Sustainable Value Creation by Nordic Companies

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Foreword

Purpose and scope of the study

This study assesses the economic-environmental performance of 89 companies across different sectors from the Nordic countries Denmark, Finland, Norway and Sweden using the Sustainable Value approach. The Sustainable Value approach extends the concept of opportunity costs that is well established on financial markets to include environmental and social aspects. This allows for the fact that companies not only require economic capital for their business activities, but also environmental and social resources. To create positive Sustainable Value, a company must use its economic, environmental and social resources more efficiently than an alternative user. In this study, we concentrate on the creation of Sustainable Value with economic capital used and corporate emissions of carbon dioxide (in the following e^2-Value) and therefore align corporate contributions to climate change with the valuation methodology applied to investment and financial market decisions.

The purpose of this study is twofold: Firstly, the assessment aims to create transparency by demonstrating how efficiently 89 companies across 22 different sectors in four different countries use economic capital and corporate carbon emissions compared to the average of the Nordic economy in the years 2006 to 2010 and to 2020 political targets. Secondly, the study aims to reveal the potential that still exists for a more efficient use of economic capital and carbon dioxide within and across the different sectors by comparing laggards to leaders. The Sustainable Value approach can be extended to other resources and could cover the entire life-cycle of products. However, for this study, we decided to focus on the use of economic capital and on the climate change impact of activities within the production process of the respective companies. There are two main reasons for this. Firstly, this pays tribute to the importance of economic development and climate change for the Nordic region. Secondly, it allows us to cover more companies as the inclusion of additional indicators drives down the number of companies that can be considered due to limitations in data availability. By concentrating on the production process we follow the example of the financial markets that concentrate their performance assessment on the use of economic capital by the company rather than by the entire life-cycle. The results of this study thus show how effectively a company balances profit-seeking with its climate related environmental responsibility in production activities.

Funding from MISTRA

The Swedish Foundation for Strategic Environmental Research (MISTRA) funded this study via the research project “Sustainable Investment Research Platform” (SIRP), subproject “Value-based environmental sustainability analysis of Nordic companies”. At the same time it must be stressed that the researchers at the University of Leeds, Euromed Management Marseille, and the Institute for Futures Studies and Technology Assessment take full and sole responsibility for this study and its conclusions. This extended study complements the previous sector specific study “Sustainable $Value_{CO2}$ creation by Pulp & Paper Companies” that was funded by and conducted within the same project.

Executive Summary

This study reports the findings of a research project that analysed the capital and carbon performance of 89 Nordic companies across 22 different sectors using the Sustainable Value approach. The research was conducted by researchers working at the University of Leeds, Euromed Management Marseille, and IZT – Institute for Futures Studies and Technology Assessment. The Sustainable Value approach is the first method that allows for assessing corporate sustainability performance based on the value created with the resources used. By extending the traditional valuation method applied in financial analysis, it assesses not just the use of economic capital but also environmental and social resources. In this study we calculate the economic-environmental value (e^2-Value) as a special case of Sustainable Value, which assesses a company's economic capital and carbon performance in a value-based way.

A Nordic company thus creates positive (or negative) e^2-Value when it earns a higher (or lower) return than the Nordic economy with the capital it used and the carbon it emitted. An analysis based on the e^2-Value approach, thus, establishes whether a company is successfully using its economic capital and its carbon emissions to create value in comparison to the Nordic economy on average. In doing so, the e^2-Value approach measures corporate economic and carbon performance in monetary terms. It establishes a link between corporate contributions to climate change and the value-based approach that has traditionally been used in management practice and financial analysis.

This study assesses the economic capital and carbon performance of 89 companies over a five-year period from 2006 to 2010. Moreover, the use of these resources is assessed against the prospective economic development and political carbon emissions reduction targets for the year 2020. Two assessments were carried out in the process of this research: The first assessment focuses on the creation of absolute e^2-Value, expressing in a single monetary indicator the value that has been created or lost with the resources used in comparison to the Nordic economy. The return figure used to determine the e^2-Value of the companies under analysis is Net Value Added (NVA). NVA as return figure provides particularly interesting results from a sustainability perspective as NVA represents a company's contribution to the Net Domestic Product of the economies it operates in. The second assessment takes into account company size and expresses corporate performance as a Return to Cost Ratio (RCR). RCR is a measure of the relative capital and carbon performance of companies. To compare the performance of companies of different sizes, this study looks at the NVA of a company in relation to its opportunity costs. RCR thus shows the factor by which a company uses economic capital and carbon emissions more or less efficiently than the Nordic benchmark.

The results of the calculation of absolute e^2-Value creation show considerable differences between both the companies and the sectors assessed. Except for Scania, Sandvik, Danfoss and Rapala all of the companies considered show either positive or negative e^2-Value results throughout the entire review period. Although about 64% follow a positive trend, it is striking that the majority of the companies assessed (about 56%) destroy e^2-Value

continuously over the entire assessment period. Nokia by far generates the highest e²-Value from 2006 to 2008, with its best result in 2007, creating about €5.8bn more NVA than the Nordic economy would have generated with the economic capital and CO_2 emissions used by Nokia. However, overall Nokia is following a negative trend. In 2009 and 2010 Ericsson leads the ranking, creating its highest e²-Value (€3.65bn) in 2010. At the other end of the spectrum, Vattenfall lags far behind the Nordic economy in terms of e²-Value creation for all years assessed. In its worst year (2010) the company destroyed a devastating €200 billion of e²-Value. The results look different when company size is taken into account; here, H&M (2006 and 2007) and DNV (2008 to 2010) are on top of the ranking. In 2009 DNV yielded a RCR of 5.4:1, that is, the company created 5.4 times more NVA with its capital and carbon than the Nordic economy on average would have generated with DNV's resources. Worst performers after correction for company size were Energinet in 2006 (1:61), Vattenfall in 2007 (1:36), Norske Skog in 2008 (1:45) and 2009 (1:62), and Torm in 2010 (1:194).

With respect to the future benchmark the results show that some companies contribute already today to economic and environmental performance targets of the Nordic countries by the year 2020. The rankings again are led by Ericsson with respect to absolute e²-Value creation (€3.3bn) and DNV in terms of the RCR performance (4.8:1), while the rear is brought up again by Vattenfall (e²-Value -€360bn) and Torm (RCR 1:334) respectively. The assessment, moreover, shows that the majority of the companies assessed have to make significant efforts in order to catch up with future performance targets of the Nordic region, particularly with respect to CO_2-emissions reduction targets.

Comparing the results of the different sectors assessed, we find that companies of traditionally capital and/or energy intensive sectors such as financial services, real estate, primary metal industries or the oil & gas sector are showing mainly negative results. Typically R&D and knowledge intensive sectors such as engineering & machinery or electrical equipment & components, in contrast, tend to show mainly positive e²-Values. An intra-sector comparison of the assessment results reveals, moreover, considerable differences between individual companies within the same sector (e.g. transportation or forestry & paper). Although these differences can be partly ascribed to different product portfolios, the results also reflect the differences in current capital and carbon management practices.

It should be noted that the Sustainable Value approach does not attempt to express a company's entire commitment to sustainability in a single figure or ratio. Along these lines, the e²-Value applied in this study does not attempt to express a company's entire commitment to carbon management in a single figure or ratio. For example, the study does not take into account biogenic carbon dioxide emissions. Furthermore, the Sustainable Value approach only takes into account impacts that can be quantified in a meaningful way. Qualitative sustainability aspects should be managed with qualitative instruments.

The Sustainable Value approach provides a link between sustainability and the value-oriented approach that is common in management practice. Taken as a whole, the results of this study provide a transparent and meaningful overview of capital and carbon performance trends among the Nordic companies and sectors assessed. More generally speaking, this study illustrates the extra value that has been created by the most capital and

carbon-efficient companies within the Nordic region and, in turn, the value that has been destroyed by the most capital and carbon-inefficient Nordic companies when compared to the Nordic economy as a whole. Overall, the study shows that e^2-value is a practical tool for conducting an in-depth assessment of corporate capital and carbon performance.

1 Introduction

Corporate organisations are usually judged on their economic performance alone with shareholders and the wider economic community focused on financial profits. However organisations also have an impact on society and the environment which is typically not comprehensively covered in traditional financial accounting.

The Sustainable Value approach was developed specifically to solve this problem (see for example Figge, 2001; Figge & Hahn, 2004b, 2005). It measures the efficient use of economic, environmental and social resources and expresses the result in a single integrated monetary figure. It moves away from the traditional logic that burden oriented impact assessments are based on and instead treats environmental and social assets as scarce resources that have to be used in a value creating way.

Measuring corporate sustainability performance is a complex undertaking. This is not only due to the fact that economic, environmental and social information need to be considered simultaneously, but also due to problems concerning the quality and availability of the necessary data. Nevertheless, measuring corporate sustainability performance is extremely important: unless it can be measured, it cannot be managed. Traditional instruments are not capable of combining the environmental, social and economic parameters of sustainability and reporting them in a standardised form that is readily understood throughout an organisation.

The Sustainable Value approach has been tested in a series of research projects and case studies covering specific sectors such as the pulp and paper sector (Barkemeyer et al, 2011), chemicals (Liesen et al, 2009), automobiles (Hahn et al, 2008), manufacturing (Hahn et al, 2007) as well as geographically based studies, such as those focusing on a number of German organisations (Hahn et al, 2007) and European organisations (Figge et al, 2006). The research team members currently work at Euromed Management School Marseille, IZT – Institute for Futures Studies and Technology Assessment, Berlin and the University of Leeds.

This report represents the first comprehensive study of corporate organisations within the Nordic countries using the Sustainable Value approach. It focuses on the creation of Sustainable Value by the use of two key indicators: emissions of carbon dioxide and use of economic capital. CO_2 emissions were chosen due to the importance of climate change for society and constitute a key indicator for corporate environmental performance. Total assets were chosen to assess how efficiently companies used the economic capital available to them.

