly we distinguish between

- multi-attribute utility theory, which is an extension of classical utility theory. Its aim is to describe the decision-maker's preferences as a utility function, and then maximise this function,
- outranking theories, allowing incomparabilities, and
- methods where the preferences of the decision-maker are disaggregated. Often, these methods disregard any incomparability between alternatives or criteria.

There are quite a few different MCDM-models, developed by different people for different purposes. A few that deserves to be mentioned are (the list is not exhaustive):

- ELECTRE-methods (Roy and Bouyssou, 1993; Roy 1996),
- PROMETHEE and GAIA-methods (Brans and Vincke, 1985, Brans et al., 1986, Brans and Mareschal, 1994), and
- The Analytical Hierarchy Process (AHP) (Saaty, 1980).

8.6 Choosing an MCDM model for Ethical Screening

In this report Guitouni & Martel's (1998) recommended procedure for selecting suitable MCDA's was used. The procedure consists of several steps, starting with identifying the stakeholders and decision-makers of the decision problematic. The intermediate steps deals with the matching of the characteristics of the decision problematic to the available range of methods. Finally, a suitable software package is selected. The term "decision problematic " refers to a specific decision situation: to choose, to sort, to rank, or to describe. The available methods can be described as being either: single criterion synthesising in approach (such as AHP), outranking synthesising in approach (such as

ELECTRE), or mixed (such as QUALIFLEX). Below follows an analysis of the decision problem of screening for an ethical fund according to this structure:

- First it was determined that the decision situation had one major type of stakeholder: the investor (in this case a consumer) in an ethically screened fund.
- In the second step the basic choice between approaches employing trade-offs between different attributes, or approaches employing pair-wise comparisons, was analysed. It was determined that pair-wise comparisons, between social and environmental criteria and sub-criteria would be the most feasible approach.
- It was then determined that the decision problematic involved requirements for choice as well as for ranking of the securities of different companies.
- The information available from companies was deterministic and the MCDM would not have to handle ordinal or mixed data.
- Then it was analysed whether it would be appropriate to compensate between social and environmental criteria. It was determined that compensation was acceptable since the proposed fund should combine these attribute in the analysis and selection of securities.
- The final step in the analysis involved the availability of software packages to support the decision. There is user-friendly software for the use of the AHP. The software used in this study also allowed analysis of the acquired results, for example sensitivity analysis and consistency checks.

A number of methods met the requirements of the decision situation. It was determined that the AHP-method was the most accessible method: the software packages were fairly elaborate, and it was expected that the method would be relatively easy to communicate.

8.7 The Analytic Hierarchy Process: An Introduction.

This section very briefly describes the AHP. For a more thorough discussion of the subject, see Saaty (1980, 1992, 1993, 1994.), on which this presentation is based.

The idea of the AHP is to avoid having to take all attributes or criteria (criteria and attributes will be used interchangeably in this section) into account at the same time when solving a decision problem. Instead, pair wise comparisons are used to derive a ratio scale for how important each attribute is for the decision. Preferences are thus stated *implicitly* rather than *explicitly*. The theory is based on three basic principles: decomposition, comparative judgements, and hierarchic composition or synthesis of priorities.

The first step in an AHP is the decomposition of the decision problem's objective into a number of sub-criteria. In the car-buyers problem described earlier in this chapter, the overall objective, choosing the best car, is decomposed into a number of sub-criteria that consist of the relevant characteristics or attributes for a car. In this case price, colour, safety, environmental characteristics, performance and prestige value. These sub criteria could be decomposed further, for example performance could be decomposed into top speed and acceleration, but for the sake of clarity, only one level of sub-criteria is used in this example.

A normal reaction in a situation like this is to try to assess all alternatives, i.e. available car models, based on the sub-criteria. The evaluation is then based on a simultaneous comparison of all criteria for all alternatives.

However, it is a well-proven fact that the human mind is not very good at making such multi-criteria decisions. Instead, consciously or unconsciously, all but one or two criteria are excluded, and the decision is then based on the information for only those few remaining criteria. In the car example, the consequence might be that even though the decision is *intended* to be based on all six attributes, the buyer might end up making the choice based on just price and performance.

The pair-wise comparisons are performed by asking questions like "How much more important is price than performance?". All attributes are compared to each other with respect to the level above, in this case the overall objective "choosing the best car". In this way a matrix of pair-wise comparisons is derived. It can then be shown, by using linear algebra, that the elements in the first eigen vector for that matrix represents the relative weight each attribute should have in the decision.

As in the car-buyer example, there is only one level of sub criteria, the relative weights for each attribute for our car have been obtained after performing the first set of pair-wise comparisons. If the problem had been decomposed further, pair-wise comparisons should have had to be done for every level of sub criteria. The derived weights for each level can then be synthesised into an overall set of weights for each sub-criterion in the hierarchy.

After the relative weights of the criteria have been derived through pair-wise comparisons, what remains is to assess each car for every criterion. This can be done in two ways. If there are only, say, five cars that interest the car buyer, he can perform pair-wise comparisons between those cars for each of the six attributes. For example, he could compare how much safer he believes a Volvo S60 is compared to a Ford Expedition. In this way, a ranking of the cars can be derived for each attribute. If the number of alternatives is large, say if the buyer wants to rank all cars on the market, pair-wise comparisons will probably be to time-consuming. Instead an absolute scale, either constructed or real, can be used for each attribute. Each car is then given a score for each attribute. After normalising the scores, a ranking of the cars can be derived for each attribute.

After this has been done for every attribute, the model will synthesise all the weights and scores, producing an overall ranking of the cars. Again, note that this ranking is based on the car-buyer's *implicitly* expressed preferences.

An advantage of the AHP compared to, say, a pure economic evaluation is that common units does not have to be found in order to gain the ability to make tradeoffs. In the example with performance and prestige value, if a purely economic evaluation should be used, existing scales for both performance and prestige value must be present. Furthermore, some means to trade off a unit of one criterion against a unit of the other criterion must exist (e.g. by converting the to a common unit such as dollars). In AHP, relative measurement does not trade units in the same way, because measurement ascends from paired comparisons to *derive* (rather than assume) a scale.

Another advantage of AHP is that it is easy to analyse whether the decision-maker is consistent in his judgements (e.g. if A is preferred to B and B is preferred to C, then a consistent judgement would be that A is preferred to C). This is done by calculating the consistency ratio, CR. It is a measure of the consistency of the weights given by the

decision-maker (expressed through pair-wise comparisons), CI, and the consistency of random pair-wise comparisons, RI.

Saaty gives a good, albeit somewhat abstract, argument on why relative measurements should be used instead of trying to construct a fixed unit such as dollars. He argues that comparisons expressing individual preferences are an innate ability of the human mind. Absolute measurements apply to elements one at a time, relative measurements is based on comparing elements in multiples. Without priorities to interpret and quantify information, one would need to create an infinite number of different homogenous scales with a unit, one for each of the infinite number of properties known, and would still need a way to interpret and combine the resulting information in order to make a decision. Additionally, his belief is that issues such as ethics and society cannot be reduced into fixed units.