The Nordic countries are traditionally seen as strong performers in terms of environmental sustainability, and hence are committed to national (and EU level) CO_2 reduction targets which companies will need to play their part in meeting. Therefore this survey assesses how a range of Nordic companies across different sectors are performing against the two indicators, both against current carbon performance and future carbon reduction targets. The report also looks at data quality and availability which have become increasingly

important issues as more studies are undertaken (see Barkemeyer, Figge, Hahn, Liesen & Müller, 2011) while the degree of standardisation and quality between economic reporting and social and environmental reporting still needs further alignment.

The following sections of this report are arranged as follows: In the next chapter we present the Sustainable Value approach and introduce the concept of e^2-Value. In chapter three we outline the scope of the study, including information on the companies analysed, the indicators used and the calculations undertaken. Chapter four gives an overview on the overall results for the study and chapter five contains a discussion of the results focusing on company, sector and country performance as well as on data problems and reporting quality. Our conclusions are presented in chapter six.

2 Sustainable Value - Method for Calculating e²-Value

2.1 The Sustainable Value Approach in Brief

Companies use not only economic capital but also environmental and social resources to create value. To determine a company's sustainability performance comprehensively, a set of different resources used must be taken into consideration. The Sustainable Value approach measures corporate sustainability performance in monetary terms and ascertains whether a bundle of economic, environmental and social resources has been used in a value-creating way by a company (Figge, 2001; Figge & Hahn, 2004a, 2005). In this sense the approach is based on a fundamental principle of financial economics: companies create value whenever they use a resource more efficiently than their peers. In the financial market, this valuation methodology has long been practised under the banner of opportunity costs.

The example illustrated below (Figure 1) explains the underlying notion of opportunity costs. Let's assume an investment, such as a share, yields an annual return of 8%. To assess whether this was a good performance, we need to compare it with a benchmark – generally the market average. Assuming that the market (e.g. the shares represented by the Swedish OMX index) has only produced an annual return of 5%, the investment has outperformed this index by 3%. This is also known as the value spread. To determine how much value has been generated by the investment, this value spread simply needs to be multiplied by the capital employed. Assuming an investment of €100, we arrive at a value contribution of €3 (see Figure 1).

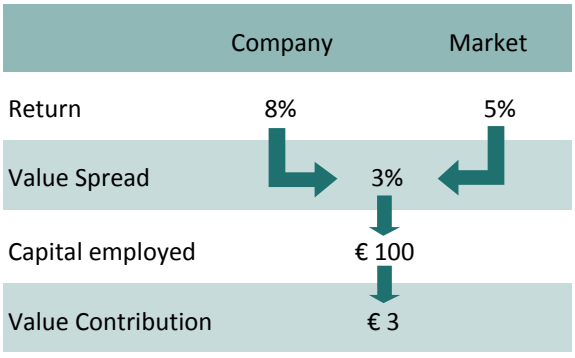

Figure 1: Value-oriented analysis of resource use

The Sustainable Value approach extends this methodology, which is firmly established in financial markets and company valuation practices, to the use of environmental and social resources by companies.

It is the first approach to use opportunity cost thinking to assess corporate sustainability performance. In this study, we use the Sustainable Value approach to value the use of economic capital and CO_2 by Nordic companies across different sectors. Because it is based on the same underlying method generally used for performance assessments in financial markets, the Sustainable Value is compatible with the decision-making and valuation tools used by investors and managers.

2.2 The Valuation Logic of Sustainable Value

From a sustainability perspective, the valuation of the company's performance must not only take into consideration the use of economic resources, but also of environmental and social resources. In this context, the following rule of thumb usually applies when assessing resource use: a resource should only be used if the return generated is higher than the costs incurred. The costs of resource use therefore need to be determined.

Unfortunately, this is not a straightforward task, be it for economic capital or for environmental or social resources. In traditional financial economics, this problem is resolved for economic capital by using the opportunity cost approach (Bastiat, 1870; Green, 1894; Haney, 1912). Since their capital is limited, investors cannot exploit all the investment opportunities available to them at the same time. The earnings foregone from these investment alternatives are costs as far as the investor is concerned, and are referred to as opportunity costs. An investment is successful when the return of the actual investment exceeds its opportunity costs. Opportunity costs therefore represent the cost of using economic assets, such as capital.

As already mentioned, in financial markets it is generally assumed that an investment creates value whenever it is more profitable than the average rate of return available on the market. In practice in financial analysis, a stock index is commonly used as benchmark. In other words, an investment creates value whenever its return is higher than the stock index used as a benchmark. The success of investment funds is for example typically assessed like this. A fund that fails to beat the typical market return does not cover its cost of capital and therefore does not create, but rather destroys value.

As already emphasised, companies do not use economic capital alone, but also use environmental and social resources. The Sustainable Value approach therefore extends beyond the financial market's one-dimensional focus on purely economic capital and also takes into account other resources when assessing company performance. In the context of this study, we do however not assess corporate sustainability as a whole. Neither do we attempt to provide a holistic picture of the overall environmental performance of the companies under assessment. Instead, we focus on two selected resources. Being at the centre of traditional financial analysis, total assets serve as indicator for economic performance. The amount of carbon emissions serves as environmental indicator, reflecting the contribution to climate change.

The resulting economic-environmental-value, in the following referred to as e^2-Value, ascertains whether a company uses CO_2 and economic capital in a value creating way, i.e. more efficiently than a specific benchmark. We thus conduct an economic-environmental performance assessment in strong analogy to the assessment of economic capital in financial markets. Using the opportunity cost approach thereby allows us expressing both the financial and the environmental performance in a single integrated monetary figure. This also allows a direct comparison of the use of both resources with respect to their contribution to value creation. It is interesting to note that prior to the Sustainable Value approach, no other method had attempted to assess the use of environmental and social

resources by applying opportunity cost thinking (Figge, 2001; Figge & Hahn, 2004b; Figge et al., 2004a), even though this had first been suggested in principle more than 100 years ago (Green, 1894).

To determine the e²-Value performance of companies, the costs incurred through the use of the respective resources have to be deducted from the return earned by the company. This approach has already been followed for some time, also with respect to economic, social and other environmental resources (Atkinson, 2000; Huizing & Dekker, 1992). However, these costs have traditionally been determined using methods that focus primarily on burdens (Figge & Hahn, 2004c). The key assumption here is that the cost of a resource depends on the burden that arises through the use of the resource. Despite a plethora of different approaches, putting a monetary value on these burdens is still extremely difficult (Carlsson Reich, 2005; Sonnemann, Schuhmacher, & Castells, 2000; Westman, 1977) and tends to produce not only inconsistent, but even conflicting results (Tol, 2005).

The Sustainable Value approach, in contrast, is the first method for assessing corporate sustainability performance based on the value created. Applied to carbon emissions for instance this means that the costs of the use of CO_2 are not determined on the basis of the potential damage inflicted by CO_2 emissions, but on the contribution CO_2 makes to creating value. The costs of resource use are determined using opportunity cost thinking, i.e. the return that could have been generated from an alternative use of the respective resource. The e²-Value, being a special case of the Sustainable Value, thus applies the opportunity cost logic used in financial management to the use of both economic capital and carbon emissions. This value-oriented approach makes it far simpler to determine the costs of resource use.

The following Figure 2 illustrates the possible performance trends of a company in terms of e²-Value creation. Each field of the matrix shows which of the resources used by a company contribute to the creation or destruction of value.

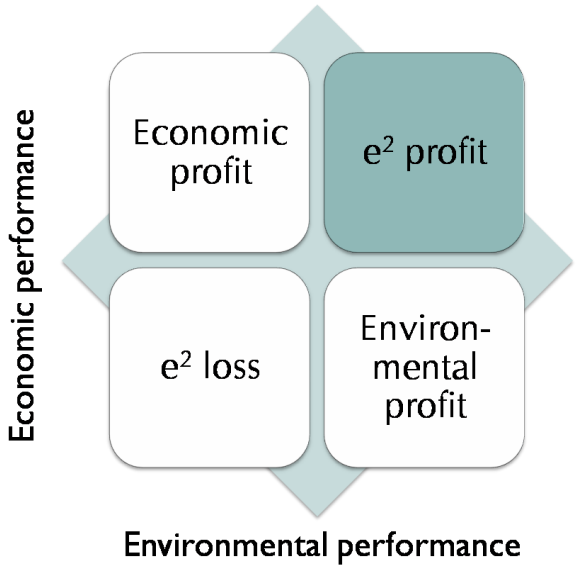

Figure 2: Relationship between environmental and economic value creation

According to the number of fields generally four cases can be distinguished:

- *e² profit*
  Both the environmental as well as the economic resources used cover their opportunity costs and contribute to the creation of value.

- *Economic profit*
  Economic resources are used in a value creating way at the expense of the environmental performance, i.e. the environmental resources are used in a value destroying way.

- *Environmental profit*
  Economic resources used do not cover their opportunity costs. The environmental resources used in contrast contribute to the creation of value.

- *e² loss*
  Neither the economic nor the environmental resources cover their opportunity costs, thus are used in a value destroying way.

Generating value with both economic as well as with environmental resources thus constitutes the ideal case of corporate resource use both at corporate as well as at economy level (Figge & Hahn, 2008).

2.3 Calculating e²-Value

e²-Value represents the value that a company creates through the use of economic and environmental resources. e²-Value is calculated in five steps, described in detail in this section. It becomes clear that the assessment of corporate economic-environmental performance using the opportunity costs method is straightforward and does not involve complex mathematics.

The following five steps are necessary to calculate e²-Value. Each step provides the answer to a specific question that is relevant for the assessment of a company's e²-performance.

(1) How efficiently does a company use its resources?
In this step, the efficiency of the use of the resources in the company is calculated.

(2) How efficiently does the benchmark use the resources?
In this step the benchmark is established and the efficiency of its resource use is assessed.

(3) Does the company use its resources more efficiently than the benchmark?
In this step the resource efficiency of the company is compared with that of the benchmark.

(4) Which resources are used by the company in a value-creating way?
In this step the value contribution of the various resources is determined.

(5) How much e²-Value does a company create?
In the final step, the task is to assess whether the company used the given set of economic, environmental and social resources to create value.

These five steps are now explained using the example of the e²-Value performance of the automobile company Scania in 2010.

Step 1: How efficiently does a company use its resources?

The purpose of the first step is to establish how efficiently the company uses its resources. To this end, the quantity of resources used is compared with the return generated by the company. First, we need to establish which parameter to use for measuring the company's profitability. To determine the e²-Value performance of Nordic companies under analysis, this study uses Net Value Added (NVA) as return figure. The resource efficiency is given by the ratio between the NVA generated by a company and the amount of resources used, resulting in NVA generated per unit of resource employed. To this end, the NVA is divided by the quantity of the respective resources used, i.e. in this case by the amount of total assets and by the quantity of CO_2 used. In 2010, Scania generated about €2.94 billion NVA while possessing about €10.16 billion of total assets and emitting 183,000 metric tons of CO_2. Consequently, Scania showed a capital efficiency of 29% and a CO_2-efficiency of €16,080 NVA per ton of CO_2 emitted. When calculating the company's resource efficiencies, it has to be ensured that the data on the resources used are based on the same scope of consolidation as the earnings figures. Scania generates NVA through its production. The CO_2-emissions for instance must therefore also relate to Scania's production. Including the CO_2-emissions of Scania's suppliers would overstate the burden and leaving out part of Scania's operations would understate them.

Step 2: How efficiently does the benchmark use the resources?

The second step of the analysis calculates how efficiently the benchmark uses the respective resources. Therefore first of all the benchmark has to be defined. This study uses the average performance of the Nordic economy as benchmark. Since figures on resource efficiency of the Nordic region are generally not published or reported, they have to be determined based on the data reported and published for the individual countries considered in this assessment. On economy level the indicators corresponding to those considered on corporate level are Net Domestic Product (NDP) as figure reflecting the value creation, net capital stock as economic and CO_2 emissions as environmental resource use indicators (see also chapter 3.3). There are basically two ways to calculate the benchmark efficiency: on the one hand, it can be determined as an unweighted average. To this end, the mean value of the relevant country specific resource efficiencies is determined for all the Nordic countries studied. But this approach fails to take into consideration the difference between large economies, which tend to use far greater amounts of the respective resource considered, and small economies. Alternatively, a weighted average can be calculated to

obtain the benchmark efficiency. To do this, the total accumulated NDP generated by all countries studied is divided by the total accumulated amount of the resources used. This approach takes into account the size differential between the economies, and is intended to replicate the benchmark performance as accurately as possible. Bigger economies that also consume more CO_2 for instance therefore have a heavier weighting in the benchmark. This study on the e²-Value of companies in the Nordic countries uses the second approach, i.e. a weighted average of the countries considered. The benchmark in this study is therefore the weighted average resource efficiency of all the Nordic countries considered in this survey.

Additionally, the e²-Value performance of each company is assessed against different temporal perspectives. The efficiency of the benchmark constitutes a hurdle that companies must pass. Forward-looking companies adjust this hurdle to reflect their future objectives. In a traditional management context this will typically be a hurdle that represents the return on capital companies want to achieve in the future. This forward-thinking approach can also be used for e²-Value. From the viewpoint of sustainability it is very interesting to see how much value companies must create in the future with the resources they use. Therefore, we not just assess the past e²-Value performance of Nordic companies but also established a future performance scenario for the year 2020. It reflects the Nordic economy's prospective economic development in terms of NDP and capital stock as well as the EU's CO_2 emissions reduction target of at least 20% by 2020 compared to 1990 levels (European Commission, 2010). To calculate the future opportunity costs we multiply the amount of resources used by the respective company in 2010 with the targeted resource efficiencies of the benchmark.

Table 1 shows the resource efficiencies of the Nordic economy for the years 2006 to 2010 and for the 2020 scenario. In 2010 the Nordic countries generated on average €0.31 NDP per €1 net capital stock and €4.338 NDP per ton of CO_2 emitted.

Resource efficiency of the Nordic economy	2006	2007	2008	2009	2010	2020
capital [%]	0.34	0.34	0.32	0.30	0.31	0.30
CO_2 [€ per t]	3,751	4,072	4,453	4,171	4,338	7,807

Table 1: Past and future benchmark efficiencies

Step 3: Does the company use its resources more efficiently than the benchmark?

This step compares the efficiency of the company to the efficiency of the benchmark. To this end, the benchmark efficiency is deducted from the company efficiency. This results in the so-called value spread and describes how much more (or less) return per unit of resource used the company produces compared to the benchmark. The value spread is calculated for each resource examined. This establishes whether the company uses its resources more efficiently than the benchmark. The concept of opportunity costs therefore plays a pivotal role here.

The comparison of the resource efficiency of Scania with the Nordic economy shows that in 2010 Scania used its economic capital less efficiently than the benchmark. Scania has a negative value spread of roughly -0.02% (0.29% - 0.31% = -0.02%). That is, Scania falls short of its opportunity costs by €0.02 NVA per €1 of its total assets. From the environmental

perspective in contrast, Scania shows a positive value spread of about €11,742 NVA per ton of CO_2 emitted (€16,080/t - €4,338/t = €11,742/t). In other words, Scania generates €11,742 more NVA per ton of CO_2 emitted than the economy of the four countries assessed in this study had generated on average (see Figure 3).

Step 4: Which resources are used by the company in a value-creating way (and which are used in a value-destroying way)?

In this step the value contribution of the various resources consumed is determined. The value spread calculated in the previous step identifies how much more (or less) return *per unit of resource used* the company generates compared to the benchmark. In this fourth step, the value generated by *the overall resource use* of the company is calculated. To this end, the relevant amount of resources used is multiplied with the value spread. The result shows how much excess return the company creates with the amount of resources used compared to the benchmark. In 2010, for example, Scania emitted 183,000 tons of CO_2. Having calculated the value spread in step three, we know that Scania creates roughly €11,742 more NVA per t of CO_2 than the benchmark. If we multiply the value spread with the total amount of CO_2 emitted by Scania, the resulting value contribution comes to approximately €2.15 billion. This represents the value that is generated due to the fact that Scania is emitting this quantity of CO_2 instead of the Nordic economy on average. Applying this calculation analogously to the total assets possessed by Scania in 2010 shows that its economic capital in contrast was used value destroying to the amount of roughly €203 million (see Figure 3). That is, if the economic capital used by Scania in terms of total assets instead was used elsewhere in the average Nordic economy €203 million more NVA were generated[1].

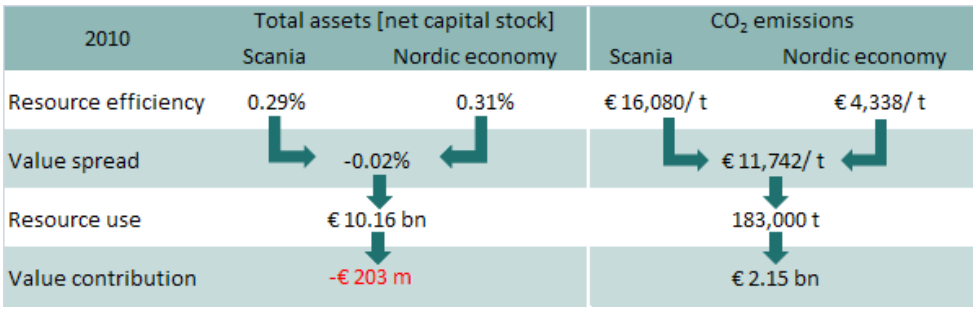

Figure 3: Calculation of Scania's value contributions in 2010

Step 5: How much e²-Value does a company create?

Companies do not use just one resource, but a bundle of different economic, environmental and social resources. In the previous step the value contribution of each resource assessed was established. In this last step, we now determine how much value is being created in using the entire bundle of economic, environmental and social resources. In the previous steps, the company's entire NVA was attributed to the use of a single resource. Obviously,

[1] Due to rounding differences the numbers of this example differ slightly from the actual assessment results presented in chapter 4.1.

this does not reflect the real situation, since the return is only produced once, through the use of the entire resource bundle. If we were to simply add up the value contributions from the different resources, it would mean incorrectly counting a resource more than once. To be specific, if there were *n* resources the NVA would be counted *n* times. When calculating the Sustainable Value (thus e²-Value analogously), the sum of the value contributions consequently is divided by the number of resources considered.

Figure 4 illustrates all five calculation steps. It also shows that Scania generated an e²-Value of about €973 million in 2010. The e²-Value expresses how much value has been created as a result of Scania using the resources in question in 2010, as opposed to the Nordic economy.

	Amount of resources used		Efficiency Scania [€/unit]		Efficiency benchmark [€/unit]		Value Contribution
			①		② (③)		④
Total assets [€]	10,160,000,000	*(	0.29	-	0.31	) =	-€ 203,000,000
GHG-emissions [t]	183,000	*(	16,080	-	4,338	) =	€ 2,149,000,000
e²-Value of Scania in 2010						⑤	**€ 973,000,000**

Figure 4: e²-Value of Scania in 2010

2.4 Making Allowances for Company Size

The Sustainable Value shows, in absolute terms, how much excess return is created by a company using its resources more efficiently than the benchmark. As in traditional financial analysis, a size problem arises when attempting to compare different companies: Bigger companies generally use greater quantities of resources and therefore tend to create a bigger (positive or negative) Sustainable Value. As in financial analysis, we tackle this problem by relating the return of a company to another indicator representing the size of that company. The resulting indicator is called the Return to Cost Ratio (RCR). The Return to Cost Ratio puts the return of a company in relation to the opportunity costs of that company. It is thus a typical benefit-cost-ratio. The opportunity costs reflect how much return could have been created, if the resources had been used in a different place. The opportunity costs of an entire bundle of resources can easily be calculated by deducting the Sustainable Value created by the company from the return generated by the company (see Figure 5).