There are a few basic requirements that need to be met in order for AHP to work well.

1. The criteria should be independent or at least independent enough for the differences to be perceived as independent (e.g. the colour of a car must not be dependent on its price or vice versa). A useful way to check the validity of a hierarchy is to determine if the elements of an upper level can be used as common attributes to compare the elements in the level immediately below with each other.
2. The attributes in a level must be reasonably homogenous, that is we must not compare a grain of sand with a mountain (e.g. the price of car with the colour of its cigarette lighter).
3. The number of elements in a group should not be too large. Normally nine is referred to as the maximum number before they should be grouped together.
4. The analyst must have good knowledge about the problem under study

So, evidently AHP is not without limitations or problems. The failure to meet one or several of the requirements listed above could lead to inconsistent judgements or even invalid decisions. When using AHP for applications like ethical screening, one has to be particularly careful so that the requirement of independence is fulfilled. However, the inherent limitations and problems connected to the AHP will not be further penetrated here, that is left for the ambitious reader to do.

8.8 Case Study on Evaluation

Many screening processes today are based on expert panels, during which experts assessed the corporations. Normally, this process is not very transparent, as to the procedure from the stated criteria to the choice of what corporations to include and exclude. On the other hand, the panel method has other advantages compared to a formalised grading. It is a rather inexpensive, fast, and dynamic screening method. In this case study the aim was to render the panel method more transparent, so that the screening process more easily can be followed.

8.8.1 The Assessment Hierarchy

Based on the earlier work in the field of operationalising the screening criteria described in chapter 4 and chapter 5 in this report, a screening hierarchy was constructed (see figure 8.1 below). The hierarchy basically uses the categories and subcategories used in the questionnaire, as this hierarchy was designed to be exhaustive, non-interdependent, and non-overlapping, which are necessary criteria for a good AHP hierarchy.

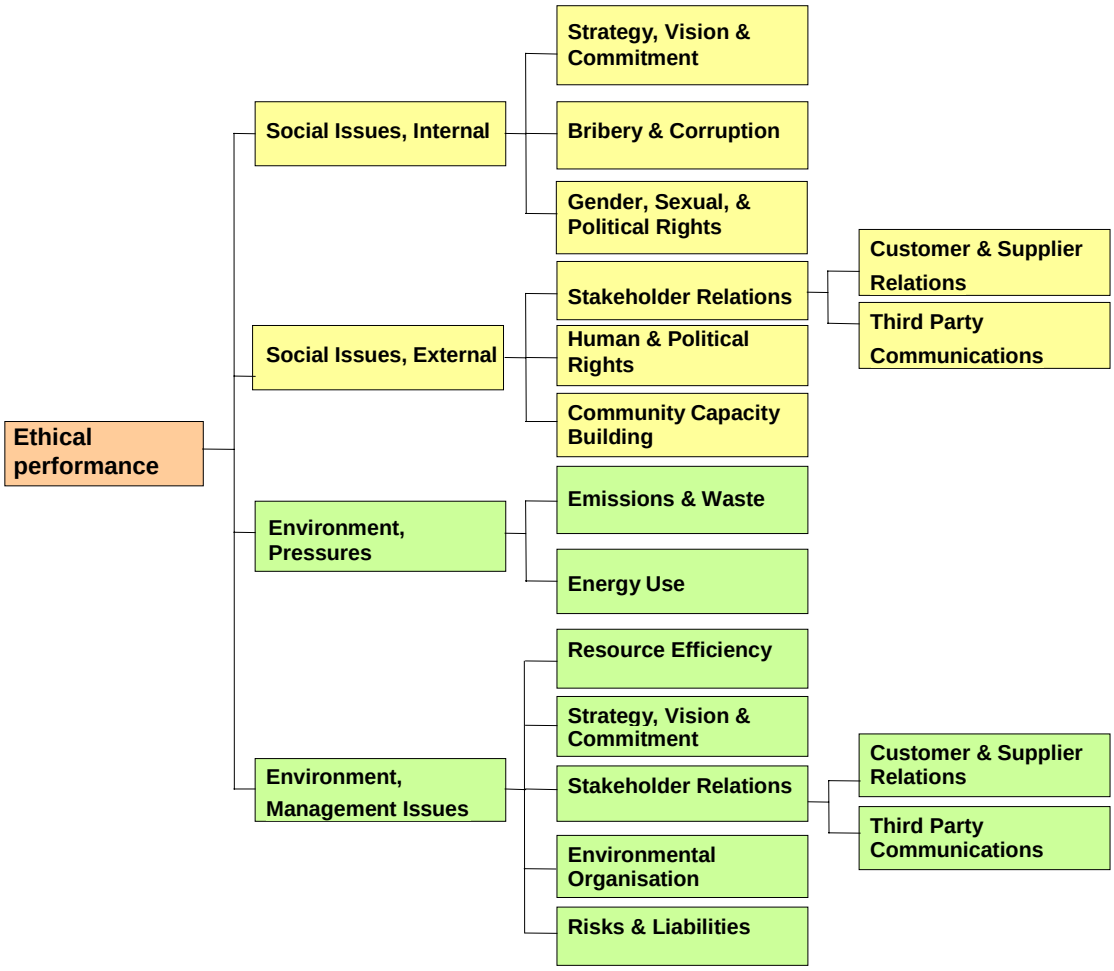


Figure 8.1 The screening hierarchy

The idea of the panel evaluation was to apply the hierarchy to all types of corporations, regardless of business sector. As a generic evaluation model, it was also the idea that the categories should reflect what we want to measure (an ideal state), and not what we actually can measure (a pragmatic approach). Thus, the relative weights of the categories would reflect a generic, ideal relation of the importance of the different ethical aspects for corporations. If there would be major differences between business sectors, or if what could be measured would differ greatly from what we would want to measure, the relative weights would become invalid. The goal set out for the panel was thus a very ambitious one.

Each category in the hierarchy was defined in detail. Also, the general notions of community and environment were defined. Examples of this are:

Social Issues External, Stakeholder Relations
Ethical communications, and openness and verification of ethical communications, with stakeholders. The organisation's capability and efforts to broadens its ethical improvement to include stakeholders. A stakeholder is here defined as: Individual or group concerned with or affected by the activities of an organisation.

Examples
This indicator captures management programmes and processes aiming to support a dialogue or opportunities for dialogue and interaction, media briefings,

overview of reporting of social performance, details on information provided, education initiatives.

This category is divided into two subcategories: Third Party Communications and Customer and Supplier Relations, which are assessed separately.

Emissions to Air, Water & Soil

- *The emissions to air, water, and soil should, in relation to the value of the product or service produced, be considerably lower than the industry average.*
- *If no industry average is available, the organisation is evaluated with the help of industry experts, legal experts and environmental experts. This evaluation should show that the emissions to air, water, and soil can be considered as "low" in relation to the product(s) or service(s) produced.*
- *The organisation should have well functioning systems for monitoring its emissions to air, water, and soil.*
- *The emissions to air, water, and soil should have a downward trend over time.*

8.9 The Objectives of the Screening

One important sub-goal of the case study was to see whether the panel perceived that the relative weights between the categories, or even the hierarchy as such, was dependent upon the goal of the screening. In chapter 4, we distinguished between two different reasons to perform an ethical screening:

1. Saving the World
2. Profit Maximising

In the light of the discussion in chapter 4, two different screening objectives were set up for the panel to relate their decisions to:

1. To assess an organisation's social and environmental impact.

2. To assess the effect on an organisation's money-rending potential due to social and environmental performance.

The purpose was to, based on the expert panel, assess the developed hierarchy towards the two goals. The next step included seeing both whether there were any differences in the relative weightings between categories and whether the hierarchy could be used regardless of the paramount goal, i.e. whether the goal was independent of the hierarchy construction.

8.10 The Panel

The panel used for the screening process consisted of nine persons. The intention was to get a panel with representatives from all major stakeholder and interest groups, which were defined as:

- Environmental NGO
- Ethical NGO
- Environmental sciences
- Ethical sciences

- Industry
- Asset management
- Fund saver
- Authorities or agencies
- Media
- Politicians
- Labour organisations

Seven of these stakeholders were represented in the panel. The idea of having all stakeholders present was to see whether the evaluations between different stakeholders differed, or whether this aspect could be disregarded.

The panel was supposed to meet for one meeting of five hours. Necessary information to support the understanding of the case study, such as on the AHP method, the hierarchy and category definitions, were sent out beforehand and studied by the panel. The panel was not given the opportunity to alter the proposed hierarchy. This was a deliberate choice by the project group, as there was not enough resources for having the panel construct the hierarchy as well (this would have taken at least another 2-3 workshops).

The panel workshop consisted of an introduction to the subject and the pair-wise comparison of the categories of the hierarchy. In the pair-wise comparisons, the panel members were first asked to write down their own weighting and a motivation for this. Then all the weightings and motivations were read out, a short discussion followed, and lastly the panel members separately wrote down their new weighting and motivation if it had changed in the process. Thus, the process was relatively similar to a Delphi process, with the exception that consensus was not a necessary endpoint, and that the panel members to some extent could be influenced by who the other panel members were and their respective opinions.

8.11 Completing the Evaluation

The workshop's only objective was to derive relative weights for the different evaluation categories. However, in order to obtain an overall ranking of the screened companies we also have to assess the company's performance for every category.

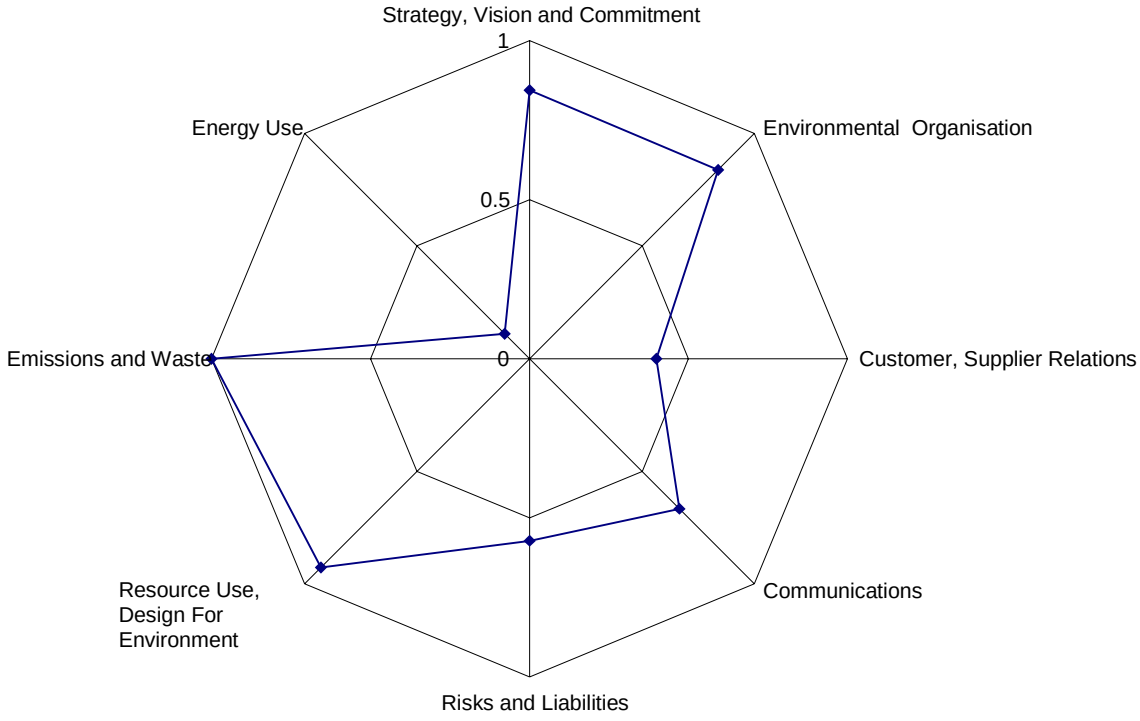
This can of course be done in several ways. In this study we investigated two methods:

1. A fully formalised method based solely on the questionnaires
2. An intuitive method based on benchmarking each company against an ideal description of each category.

The first method means that each question within that category was assigned a weight according to the question's importance to the category. This weighting can be done using an AHP or other evaluation method. Doing this evaluation process was beyond the scope of this study.

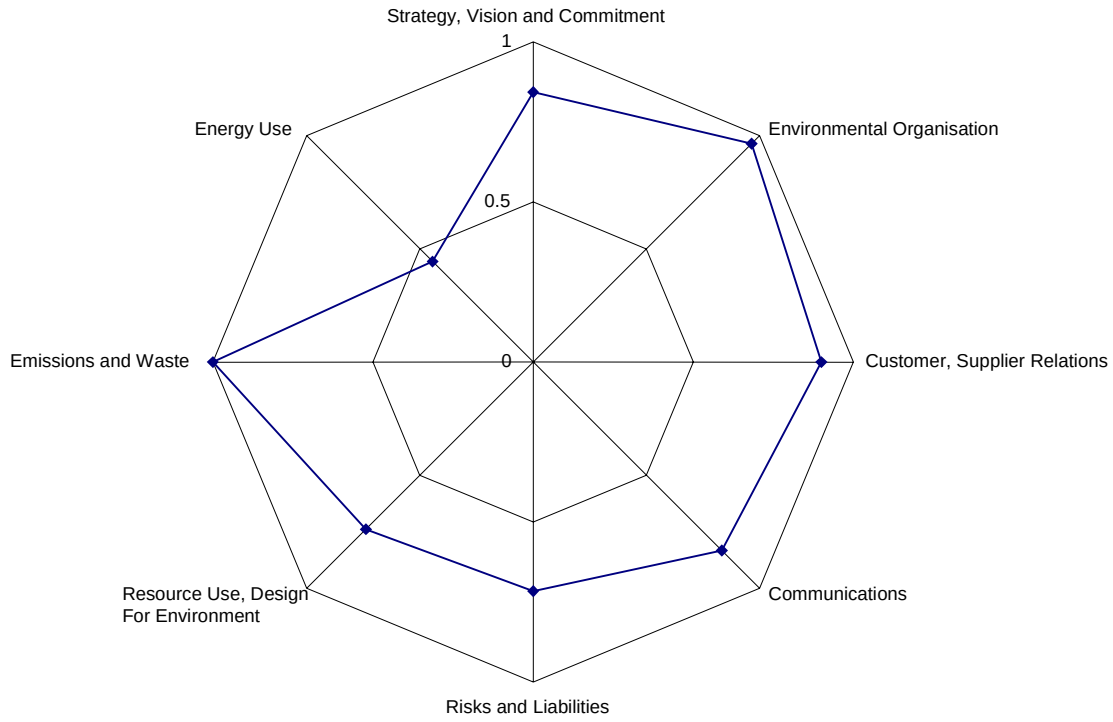
However, for the purpose of illustration, we have investigated what result we would have if we use the weighting factor one on each question. Based on this weighting principle and the answers from four companies we have calculated scores for each company and each category (figure 8.2).