To calculate the Return to Cost Ratio, we compare the NVA of the company to the opportunity costs, i.e. to the NDP the benchmark would have created with the resources of the company. More precisely, we determine by which factor the NVA of the company exceeds the opportunity costs and vice versa. Hence, the Return to Cost Ratio shows the factor by which a company uses its resources more or less efficiently than the benchmark. A RCR > 1 reflects that a company is using its resources more efficiently than the benchmark. A RCR < 1 shows that a company is using its resources less efficiently than the benchmark. A RCR of 1:2 for instance shows that a company is using its resources only half as efficiently as the benchmark. Generally speaking the RCR represents a relative measure of corporate sustainability performance in relation to a benchmark.

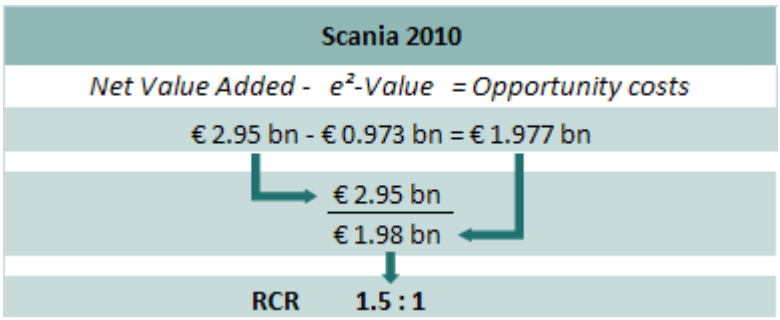

Figure 5: Calculation of the Return to Cost Ratio of Scania in 2010

Figure 5 shows that in 2010, Scania generated a NVA that was 1.5 times higher than its opportunity costs, i.e. the NDP that the benchmark would have created with the resources used by Scania. This means that Scania used its resources 1.5 times more efficiently than the Nordic economy on average. By comparing Return to Cost Ratios we can thus find out how much more (or less) efficiently a company uses its resources compared to other companies.

2.5 Explanatory Power of e²-Value

The e²-Value and the Return to Cost Ratio show how effectively a company balances profit-seeking with its environmental responsibilities in production. They measure how much excess return is created by a company by using a set of economic and environmental resources more (or less) efficiently than the benchmark. The explanatory power of the analysis depends on the choice of the benchmark. In this study, the Nordic economy constitutes the benchmark. The e²-Value in this study therefore shows which of the companies under analysis creates the most value within the Nordic economy with the respective economic and environmental resources used. It provides a monetary measure of how efficiently an individual company does business compared with the economy of the Nordic region as a whole. Thus, e²-Value in this study shows which of the companies assessed contribute to the environmental and economic development within the Nordic economy with a particular focus on the use of economic capital and corporate contributions to climate change.

The following Figure 6 illustrates the performance of Scania in 2010. It shows that Scania does not cover its opportunity costs with its total assets. The company created 1.1 times less NVA per Euro of total assets than the Nordic economy on average. The environmental resource CO_2 in contrast was clearly used in a value creating way. With a carbon related Return to Cost Ratio of 3.7:1 the company uses its CO_2 nearly four times more efficiently than the Benchmark. That is, with the same amount of CO_2 emissions required by the Nordic economy on average to generate €1 of NDP, Scania would contribute with €3.70 to the NDP.

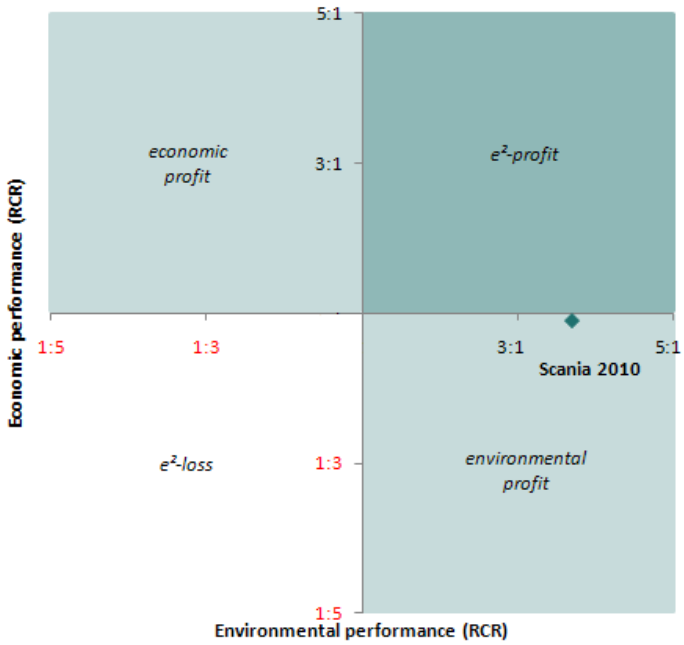

Figure 6: Environmental and economic value creation by Scania in 2010

The e²-Value in this study provides an indication of whether economic capital and CO_2 are used within a company in a value-creating way. This study does not deal with aspects outside the company. The calculation of e²-Value therefore does not take into consideration factors such as the performance of suppliers, product use or the end-of-life phase. The e²-Value provides a link between environmental sustainability and the value-oriented approach that is common in management practice. Company valuation and financial analysis, as well as management thinking, have traditionally focused exclusively on optimising the use of economic capital. The e²-Value provides a complementary analysis by applying the value-oriented approach to the assessment of the use of economic and environmental resources at the same time. e²-Value is therefore a practical tool for measuring – and ultimately managing – a company's environmental performance in the same way as its economic performance.

3 Scope of the Study

This chapter considers the scope of the study. It describes the approach to the study, the review period considered as well as sample selection and provides an overview of the companies included. Furthermore we describe the performance indicators and return figure considered in the e²-Value assessment as well as the choice of the benchmark. In the remainder of the chapter the data sources used for this study, data coverage and the processes for treatment of missing data are presented.

3.1 Approach

Based on the Sustainable Value approach, the study analyses the economic-environmental performance of companies, all of which are based in the following Nordic countries: Denmark; Finland; Norway; Sweden. To this end, this study looked at two performance indicators. CO_2 emissions were chosen as measure of environmental performance on the basis that the efficient use of carbon dioxide emissions by organisations are of key importance to combating the risk of global warming. Total assets employed by the companies were chosen as indicator reflecting the use of economic capital.

Whilst financial data in general are publicly available in a highly standardised quality, the selection of the companies to be considered in this study was depending primarily on the availability and quality of the companies' environmental performance data. A first scan of different online data bases on corporate environmental reporting and websites of Nordic companies allowed us to identify approximately 350 companies for a high-level review.

Starting with the 350 companies we carried out extensive data mining for both economic and environmental data relevant to the study. Plausibility checks with regards to the data were performed both during and after data mining was finished. Based on the results of this process we eventually selected 89 companies for inclusion in this study. The selection of companies aimed to give a spread of companies across the four Nordic countries included in the study as well as a range of different economic sectors. More details regarding reasons for excluding the other companies are given below (see sections 3.6 and 5.4).

Overall the survey has taken about 18 months to complete, with the majority of the time spent on the extensive data mining required for the project.

3.2 Companies Studied

This study analyses the e²-Value performance of 89 Nordic companies. The rationale behind the final selection of companies was three-fold: we (a) aimed to select companies from the four Nordic countries Denmark, Finland, Norway and Sweden in roughly equal proportions. We (b) selected companies that had sufficient data in terms of both quantity and quality easily accessible to be used in the study. Furthermore we (c) selected companies across a wide range of sectors.

A full list of the companies, their country of origin and their sector affiliation are given in Table 2 below. Industry affiliation was derived from the primary Standard Industrial Classification (SIC) codes of the companies under analysis.[2]

[2] Information on companies' Standard Industrial Classification (SIC) codes was mainly extracted from the data base "Thomson One Banker".

No	Company name	Country	Industry	Profile on page
1	Ahlstrom	FI	Forestry & Paper	73
2	Akademiska Hus	SE	Real Estate	73
3	Aker Solutions	NO	Engineering & Machinery	74
4	All Transport i Östergötland	SE	Transportation	74
5	A.P. Moller-Maersk	DK	Transportation	75
6	Apoteket	SE	Wholesale & Retail	75
7	Arla Foods	DK	Food	76
8	Assa Abloy	SE	Fabricated Metal Products	76
9	Atlas Copco	SE	Engineering & Machinery	77
10	AxFood	SE	Wholesale & Retail	77
11	Billerud	SE	Forestry & Paper	78
12	Cargotec	FI	Engineering & Machinery	78
13	Castellum	SE	Real Estate	79
14	Cermaq	NO	Food	79
15	CHR Hansen	DK	Food	80
16	Citycon	FI	Real Estate	80
17	Coloplast	DK	Measurement & Control Instruments	81
18	Copenhagen Airports	DK	Transportation	81
19	Danfoss	DK	Electrical Equipment & Components	82
20	Danisco	DK	Chemicals	82
21	Danske Bank	DK	Financial Services	83
22	DnB Nor	NO	Financial Services	83
23	DNV	NO	Consulting & Business Services	84
24	Dong Energy	DK	Oil & Gas	84
25	Electrolux	SE	Electrical Equipment & Components	85
26	Energinet	DK	Utilities	85
27	Ericsson (LM)	SE	Electrical Equipment & Components	86
28	FLSmidth	DK	Engineering & Machinery	86
29	Fortum	FI	Utilities	87
30	Green Cargo	SE	Transportation	87
31	Grieg Shipping Group	NO	Transportation	88
32	Grundfos	DK	Engineering & Machinery	88
33	Gunnebo	SE	Consulting & Business Services	89
34	H&M	SE	Wholesale & Retail	89
35	H. Lundbeck	DK	Chemicals	90
36	Holmen	SE	Forestry & Paper	90
37	Hufvudstaden	SE	Real Estate	91
38	ICA Group	SE	Wholesale & Retail	91
39	Kemira	FI	Chemicals	92
40	Kommunekemi	DK	Utilities	92
41	Kone	FI	Engineering & Machinery	93
42	Konecranes	FI	Engineering & Machinery	93
43	Kongsberg Gruppen	NO	Measurement & Control Instruments	94
44	Metsaliitto	FI	Forestry & Paper	94
45	Metso	FI	Engineering & Machinery	95