Company A

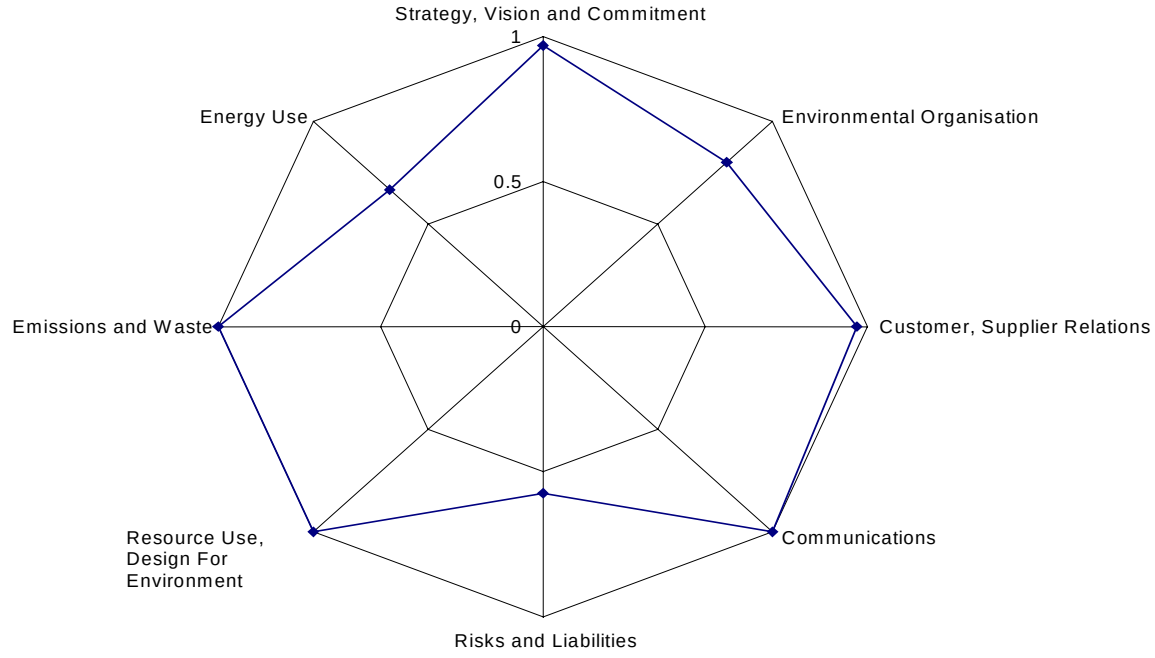


Caption on page 67

Company B



Company C



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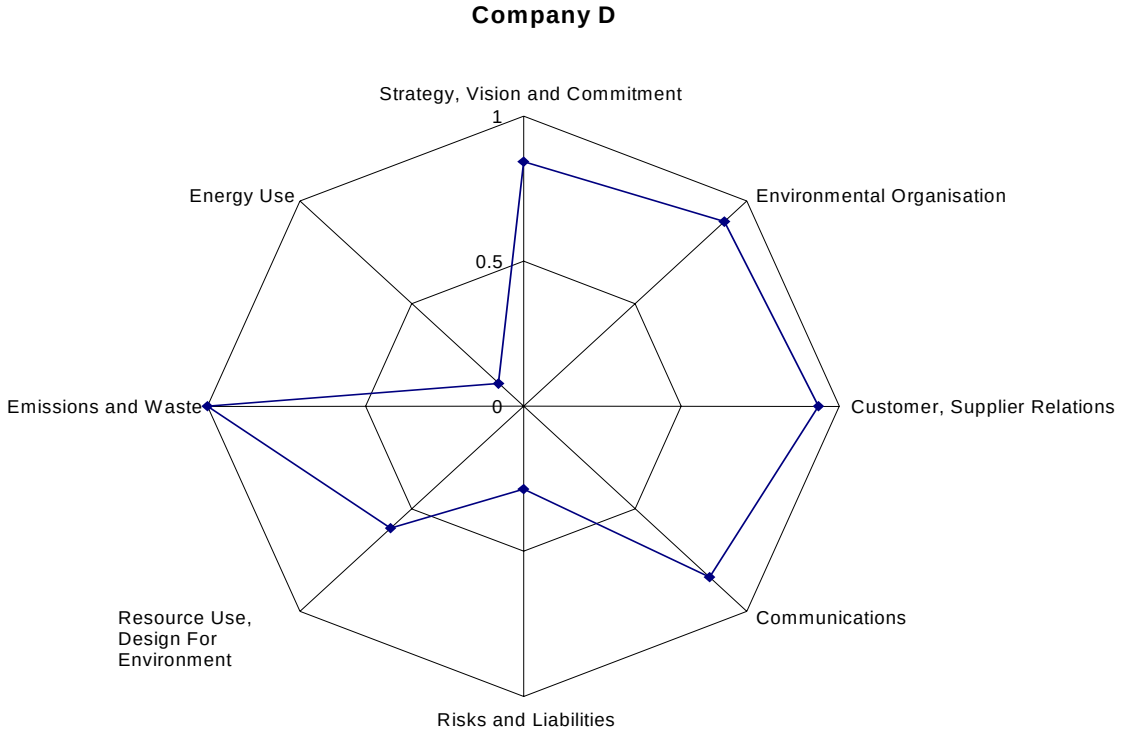

Fig 8.2. The environmental performance of four companies. Eight categories have been investigated and within each category between 1 and 16 questions have been asked (not shown). A "positive" answer results in a point for the question. A "negative answer" results in zero points for the question. Then each question is multiplied with a weighting factor showing the relative importance of the question to the category. In this example all questions are given equal importance, i.e. the weighting factor is one. Finally, the scores in each category are normalised so that 1 is the maximum score for each category.

Even if we have used a fully formalised method, subjectivity has been introduced at several stages:

- When choosing what categories to be included
- When deciding what questions to be asked within each category
- When giving weighting factors to the questions

The intuitive method is based on a description of an "ideal" company. A lot of effort was put into writing definitions of what characteristics such an ideal company should have for each category. These definitions are similar to the category definitions exemplified above, extended with examples and, in some cases, quantification. Each company was then benchmarked against these definitions, obtaining a percentage score meaning "how close is Company A to the Ideal Company for category X?". In this process, all available information about each company can be used. This evaluation method is still under development and was not tested in this study.

Once each category's score has been quantified, an overall score for the assessed companies can be obtained by using weighting factor for each category. These weighting factors could be determined using an AHP or another evaluation method.

8.12 Results from Case Study

The panel quite easily grasped the method and the application it was intended for in the case study. Most of the discussions that took place concerned goal formulation, to some extent the structure of the hierarchy, but, above all, interpretation of the definitions of the categories to be weighted. Because of the liberal amount of discussion, only the first of the screening goal was tested. Below follows the main lessons and comments from the panel discussions:

8.12.1 Goal formulation

A very broad goal formulation was used: the social and environmental impact of corporations. Probably this broad goal formulation is not operable. The environmental and ethical performance of corporations is too diverse and complex to be aggregated to this level. Different issues are of different levels of relevance for different business sectors, and even within a specific business sector it is sometimes difficult to categorise performance. What are considered important issues also change over time, and with the amount of available information. By using a vague goal formulation the entire assessment process will be vague, as all comparisons between categories should be done with the goal formulation in mind.

8.12.2 Structure of the Hierarchy, Category Definitions, and Basis for Screening

The hierarchy of categories was defined not by the panel, but by the project group beforehand. The category definition was conducted by the project group beforehand. This process led to several objections. Many panel members considered the structure of the hierarchy to be such an important part of the screening process that the panel should be doing that as well: to contract a panel when the stage is already set was considered a clear bias for the evaluations of the group constructing the hierarchy. This is a very valid comment: it is also an issue that has been raised several times in the academic discussion concerning the AHP method (e g Saaty 1994). It was mainly a lack of resources that led to this, as it proved, somewhat unfortunate process. A complete panel process, including the construction of the hierarchy, would have taken days to carry through, and it was considered impossible to gather a competent panel for such a long period of time with the limited budget of the project.

The definitions of the categories were chosen with the goal formulation in mind, and therefore covered very broad issues, just as the goal formulation did. During the panel work shop, there was a lot of discussion regarding whether the relative weights assigned to the categories should reflect what issues one wanted to measure in the corporations, or whether the categories should reflect what issues one actually could measure in the corporations. There is often a large gap between the two definitions, both concerning social and environmental performance. This discrepancy entails that the relative weights between categories can differ substantially, depending on what the weight is supposed to reflect. In order to be able to develop an operable methodology concerning ethics screening, the definition of the categories should be designed after what actually is measurable and forms the base of the evaluation process, and not after an ideal or generic situation as was done during the panel work shop.

8.13 Discussion

8.13.1 Decision Making in Ethical Screening

The decision methodologies illustrated by the cases in this report can be analysed according to a few basic dimensions. The dimensions are some of those encountered in

classical decision theory and they can be used to classify the different situations that can be encountered by an ethical screening analyst, cf. Simon et al (1987). The type of available information is one fundamental aspect of the ethical investment decision ("Quality of available information " in Table 8.1). Rarely can the analyst expect to have the necessary information at hand to evaluate some ethical aspect of a company's activities, often it may be difficult even to adequately define what the nature of such "perfect information" would be. Another dimension refers to the aims of the ethical analysis ("Type of preferences" in table 8.1). The aims ultimately decide how a set of companies would be ranked in an ethical investment decision. To add to the complications many ethical investment processes presume that more than one objective should be reached. This may be because the aim of the ethical investment decision reflect the objectives of several decision makers who may agree on some aims but may stand in opposition in other regards.

One finding of our cases is that the complexity and time requirements for an analysis increase when the information becomes less complete, and as the objectives to be met increase in number. This is denoted "Decision process complexity" in table 8.1.

Table 8.1. A typology for ethical investment decisions.

		Quality of available information			
		Perfect	Incomplete		
Type of objectives	Multiple	1. All necessary information and objectives available: MCDM methods, such as the Analytical Hierarchy Process, are appropriate.	2. Necessary information unavailable or uncertain, and several interdependent objectives to reach: decision-makers resort to "judgements", e.g. panels, rules-of-thumb, or perhaps MCDM.	Higher	Decision process complexity
	Single	3. All necessary information available and a single objective, such as the elimination of undesirable stocks in a portfolio.	4. Necessary information unavailable, uncertain or difficult to interpret and a single objective: such as different types of risk analysis for social or environmental issues.	Lower	

Table 8.1 contains four numbered boxes, which represents the typology ethical investment decisions derived from the research in this report:

1. **Complex ethical optimisation**. Many types of ethical investment decisions can be said to belong to this category, such as the ones where multiple exclusion or best-in-class criteria are used. In the AHP case in this report Chapter 6 the decision-makers had access to perfect information as to the ethical and environmental performance of selected companies. However, it was unclear how to trade-off ethics and environment in the ranking of companies and the Analytical Hierarchy Process was employed to facilitate the decision process. The process itself becomes much more prolonged and complex as a result of several criteria, compared to the basic decision case (3. in table 8.1).
2. **Complex ethical judgements**. The second situation can be considered the most problematic one but also to be realistic. In the cases on data collection described in Chapter 6 and Chapter 7 it proved impossible to obtain complete information on the companies in a portfolio, and the aims of the screening (as described in Chapter 4) were unclear as well as contradictory. A considerable degree of "judgement" would have been necessary to obtain a ranking of the companies since exclusions **and** best-in-class rankings had to be made based on incomplete information. This decision process was the most complex one encountered in this research project and the decisions made in similar cases stand a good risk of suffering from the well-known biases associated with heuristics in decision-making, cf. Bazerman, (1994).
3. **Simple ethical optimisation**. The third situation is of a type encountered in most basic literature on decision-making. Few realistic situations in ethical investment decisions are likely to be of this type except for cases where one unproblematic criterion such as tobacco is used, and where no consideration of the financial effects of such exclusions are being considered.
4. **Simple ethical judgements.** The fourth box in table 8.1 can be said to representative of situations where a single exclusion criterion is used and where the information about companies' behaviour is uncertain or difficult to interpret requiring a judgement as to interpret. This would be exemplified by a social criterion such as "child labour" being used to screen a portfolio.

8.13.2 AHP Workshop

Even though there were several issues in the set-up that rendered the results from the panel workshop dysfunctional, the general opinion in the project group is that it is a viable method for ethical screening. However, several restructurings and limitations have to be done in order to use the AHP method for this purpose.