No	Company name	Country	Industry	Profile on page
46	Neste Oil	FI	Oil & Gas	95
47	Nibe	SE	Fabricated Metal Products	96
48	Nokia	FI	Electrical Equipment & Components	96
49	Norden	DK	Transportation	97
50	Norske Skog	NO	Forestry & Paper	97
51	Nortura	NO	Food	98
52	Novo Nordisk	DK	Chemicals	98
53	Oriflame Cosmetics	SE	Chemicals	99
54	Orion	FI	Chemicals	99
55	Orkla	NO	Fabricated Metal Products	100
56	Outotec	FI	Engineering & Machinery	100
57	Outokumpu	FI	Primary Metal Industries	101
58	Posten Norge	NO	Transportation	101
59	Raisio	FI	Food	102
60	Rapala	FI	Misc. Manufacturing Industries	102
61	Rautaruukki	FI	Primary Metal Industries	103
62	Rockwool Internat.	DK	Stone, Clay, Glass and Concrete Products	103
63	SAAB	SE	Automobile	104
64	Sandvik	SE	Engineering & Machinery	104
65	SAS Group	SE	Transportation	105
66	SCA	SE	Forestry & Paper	105
67	Scania	SE	Automobile	106
68	Skanska	SE	Construction Services	106
69	SKF	SE	Engineering & Machinery	107
70	Sodra	SE	Forestry & Paper	107
71	Sponda	FI	Real Estate	108
72	Statkraft	NO	Utilities	108
73	Statoil	NO	Oil & Gas	109
74	Stora Enso	FI	Forestry & Paper	109
75	Sveaskog	SE	Forestry & Paper	110
76	Swedbank	SE	Financial Services	110
77	Swedish Match	SE	Tobacco Manufacturing	111
78	TDC	DK	Communication Services	111
79	Telenor	NO	Communication Services	112
80	Telia Sonera	SE	Communication Services	112
81	Tomra Systems	NO	Engineering & Machinery	113
82	Torm	DK	Transportation	113
83	Trygvesta	SE	Financial Services	114
84	UPM	FI	Forestry & Paper	114
85	Uponor Suomi	FI	Sanitary Systems	115
86	Vattenfall	SE	Utilities	115
87	Vestas Wind Systems	DK	Engineering & Machinery	116
88	Wartsila	FI	Engineering & Machinery	116
89	Yara International	NO	Chemicals	117

Table 2: Overview of companies

Table 3 shows the distribution of companies included in this study by country. As demonstrated by the data we used a sample with a similar number of companies from each country. The sample for Sweden, however, is slightly larger, reflecting its larger population size, up to nearly double that of the other countries included in the study.

Country	No of companies
Denmark	20
Finland	22
Norway	15
Sweden	32

Table 3: Overview of countries of origin

Table 4 gives an overview of the sector spread of the companies in this study according to their second category level within the SIC classification. Looking at the number of industries covered, we see that the 89 companies operate in 22 different sectors. The most important sectors in terms of coverage are the manufacturing industries *engineering & machinery*, *forestry & paper* and *chemicals* as well as the providers of services in *transportation* and *utilities*.

Sector	No. of Companies	Sector	No. of Companies
Engineering & Machinery	14	Fabricated Metal Products	3
Forestry & Paper	10	Communication Services	3
Transportation	9	Measurement & Control Instruments	2
Chemicals	7	Automobile	2
Utilities	5	Primary Metal Industries	2
Food	5	Consulting & Business Services	2
Real Estate	5	Construction Services	1
Electrical Equipment & Components	4	Sanitary Systems	1
Wholesale & Retail	4	Tobacco Manufacturing	1
Financial Services	4	Stone, Clay, Glass and Concrete Products	1
Oil & Gas	3	Misc. Manufacturing Industries	1

Table 4: Overview of industry affiliation

3.3 Indicators Assessed

One of the great strengths of the Sustainable Value approach is that it allows an integrated assessment of the use of economic, environmental and social resources by a company. The e^2-Value calculated in this study constitutes a special case of the Sustainable Value and focuses on economic-environmental performance. The economic and environmental indicators used for the assessment are described below. Due to well-established financial accounting and publication standards the determination of scope and availability of corporate economic data was less problematic than in the case of the corresponding environmental indicators.

Value (Return/ Profit) figure

The e²-Value can be based on different definitions of value creation. The choice of the return figure impacts the explanatory power of the results of the assessment. This study uses Net Value Added as the return figure. Thus, only ordinary business activities are looked at, as opposed to extraordinary events that are not linked to the normal operations and therefore resource use of a company. NVA can be approximated by summing up the operating profit, i.e. Earnings before Interest and Tax (EBIT), and personnel expenses of a company. Results consequently show how much value is created with the resources used for the owners, external lenders of capital, employees and the state taxes are paid to. NVA is of particular interest from a sustainability perspective as it represents a company's contribution to the Net Domestic Product (NDP) of the economy it is operating in. Consequently, at benchmark level NDP has been chosen as the corresponding return figure. It reflects the economic activity within the Nordic economy after depreciation of the capital stock.

Economic capital

Capital use is at the centre of traditional financial analysis. The use of capital is included in this assessment to account for the economic dimension of e²-Value. The use of capital must be matched to the measure of profitability applied. At *corporate level*, return is measured in terms of Net Value Added for the purposes of this study. Therefore, a corresponding broad capital figure should be chosen, i.e. it should include both on loan capital and equity capital. The corporate use of capital in this survey is thus approximated with total assets measured in Euro. As mentioned above, at *benchmark level* return is measured in terms of NDP. An appropriate capital use figure therefore needs to correspond to both the return figure on benchmark level and the figure for capital use on corporate level. To this end, we have chosen net capital stock as indicator reflecting the use of economic capital at the level of the economy.

Carbon dioxide emissions

From an environmental perspective this study assesses the direct (scope 1) and indirect (scope 2) CO_2 emissions of the companies under analysis and of the Nordic economy benchmark. In other words, we look at CO_2-emissions that occur within the production processes and at those from the combustion of fossil fuels for the production of the electricity that is consumed during the production processes. In doing so, we assess the impact on climate change that can be directly linked to the activities of a particular company. It is possible to argue that indirect emissions occur during the production of electricity and not directly during the production processes of the respective company under analysis. For the purposes of this study, however, we decided to include indirect emissions in order to avoid any bias regarding own generation or purchase of electricity. CO_2-emissions from transportation with company owned vehicles were considered where possible on the grounds of data availability. In line with the IPCC (Intergovernmental Panel on Climate

Change) guidelines for National Greenhouse Gas inventories (IPCC, 2006), biogenic CO_2-emissions have been excluded at company as well as at benchmark level, i.e. are not considered in this analysis (for a discussion see section 5.2). CO_2-emission figures are measured in metric tons.

3.4 Review Period

This study looks at the e²-Value of 89 Nordic companies over a five year period from 2006 to 2010. We have chosen these years to allow the most up-to-date data to be included in the report, but also to allow the research team to analyse several years' worth of data at once allowing for an accurate representation of company performance as well as the identification of performance trends. That is, the analysis of five consecutive years enables us to identify mavericks, i.e. performance data that are incorrect or rooted in extraordinary company activities, which do not reflect the usual company performance.[3] Further, a larger time span providing accurate and reliable data allows us to identify trends in the variation of the economic-environmental performance of different companies and industries. Another advantage concerns changes in a company's structure. In cases where changes in the company structure (e.g. mergers and acquisitions or outsourcing) have taken place within the time span of analysis, we are able to assess their impact on the company's e²-Value performance.

The years following the calendar year 2010 are not included because there is a considerable time lag in reporting. Data prior to 2006 did not allow for a comprehensive survey due to an inadequate level of environmental reporting in terms of both data availability and data quality. As discussed in section 3.6.1 below, there is a bias towards more recent years of reporting being contained within the study due to poor or non-existent environmental data reporting in earlier years.

3.5 Data Sources and Data Collection

At corporate level, the data used to assess the utilization of the different resources examined in the study were taken from the reports published by the individual companies. To this end we initially screened different online data bases such as Corporate Register for the availability of corporate environmental, social responsibility, sustainability and integrated annual reports of Nordic companies. Further, we used publicly available country specific company rankings such as "Forbes Global 2000 Leading Companies" (Forbes, 2011) to identify additional companies to be considered in this study. Publications available on the companies' websites and the website of the Carbon Disclosure Project served as additional data sources. This initial screening resulted in a preliminary sample size of about 350 companies. We then had a closer look at the data of each of these companies. In cases

[3] An example of an extraordinary activity would be major restructuring operations that can for example impact CO_2 data.

where published data seemed incomplete or showed a lack of clarity the respective companies were contacted directly. As a result of this in depth data mining the sample size reduced to around 125 companies. Since in some cases also financial data were incomplete (particularly NVA), the final sample size reduced to 89 companies. Corporate financial performance data necessary for this assessment have mainly been extracted from the data base "Thomson One Banker". Where required, these data were verified by examining the companies' annual reports to gather complementary information, e.g. on exceptional business activities to be excluded. All foreign currency figures were converted into Euros on the basis of the average annual exchange rate of the underlying financial year using www.oanda.com.

Based on the data collected a profile for each company was set up. We checked and where necessary adjusted the profile data to ensure its quality, integrity and comparability (see chapter 3.6). These profiles were then used to calculate the e^2-Value of the respective companies.

At benchmark level greenhouse gas emissions data were collected for each country of the benchmark from the respective National Inventory Submissions to the Greenhouse Gas Inventories under the United Nations Framework Convention on Climate Change (UNFCCC).

The CO_2 emissions for the 2020 scenario correspond to the political targets of the European Union. The Kyoto Protocol and subsequent international negotiations on climate change set the framework for EU and individual country-level carbon targets. During recent discussions on greenhouse gas mitigation the EU have committed to a minimum 20% reduction in greenhouse gas emissions by 2020 compared to 1990 levels (European Commission, 2010; UNFCCC, 2011). Therefore, the total accumulated 1990 CO_2 emissions of the four countries considered in the assessment build the basis for the targeted 2020 CO_2 emissions level.

Both financial figures NDP as well as net capital stock on benchmark level were taken from the annual macroeconomic database (ameco) provided by the European Commission. For the 2020 scenario the values were estimated using trend extrapolation for each country considered based on the time series 2000 to 2013, with the data 2011 to 2013 being estimates communicated by the European Commission.

3.6 Data Coverage, Treatment of Missing Data and Data Problems

Despite intense data collection efforts, we had to exclude a significant number of companies from the study (more than 200 of approximately 350 initially identified) and were unable to prepare a full data set for all companies included in the study for every year of the review period. As established in previous studies already sustainability reporting in general and environmental reporting in particular are still a long way from being standardised when it comes to the scope and quality of data. This section describes i) coverage of data included in the study as well as ii) data gaps and treatment of data where necessary and feasible.

3.6.1 Data Coverage

As described above, publicly available corporate reports form one of the key information sources for this study. Hence, all of the companies included in this study can to a certain extent be considered as best practice reporters among the 350 companies initially considered, as they publish data that is of sufficient quality for the analysis at hand. Thereof, the majority provided carbon performance information in their published data that met the necessary requirements to be used directly in this study. For some cases, however, it was possible to include them in this study only after data treatment as described in chapter 3.6.2 and/or clarifications with the company involved.

The following Table 5 provides an overview on the data coverage for the 89 companies for each year of the assessment period of the survey. It shows that data coverage increases over time for a number of companies. This is on the one hand due to an increased uptake of CO_2 reporting by companies. On the other hand, there are individual aspects like changes in the ownership structure, or new companies forming, that result in companies not providing data over the entire reporting period. Additionally, in some cases reports on 2010 data were not yet published at the time this study was written.

Company	2006	2007	2008	2009	2010
Ahlstrom	x	x	x	x	x
Akademiska Hus AB			x	x	x
Aker Solutions			x	x	x
All Transport i Östergötland	x	x	x	x	x
A.P. Moller - Maersk		x	x	x	x
Apoteket AB		x	x	x	x
Arla Foods	x	x	x	x	x
Assa Abloy	x	x	x	x	x
Atlas Copco	x	x	x	x	x
Axfood	x	x	x	x	
Billerud		x	x	x	x
Cargotec		x	x	x	x
Castellum	x	x	x	x	x
Cermaq ASA			x	x	x
CHR Hansen	x	x	x	x	x
Citycon				x	x
Coloplast		x	x	x	x
Copenhagen Airports	x	x	x		
Danfoss	x	x	x	x	x
Danisco	x	x	x	x	
Danske Bank			x	x	x
DnB Nor			x	x	x
DNV			x	x	x
Dong Energy	x	x	x	x	x
Electrolux AB		x	x	x	x
Energinet	x	x	x	x	
Ericsson (LM)	x	x	x	x	x
FLSmidth				x	x
Fortum	x	x	x	x	x
Green Cargo AB		x	x	x	x
Grieg Shipping Group	x	x	x	x	x
Grundfos			x	x	x
Gunnebo	x	x	x	x	x
H&M	x	x	x	x	x
H. Lundbeck	x	x	x	x	x
Holmen	x	x	x	x	x
Hufvudstaden	x	x	x	x	x
ICA Group	x	x	x	x	x
Kemira	x	x	x	x	x
Kommunekemi			x	x	x
Kone			x	x	x
Konecranes				x	x
Kongsberg Gruppen	x	x	x	x	x
Metsaliitto	x	x	x	x	x

Company	2006	2007	2008	2009	2010
Metso	x	x	x	x	x
Neste Oil			x	x	x
Nibe	x	x	x	x	x
Nokia	x	x	x	x	x
Norden		x	x	x	x
Norske Skog	x	x	x	x	x
Nortura	x	x	x	x	x
Novo Nordisk	x	x	x	x	x
Oriflame Cosmetics			x	x	x
Orion		x	x	x	x
Orkla ASA	x	x	x	x	x
Outotec				x	x
Outokumpu		x	x	x	x
Posten Norge	x	x	x	x	x
Raisio			x	x	x
Rapala	x	x	x	x	x
Rautaruukki	x	x	x	x	x
Rockwool Internat.		x	x	x	
SAAB	x	x	x	x	x
Sandvik	x	x	x	x	x
SAS Group	x	x	x	x	x
SCA	x	x	x	x	x
Scania	x	x	x	x	x
Skanska			x	x	x
SKF	x	x	x	x	x
Sodra	x	x	x	x	x
Sponda			x	x	x
Statkraft AS	x	x	x	x	x
Statoil ASA		x	x	x	x
Stora Enso	x	x	x	x	x
Sveaskog	x	x	x	x	x
Swedbank			x	x	x
Swedish Match		x	x	x	x
TDC	x	x	x	x	x
Telenor ASA			x	x	x
Telia Sonera	x	x	x	x	x
Tomra Systems ASA		x	x	x	x
Torm		x	x	x	x
Trygvesta AS		x	x	x	x
UPM	x	x	x	x	x
Uponor Suomi				x	x
Vattenfall	x	x	x	x	x
Vestas Wind Systems	x	x	x	x	x
Wartsila		x	x	x	x
Yara International	x	x	x	x	x
COVERAGE	*51/89*	*68/89*	*84/89*	*88/89*	*84/89*

Table 5: Data coverage

3.6.2 Calculating and Estimating Performance Data

Different scopes of data

One important step in determining e^2-Value is the comparison of corporate resource efficiency with the benchmark efficiency (see step 3 in chapter 2.3). The calculation of these efficiencies therefore plays a central role. At the level of the company, this is obtained by dividing the company's NVA by the quantity of the respective resources used. In order to produce meaningful results, it is vitally important that the same system boundaries (scope) apply to the return figures and the data on resource use (United Nations Conference on Trade and Development, 2003). No meaningful comparison can be made, for example, between a NVA figure that applies to the entire group and a figure for CO_2-emissions that only covers part of the company (e.g. a specific division or region). Unfortunately in some cases, the CO_2 data reported by companies have different system boundaries than the published financial figures.

In such cases it is necessary to match up the scope for the figures available on corporate NVA and resource use e.g. by extrapolating CO_2 data accordingly or correcting financial data respectively. To do so, however, we have to assume that those divisions for which no data are available use resources with the same efficiency as those divisions for which data are reported. When compiling the study, extrapolations were undertaken on the basis of different allocation keys. One possibility is to extrapolate with the help of the company's production or sales figures. For example, Green Cargo does not report the CO_2-emissions of all financially consolidated subsidiaries; however, the company specifies the extent to which its reported emissions cover its operations based on the share in sales. Based on this information, the existing dataset could be extrapolated to 100% of their operations for the years 2007-2009.

Calculation and estimation of data

Companies that have not reported any carbon performance data could obviously not be included in the assessment. However, if a company discloses data on scope 1 emissions and also provides information on purchased electricity use, it can be possible to approximate total emissions.

The amount of indirect CO_2 emissions a company is responsible for is therefore derived, not only by how much energy is purchased, but by the fuel mix used to produce this energy (see section 5.3). As this fuel mix differs on a country-by-country basis, indirect emissions consequently also have to be calculated on a country-by-country basis. This also means that indirect emissions can only be calculated for companies for which country-level electricity use can be obtained or approximated. For Billerud and Metsaliitto for instance, indirect emissions have been calculated based on their purchased electricity data and their geographic employee spread.

In some cases, missing data for individual years could be approximated based on existing data for other years. In the case of Ahlstrom for example, direct emissions for the year 2010 could be approximated based on the average ratio of direct and indirect CO_2 emissions in the

previous years; accordingly, indirect emissions of Södra were calculated on the basis of available data for 2006.

In cases in which a company's reporting period for financial and environmental data does not match a calendar year, generally data was used for those calendar years that have the largest overlap with a company's financial year. For example, data for a financial year ranging from April 2008 to March 2009 was used for the calendar year 2008. Such a shift had to be considered as well in cases where a company does not report its financial performance in Euros. It impacts the average annual exchange rate that can be used for the conversion of the respective currency into Euros. Moreover, if environmental reporting periods were different from the financial year, adjustments had to be made accordingly. In the case of H&M for instance, the financial year runs from December 01st to November 30th, while CO_2 emissions were reported on the basis of a calendar year. That is, to adjust for example for the financial year 2006 (01.12.2005 to 30.11.2006), CO_2 emissions have been estimated summing up 1/12 of the CO_2 emissions reported for 2005 and 11/12 of the CO_2 emissions reported for 2006.

Dealing with data corrections

In many cases, companies have corrected or updated figures in their subsequent environmental or sustainability reports. Where new data have been provided to correct erroneous data in previous reports, they were adopted. For example, this applies to Metsäliitto, as the company restated its CO_2-emissions for the year 2008 in its most recent report. In some cases, as e.g. with Gunnebo, revised data obtained through direct contact with the companies was used for the analysis rather than published data.