There are weaknesses with the AHP method, but the major difficulties are rather inherent in the nature of the problem investigated: to, with limited resources, make a comprehensive screening of complex issues. As of today, based on the literature survey and market survey done in this project, there does not exist any tool that better solves the task. There are some major limitations and restructuring needed, compared to the panel workshop, to use the AHP method for ethical screening. The objective must be strictly formulated, and not aim to be generic. Aiming at a very generic model, as was done in the case study, one ends up with a model including almost everything. Apart from the problem of weighing everything together, there will be enormous difficulties gathering data for such a model, and to verify that data. It also seems important to include the panel throughout the screening process. The panel does not have to dictate exactly how the screening should be done, but their understanding of the entire process is vital for their being able to make a just evaluation.

8.14 Conclusions from Case Study 3

We reached the following conclusions:

- The complexity and time requirements in the evaluation process increase when information becomes less complete, and as the number of criteria that should be assessed increase.
- It is very difficult to operationalise a vague and broad objective. The objective should be well defined, preferably measurable by a list of criteria.
- Using the AHP model, as much as possible of the decision should still be removed from the hierarchy, for example through the formulation of cut-off criteria. In that way, the hierarchy can be constructed as straightforward as possible, not as comprehensive as possible.
- The definition of categories in an AHP hierarchy should be directly linked to the criteria and to what actually can be measured in the corporations.
- An evaluation panel should be participatory in the entire screening process. Thus, one step of possible misunderstandings is emitted, as well as one step of possible unwanted bias.

9 Uncertainties

Through the different steps in the screening process a number of sources of uncertainty are introduced:

- Establishing issues of relevance and criteria. Here, some relevant issues might be overlooked. Translating issues into measurable parameters means a simplification of reality. For instance, describing climate change with CO_2-emissions is a simplification of reality. Furthermore, we need to reduce the number of parameters into a limited number of manageable parameters, thus introducing more uncertainty (see section 5.2.1).
- Data collection. In this step uncertainties are introduced due to several reasons: the lack of data, the incompetence of the deliverer of data, the interpretation of the receiver of the data, system boundary problems, tampering of data in order to make the company look better, the withholding of data, and the unwillingness to deliver data
- Evaluation. The selection of evaluation categories and questions and how these are evaluated will introduce a considerable amount of subjectivity. This will increase uncertainties in the results.

This uncertainty can be reduced by gathering more information, but gathering information takes time, effort, and resources, and no matter how much effort is put into information gathering and analysis, there will always remain some uncertainty. Thus, there is a trade-off between uncertainty and effort put into all steps of the screening process. The aim of the screening process is to bring this uncertainty to a reasonable level with limited resources. It will always be possible to increase the certainty of a screening by putting more effort into some of the screening steps (see figures 9.1 below).

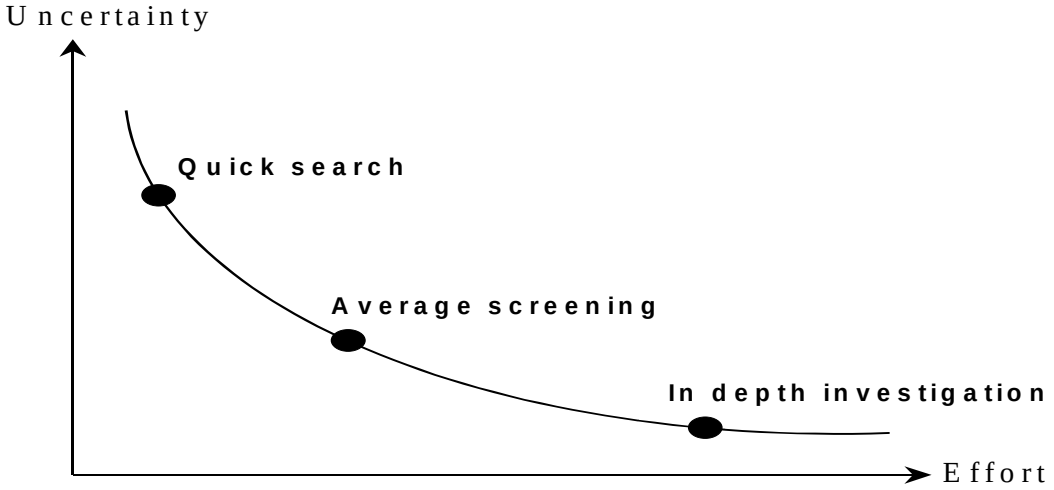

Figure 9.1 Relation between certainty and effort in the screening process

The uncertainty will be larger for some companies than others, depending on business sector, region of activity, willingness to provide information, etc. The case studies in this project conclude that some companies provide more or less complete information with very little effort from the screener, most companies provide less complete information or only provide information after some additional effort, and others still are very difficult to collect information on regardless of efforts. Therefore, it seems to be unavoidable to

accept a certain level of missing data, and this might as well be calculated with from the start. Thus, it can be useful to define a cut-off level on how much effort should be spent on data gathering, both an acceptable average level and a maximum level per company (see figures 9.2 and 9.3 below).

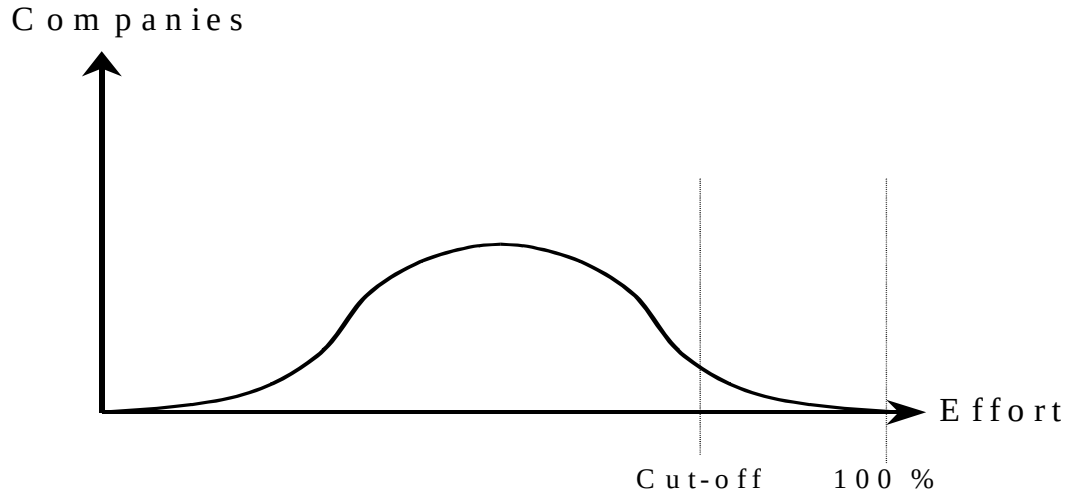

Figure 9.2 Distribution of effort in data collection per company.