In other cases, carbon performance data was adjusted in subsequent years in response to a change in the scope of consolidation, to ensure that the data could still be compared despite the restructuring of the company. Since this change in the scope of consolidation is also reflected in the financial figures published by the group, and for methodological reasons financial figures must match the scope of the corresponding environmental data, here the originally reported data is used.

4 Results

This chapter presents the results of the study in terms of both absolute e²-Value and Return to Cost Ratio. Section 4.1 looks at the past performance and section 4.2 at the future potential performance of the Nordic companies assessed.

4.1 Past e²–Value Performance Results

Table 6 shows the absolute e^2-Value of the organizations in the study over the period 2006 to 2010. The e^2-Value produced by these companies ranges from -€200.6bn (Vattenfall in 2010) to €5.8bn (Nokia in 2007).

Based on our calculations the use of the respective economic and environmental resources by Ericsson has led to the largest positive e^2-Value creation of €3.6bn in 2010 and €3.1bn in 2009, compared to the benchmark, with Nokia holding the 1st position from 2006 to 2008 with an e^2-Value of greater than €5bn in each of these years. Conversely, Vattenfall's e^2-Value was the most negative of any organisation throughout the entire study period and for example, in 2010 led to a e²-Value destruction of €200.6bn compared to the benchmark.

In 2010, less than half of the sample (38 out of 84 calculated) had a positive e^2-Value with the top six having an e^2-Value of over €1bn. Conversely, there are 26 companies which had a negative e^2-Value of more than €1bn. Interestingly, there are only a small number of companies which have an e^2-Value which switches from negative to positive over the time period (SCA and Rapala), two organizations which have a single negative e^2-Value year (Scania and Sandvik) and Danfoss which switches twice over the period studied. All of the other companies remain with either a positive or negative e^2-Value throughout the study period.

A number of companies show a relatively clear downward (Nokia, Statkraft, Yara International, Fortum, Vattenfall) or upward trend (Novo Nordisk, H&M, SAAB, Kongsberg Gruppen, CHR Hansen, ICA group, Metsaliitto, Norske Skog, Orkla, Dong Energy) in e^2-Value over the study period. Many of these companies are showing moderate gains or losses in terms of e²-Value over the period studied, however the difference in e^2-Value between 2006 and 2010 for Vattenfall is over €40bn and more than €35bn for Fortum which is considerably larger than any of the other changes in e^2 value for the other companies.

2010 Rank	Company	2010 e²-Value	2009 e²-Value	Rank	2008 e²-Value	Rank	2007 e²-Value	Rank	2006 e²-Value	Rank
1	Ericsson (LM)	€ 3,651,787	€ 3,136,527	1	€ 2,449,084	3	€ 2,540,824	2	€ 3,611,758	2
2	Novo Nordisk	€ 3,343,317	€ 2,623,641	3	€ 1,969,541	4	€ 1,609,085	4	€ 1,512,280	4
3	H&M	€ 3,063,125	€ 2,545,075	4	€ 2,536,753	2	€ 2,393,772	3	€ 1,893,674	3
4	Nokia	€ 1,735,696	€ 2,769,075	2	€ 5,567,794	1	€ 5,808,210	1	€ 5,233,935	1
5	Atlas Copco	€ 1,603,386	€ 997,661	7	€ 1,436,433	5	€ 1,484,707	5	€ 969,209	6
6	Kone	€ 1,387,530	€ 1,329,742	5	€ 1,194,845	6	N/A	N/A	N/A	N/A
7	Scania	€ 978,793	-€ 72,448	39	€ 600,019	11	€ 971,400	7	€ 593,618	8
8	Aker Solutions	€ 934,697	€ 1,114,710	6	€ 776,220	8	N/A	N/A	N/A	N/A
9	Sandvik	€ 930,745	-€ 256,082	45	€ 763,793	9	€ 1,077,827	6	€ 1,216,729	5
10	SKF	€ 859,283	€ 623,947	11	€ 621,879	10	€ 703,214	9	€ 477,783	10
11	Skanska	€ 673,840	€ 882,647	8	€ 451,928	14	N/A	N/A	N/A	N/A
12	Posten Norge	€ 659,278	€ 808,680	9	€ 893,870	7	€ 931,101	8	€ 697,592	7
13	DNV	€ 631,156	€ 628,876	10	€ 582,792	12	N/A	N/A	N/A	N/A
14	Assa Abloy	€ 581,903	€ 561,747	13	€ 372,674	19	€ 632,373	10	€ 565,272	9
15	SCA	€ 532,795	-€ 8,193,563	76	-€ 9,702,727	72	-€ 8,346,464	56	-€ 7,766,326	41
16	SAAB	€ 527,209	€ 422,223	16	€ 401,791	16	€ 432,092	12	€ 316,365	12
17	H. Lundbeck	€ 486,410	€ 422,390	15	€ 397,989	17	€ 401,175	13	€ 246,416	13
18	Kongsberg Gruppen	€ 469,461	€ 336,422	18	€ 272,550	20	€ 238,377	18	€ 178,639	16
19	Wartsila	€ 372,471	€ 468,459	14	€ 202,828	24	€ 158,441	23	N/A	N/A
20	Swedish Match	€ 352,918	€ 263,102	19	€ 130,142	29	€ 167,968	22	N/A	N/A
21	Grundfos	€ 335,037	€ 204,458	25	€ 223,474	22	N/A	N/A	N/A	N/A
22	Coloplast	€ 331,974	€ 250,993	21	€ 219,364	23	€ 243,552	16	N/A	N/A
23	Nortura	€ 281,474	€ 253,561	20	€ 249,036	21	€ 242,485	17	€ 223,391	14
24	Metso	€ 278,839	€ 214,559	22	€ 419,139	15	€ 531,181	11	€ 358,411	11
25	Orion	€ 238,174	€ 211,197	23	€ 188,255	26	€ 184,434	21	N/A	N/A
26	Vestas Wind Systems	€ 168,049	€ 623,178	12	€ 519,120	13	€ 285,800	15	€ 25,311	21
27	FLSmidth	€ 163,800	€ 209,130	24	N/A	N/A	N/A	N/A	N/A	N/A
28	Gunnebo	€ 136,553	€ 101,785	27	€ 104,956	30	€ 120,977	24	€ 138,007	17
29	Outotec	€ 99,222	€ 65,164	30	N/A	N/A	N/A	N/A	N/A	N/A
30	Oriflame Cosmetics	€ 92,343	€ 72,250	29	€ 185,115	27	N/A	N/A	N/A	N/A
31	Nibe	€ 85,787	€ 54,880	31	€ 48,245	32	€ 65,736	26	€ 70,007	18
32	Tomra Systems	€ 79,711	€ 43,337	32	€ 35,833	33	€ 49,546	27	N/A	N/A
33	Apoteket	€ 67,663	€ 381,217	17	€ 396,575	18	€ 372,467	14	N/A	N/A
34	Konecranes	€ 63,186	€ 94,937	28	N/A	N/A	N/A	N/A	N/A	N/A
35	Cargotec	€ 54,439	€ 31,948	34	€ 133,195	28	€ 212,514	19	N/A	N/A
36	Danfoss	€ 49,509	-€ 352,413	50	-€ 291,842	40	-€ 69,366	30	€ 35,934	19
37	Uponor Suomi	€ 46,176	€ 38,337	33	N/A	N/A	N/A	N/A	N/A	N/A
38	Rapala	€ 12,134	-€ 69,149	38	-€ 444,419	47	-€ 352,974	37	-€ 321,651	27
39	CHR Hansen	-€ 26,257	-€ 67,902	37	-€ 115,530	36	-€ 114,744	31	-€ 138,859	25
40	Alltransport i Östergötlan	-€ 43,800	-€ 38,485	35	-€ 35,457	34	-€ 32,642	29	-€ 28,177	22
41	Green Cargo	-€ 56,491	-€ 63,851	36	-€ 39,054	35	-€ 15,333	28	N/A	N/A
42	ICA Group	-€ 58,123	-€ 90,774	40	-€ 316,167	42	-€ 256,637	32	-€ 329,241	28
43	Cermaq	-€ 74,623	-€ 141,826	41	-€ 299,755	41	N/A	N/A	N/A	N/A
44	Electrolux	-€ 142,490	-€ 269,604	46	-€ 760,083	54	-€ 513,130	41	N/A	N/A
45	Raisio	-€ 175,643	-€ 150,812	42	-€ 202,629	38	N/A	N/A	N/A	N/A
46	Hufvudstaden	-€ 252,681	-€ 193,266	43	-€ 263,910	39	-€ 314,714	35	-€ 306,997	26
47	Billerud	-€ 284,899	-€ 340,582	48	-€ 406,554	44	-€ 380,580	38	N/A	N/A
48	TDC	-€ 313,597	-€ 569,081	56	-€ 672,739	51	-€ 498,960	40	-€ 130,503	24
49	Kemira	-€ 322,295	-€ 244,876	44	-€ 403,465	43	-€ 301,093	33	-€ 354,436	29
50	Kommunekemi	-€ 406,382	-€ 387,189	51	-€ 435,819	46	N/A	N/A	N/A	N/A
51	Castellum	-€ 420,555	-€ 335,263	47	-€ 418,482	45	-€ 435,348	39	-€ 376,005	30
52	Citycon	-€ 432,292	-€ 398,437	52	N/A	N/A	N/A	N/A	N/A	N/A