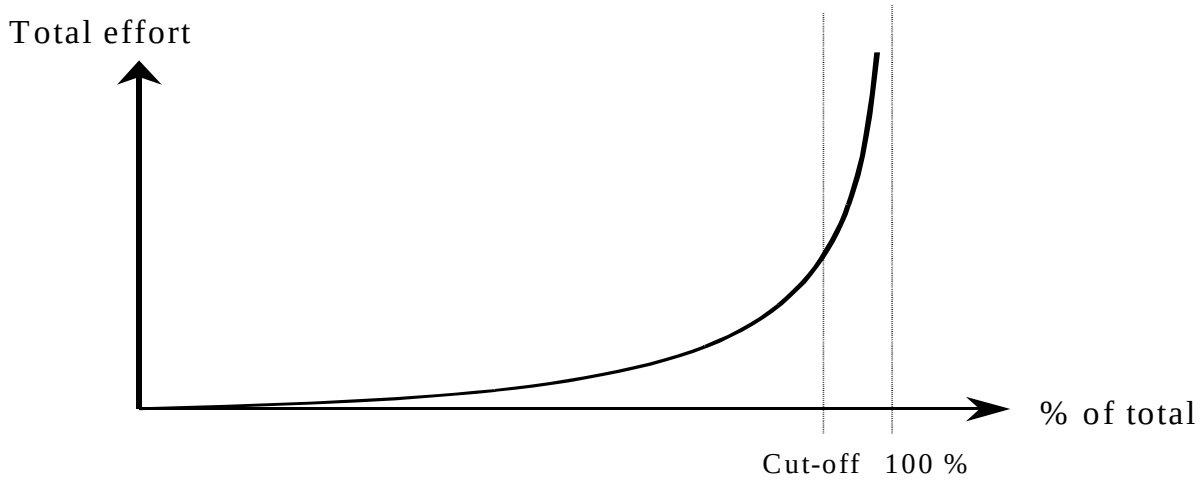

Figure 9.3. Total effort in data collection related to percent of sample collected

It can be argued that a limitation of the investment universe never can improve the profitability: the only thing an ethical screening does limiting the investment universe, thus limiting the chances of picking profitable companies. However, if the ethics screening contains information not available or used in the financial screening it could lead to higher profit. For example, a basic ethical screening can be to remove companies charged with environmental damage and thus liable to pay damages. If this information is not available to the financial screener, then screening will probably lead to higher profit than if an ethical screening was not performed.

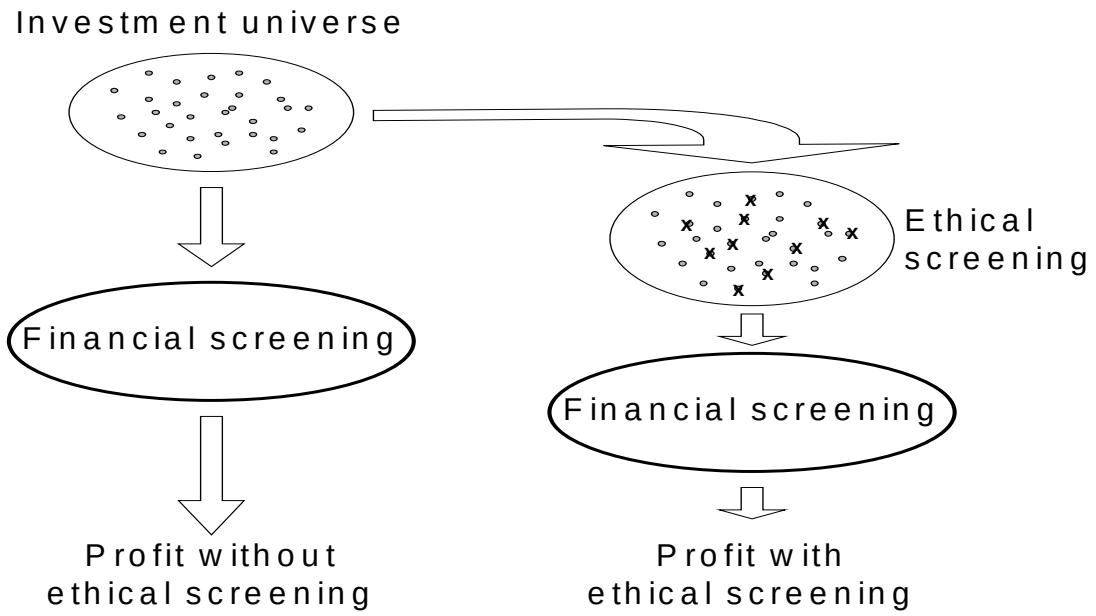

Figure 9.4 Conceptual picture of profit with and without ethics screening (identical to figure 2.5)

10 Conclusions

In order to structure the main conclusions, as this project had a very broad scope, the questions from section 1.2 (Objective of the Study) are answered here.

Is it possible to perform ethical screenings?
The study does not try to elaborate the concept of "business ethics". We have set out to capture companies' ethical practices and make these measurable.

What are the characteristics of current ethical screenings?
The global market for ethical screening
The market for ethical screening has undergone a ten-year period of rapid growth, and can now be considered to represent a major market segment in several financial markets globally. Screening practices have diversified during this period, and increasingly sophisticated practices have emerged. Some of the methods in use claim to combine environmental, social and financial considerations. Some claim positive relations between financial performance and ethical performance.

It is possible to identify a number of representative and fairly sophisticated screening practices. The inferences to be made based on our study of such state-of-the-art screening practices are that:

- Ethical screens often have different aims but it is possible to identify common traits as to data gathering, evaluation and decision practices.
- Practitioners frequently use different combinations of such practices to reach their aims.
- The state-of-the-art practices include questionnaires as a basic component in data collection, and they can be roughly characterised as belonging to the **intuitive/informal** or the **analytic/formal** screening style when characterising the evaluation of data.

The research evidence from studies of the relation between ethical and financial performance gives some support to the claim that financial performance is positively correlated to good ethical performance. The evidence is not conclusive, mainly for methodological reasons, and there are comparatively few studies of actual screening practices used for asset management.

What should be included in an ethical screening?
The screening process can be divided into a 4-step process:

1. Definition of the Screening Objective. We believe two main objective types can be used as a way to describe all possible objectives for an ethical screening: Saving the World and Profit Maximising.
2. Definition of Issues of Relevance and Screening Criteria. How do we go about to measure the objective? Depending on objective, the criteria can be designed as cut-off criteria or as trade-off criteria, as positive inclusion criteria or as negative exclusion criteria.

3. Data Collection. How do we get the data needed for the screening? Available methods are official statistics, questionnaires, company publications, media sources, interviews, NGO databases.
4. Evaluation. The assessment of companies. If only cut-off criteria are used, this is a fairly straightforward process. If relative criteria are used, an evaluation method needs to be used. This method can span from intuitive to analytic.

The scope of an ethical screening is ultimately dependent on the screening objective: nothing can be said on what issues that should be included on a general basis. The screening objective is a normative statement by the fund manager or fund saver. Based on the screening objective, and also on what resources that are available and what level of certainty that needs to be achieved, it is possible to design guidelines for what should be included in an ethical screening.

For the other steps of the screening process, no single method can be said to be preferred in all situations.

Cut-off criteria are easier to use, while trade-off criteria give a more precise description of company performance. Positive criteria are preferably used when looking for best-in-class companies, negative criteria to exclude the worst ethical performers. Scarcity of time, information, or other resources usually renders the criteria indicators of the problem analysed.

No single data source is likely to include all relevant information on a company, and thus the parallel use of several data sources is recommended. All data sources are likely to be biased in some way: companies have incentives to exclude negative information on their performance, media is biased to news value of information, etc.

The evaluation process is the most difficult step of the screening process. As it is not possible to compare the results of an evaluation process to an objective truth, it is crucial to keep the process transparent and documented. Evaluations in screening processes are often multi-step, multi-criteria decisions, which leads to a fuzzy decision process. It seems that Multi-Criteria Decision Models (MCDM) are suitable for handling this type of decision process.

Regardless of methods chosen, a screening process can never guarantee that the right decision is made. However, the more effort put into the process, the higher the reliability becomes. Thus, there is a trade-off between reliability and effort in all steps of the screening process.

What methods are preferred: intuitive or analytic methods?
Both the intuitive and the analytic approaches are necessary. Strictly formal, analytic methods tend to be too static, strictly intuitive and informal methods are more likely to be arbitrary, inconsistent and not transparent. There is a need for both. Structuring the process so that the analytic steps are strictly analytic, and the intuitive steps analytic in structure can achieve better transparency.

What data should be collected? How can these data be collected?
A questionnaire can be a very good way of obtaining valuable information about the ethical performance of a company, but it will never deliver all necessary information for a

screening about a company. Other information sources have to be used as well. Expert knowledge and business sector specific competence is essential when deciding what information to ask for. If the questions are not perceived as being relevant, the response frequency drops and the quality of the answers deteriorates. Direct information from the companies seems like the only way to get comprehensive environmental data, especially "hard" data.

The need for quantitative data is directly related to the objective of the screening. Quantitative data is vital mainly for environmental performance. For reasons stated in the above paragraph it is difficult to get such data, and it takes more effort to collect comparable quantitative data. But even if there are significant errors in the reported data that we investigated, we believe that quantitative environmental information can be used as a basis for evaluating companies. Since the acquisition and evaluation of quantitative data is difficult and costly it would be tempting to leave out this information in an ethical screening process. We believe, however, that this information is highly relevant and that it needs to be included in the screening process. Only these data will show the actual environmental impact of a company.

How should the information be evaluated?
In the evaluation step, two keywords are *transparency* and *competence*. Since considerable subjectivity is inherent at different stages in the evaluation process, expert knowledge will always be needed to evaluate companies. As it is impossible to verify the normative judgements of such experts, it is important to render this process as transparent as possible.

An expert panel can provide valuable input into the evaluation step of the screening process. The panel may have different roles depending on how the screening process has been designed. Its members need to have a good understanding of the issues in question: ethical, financial and corporation-wise. The panel needs to be participatory in the entire process so that its role in the screening process is clear.

Is it possible to rank companies?
In general, ranking is only possible for companies described with trade-off parameters. (Cut-off parameters lead to exclusion or inclusion, thus making ranking superfluous). However, the more complex or numerous the parameters to be ranked after are, the more probable it is that one or more of the following aspects lead to difficulties:

- Companies from different business sectors have different performance on different issues, depending on the nature of business. This makes it difficult to compare between companies. Poor performance in one business sector could well be the best in class in another business sector.
- Companies from different regions respond differently to requests for information. North American companies tend to be less inclined to deliver data than European companies.
- Data gaps or incomparable data exist because of differences in system boundaries, different legislative standards, etc.

Does social screening differ from environmental screening?
For social issues, it is more common that no deviation from the criteria is accepted. Social issues are also often represented by qualitative data. Therefore, it is usually convenient to measure social issues with cut-off criteria. It also seems more common

that the information required for social issues is not provided by the companies, making other data sources more important.

For environmental issues, it is usually more common that trade-off between different environmental aspects have to be done. The quantitative nature of most environmental data also makes it suitable for formulation of trade-off criteria. In order to collect the quantitative data needed, information directly from the companies is important, as other data sources seldom have the level of detail or the system boundaries needed.

Data handling
Regardless of data collection method, there will always be data gaps: non-responding companies, data not available in databases, data provided incomparable, etc. Therefore, there is a need to have a structured way of dealing with non-data: should companies be excluded in the event of data gaps, are some data gaps acceptable and in that case what data gaps and for what type of companies, etc. Without structures for dealing with data gaps, these may quickly overrule the actual results of the screening process.

Overall conclusions of the study
It is both common and motivated that different objectives are used for ethical screening. These different objectives lead to different preferred methods of screening. In order to conduct an elaborate screening, competence concerning both ethical issues and the capital market is needed.

Even though intuitive and informal steps always will be present in a screening process, we believe it is crucial that the overall approach is analytic, formalised, and transparent.

Further Research

Early in this project we identified a number of issues to be investigated by the project. (see chapter 1 – Introduction). We have been able to study most of these issues and have presented our results and conclusions from these studies in the report (see chapters 2 to 10). However, there remain issues that are not investigated exhaustively. We have also during the project identified new issues that we believe requires further research. We therefor conclude that in order to further develop the process of ethical screening the following issues need to be investigated:

- The development of a comprehensive method for data collection. This should result in guidelines for:
  - Collection methods – pros and cons.
  - Questionnaires – how to design to maximise information collected and response frequency subject to budget and time restraints.
  - Media and NGO databases - which ones to use, how to use them.
  - Legal documents – availability and usability.
  - Interviews.
  - Methods for dealing with data gaps.

- An analysis of the data collected in this project. To make statistics on each parameter, investigate sector and regional dependencies, produce diagrams that summarise information from the sectors. Produce sector specific indicators on CO2-emissions and other quantitative data. Perform further studies on how quantitative data can be used, what indicators should be calculated, and how this should be presented.
  The further testing and analysis of available evaluation methods.

- The development of a state-of-the-art data method for evaluation. This should result in guidelines and a "tool box". Issues to consider include:
  - How can we evaluate the information from the data collection? What methods should we use in different applications?
  - When should we use intuitive methods, when should we use analytical?
  - When should we use positive (inclusive) criteria, when should we use negative (exclusive) criteria?
  - When should we use cut-off criteria, when should we use trade-off criteria?
  - How should we rank companies?
  - How much effort should be invested in the evaluation process?

In the context of improving ethical performance of companies we are aware of the fact that there are other means than financial screening. Corporate governance is another area in which business responsibilities are pushed towards new boundaries. At the end it all relates to the overall question of what business activities are there for.

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