2010 Rank	Company	2010 e²-Value	2009 e²-Value	Rank	2008 e²-Value	Rank	2007 e²-Value	Rank	2006 e²-Value	Rank
53	Telia Sonera	-€ 438,685	-€ 411,908	53	-€ 661,733	50	-€ 338,848	36	-€ 90,633	23
54	Sponda	-€ 496,341	-€ 439,975	54	-€ 532,384	48	N/A	N/A	N/A	N/A
55	Akademiska Hus	-€ 577,678	-€ 516,825	55	-€ 648,697	49	N/A	N/A	N/A	N/A
56	Sveaskog	-€ 701,442	-€ 606,827	57	-€ 724,620	53	-€ 681,446	43	-€ 720,665	31
57	Trygvesta	-€ 724,412	-€ 346,640	49	-€ 185,700	37	-€ 306,167	34	N/A	N/A
58	Grieg Shipping Group	-€ 1,159,056	-€ 1,257,316	62	-€ 1,087,575	55	-€ 1,049,917	45	-€ 982,918	33
59	Norden	-€ 1,183,609	-€ 907,642	58	-€ 697,923	52	-€ 515,554	42	N/A	N/A
60	Holmen	-€ 1,375,246	-€ 1,259,258	63	-€ 1,826,316	60	-€ 1,871,425	48	-€ 1,899,273	37
61	Sodra	-€ 1,637,382	-€ 1,131,331	60	-€ 1,399,904	57	-€ 1,275,010	46	-€ 1,368,235	35
62	Ahlstrom	-€ 1,947,857	-€ 1,747,805	65	-€ 2,073,430	61	-€ 2,043,364	50	-€ 1,763,223	36
63	Arla Foods	-€ 2,293,981	-€ 2,317,279	67	-€ 2,557,416	62	-€ 2,332,477	52	-€ 2,081,029	38
64	Telenor	-€ 2,653,303	-€ 1,150,348	61	-€ 1,649,298	58	N/A	N/A	N/A	N/A
65	Outokumpu	-€ 3,020,424	-€ 1,797,297	66	-€ 3,073,846	64	-€ 2,239,502	51	N/A	N/A
66	Torm	-€ 3,982,113	-€ 4,055,856	69	-€ 4,291,507	65	-€ 3,218,909	54	N/A	N/A
67	Metsaliitto	-€ 4,546,823	-€ 4,761,780	71	-€ 6,157,946	67	-€ 6,838,349	55	-€ 7,404,494	40
68	Statkraft	-€ 4,862,441	-€ 4,459,106	70	-€ 4,762,267	66	-€ 1,871,978	49	-€ 1,277,356	34
69	Norske Skog	-€ 5,991,641	-€ 6,860,897	73	-€ 7,752,273	69	-€ 8,732,079	58	-€ 8,235,034	42
70	Orkla	-€ 6,704,429	-€ 6,065,723	72	-€ 7,694,426	68	-€ 8,699,874	57	-€ 8,431,870	43
71	SAS Group	-€ 7,130,025	-€ 6,896,035	74	-€ 12,148,313	73	-€ 11,764,211	60	-€ 10,422,845	45
72	Neste Oil	-€ 8,516,427	-€ 8,523,207	77	-€ 8,869,400	70	N/A	N/A	N/A	N/A
73	Rautaruukki	-€ 8,784,618	-€ 7,544,464	75	-€ 9,587,626	71	-€ 8,889,799	59	-€ 8,836,511	44
74	Stora Enso	-€ 11,583,411	-€ 11,482,607	79	-€ 14,619,757	75	-€ 23,993,478	65	-€ 21,805,133	49
75	UPM	-€ 13,128,976	-€ 10,865,512	78	-€ 13,099,280	74	-€ 14,526,129	61	-€ 13,761,425	46
76	Yara International	-€ 19,187,121	-€ 18,108,684	80	-€ 18,703,958	77	-€ 16,648,112	62	-€ 16,116,195	47
77	Statoil	-€ 19,983,021	-€ 19,351,571	81	-€ 15,607,519	76	-€ 16,695,294	63	N/A	N/A
78	Swedbank	-€ 21,927,442	-€ 19,932,244	82	-€ 22,770,442	78	N/A	N/A	N/A	N/A
79	Dong Energy	-€ 26,868,812	-€ 26,265,868	83	-€ 29,079,247	79	-€ 29,540,388	66	-€ 35,522,956	50
80	DnB Nor	-€ 32,391,069	-€ 29,142,516	84	-€ 33,497,845	80	N/A	N/A	N/A	N/A
81	Fortum	-€ 56,006,777	-€ 46,154,058	85	-€ 40,227,861	81	-€ 22,211,422	64	-€ 21,580,832	48
82	Danske Bank	-€ 63,948,847	-€ 60,310,634	86	-€ 75,125,154	82	N/A	N/A	N/A	N/A
83	A.P. Moller - Maersk	-€ 77,989,088	-€ 91,890,169	87	-€ 100,603,709	83	-€ 102,768,588	67	N/A	N/A
84	Vattenfall	-€ 200,574,485	-€ 190,757,076	88	-€ 184,719,908	84	-€ 173,196,142	68	-€ 160,212,763	51
N/A	Axfood	N/A	€ 200,951	26	€ 189,843	25	€ 206,988	20	€ 211,379	15
N/A	Copenhagen Airports	N/A	N/A	N/A	€ 50,129	31	€ 73,025	25	€ 28,833	20
N/A	Danisco	N/A	-€ 1,404,099	64	-€ 1,753,052	59	-€ 1,593,859	47	-€ 2,242,337	39
N/A	Energinet	N/A	-€ 963,525	59	-€ 1,170,286	56	-€ 997,196	44	-€ 924,333	32
N/A	Rockwool Internat.	N/A	-€ 2,415,523	68	-€ 2,820,521	63	-€ 2,487,401	53	N/A	N/A

Table 6: e²-Value creation of Nordic companies 2006 – 2010 (in 1,000)

So far our analysis of the e^2-Value has concentrated on the absolute e^2-Values. As explained in section 2.4, we can adjust the data to take account of company size by calculating the Return to Cost Ratio. Table 7 below shows the Return to Cost Ratios for the study as well as each company's rank. The RCR shows how many times a company earns its opportunity cost. A Return to Cost Ratio of 1:1 signifies that the Net Value Added that the company creates corresponds exactly to its opportunity costs with regard to its use of economic and environmental resources; consequently, the corresponding e^2-Value is zero. DNV's RCR for 2010 is 4.7; hence DNV generates 4.7 times more NVA with its economic capital and carbon emissions than the benchmark. A comparison of the e^2-Values with the RCRs shows that those companies with a positive e^2-Value have a RCR>1 (above the benchmark), whereas those with a negative e^2-Value have a RCR<1 (below the benchmark). There is, however, a variation between the rankings of the e^2-Value and the RCR results: For example DNV has moved from 13th in terms of e^2-Value in 2010 (Table 6) to 1st position for RCR and conversely

Ericsson has moved from 1st position (Table 6) to 16th position with an RCR of 1.8. DNV's NVA for 2010 is approximately 10 times smaller than Ericsson's (DNV: €802m Ericsson €8.4bn) and therefore both of these changes can be attributed to company size which is accounted for only when the RCR is calculated. Similar to the results in Table 6 the RCR results are fairly stable, with individual companies' results varying only to a moderate degree over the time period. Torm shows the lowest RCR (1:194) for 2010 and this is considerably worse than its previous years' results and with the exception of Norske Skog (1:147) much worse than the results of those ranked just above it, such as Kommunekemi (1:34) and Vattenfall (1:31). It is interesting to note that Vattenfall – which had the most negative e^2-Value throughout the study as presented in Table 6 – performs better when the RCR approach is used (being around 3 places above the worst performer). This again can be attributed to the size of Vattenfall, which has a 2010 NVA of €6.6bn, being third largest in the study (based on 2010 NVA size).

2010		2010	2009		2008		2007		2006	
Rank	Company	RCR	RCR	Rank	RCR	Rank	RCR	Rank	RCR	Rank
1	DNV	4.7 : 1	5.4 : 1	1	4.5 : 1	1	N/A	N/A	N/A	N/A
2	H&M	3.4 : 1	3.4 : 1	2	3.3 : 1	2	3.6 : 1	1	3 : 1	1
3	Novo Nordisk	3.1 : 1	2.9 : 1	4	2.3 : 1	7	2.1 : 1	9	2.1 : 1	6
4	Kongsberg Gruppen	2.6 : 1	2.4 : 1	7	2 : 1	11	2.1 : 1	7	2.1 : 1	5
5	Kone	2.5 : 1	2.6 : 1	5	2.4 : 1	5	N/A	N/A	N/A	N/A
6	Nortura	2.5 : 1	2.5 : 1	6	2.3 : 1	6	2.3 : 1	4	2.3 : 1	2
7	Orion	2.3 : 1	2.2 : 1	9	2.1 : 1	10	2.2 : 1	5	N/A	N/A
8	Gunnebo	2.2 : 1	1.8 : 1	15	1.6 : 1	18	1.8 : 1	13	2 : 1	8
9	Atlas Copco	2.2 : 1	1.9 : 1	13	2 : 1	12	2.2 : 1	6	1.8 : 1	10
10	H. Lundbeck	2.1 : 1	2 : 1	11	2.1 : 1	9	2.1 : 1	8	1.7 : 1	11
11	Posten Norge	2 : 1	2.4 : 1	8	2.4 : 1	4	2.6 : 1	3	2.1 : 1	4
12	Coloplast	2 : 1	1.8 : 1	16	1.6 : 1	17	1.9 : 1	11	N/A	
13	SAAB	1.9 : 1	1.8 : 1	14	1.7 : 1	15	1.6 : 1	14	1.5 : 1	15
14	Aker Solutions	1.9 : 1	2.1 : 1	10	1.7 : 1	16	N/A	N/A	N/A	N/A
15	Swedish Match	1.9 : 1	1.7 : 1	18	1.3 : 1	25	1.4 : 1	23	N/A	N/A
16	Ericsson (LM)	1.8 : 1	1.8 : 1	17	1.5 : 1	20	1.5 : 1	16	1.9 : 1	9
17	Tomra Systems	1.7 : 1	1.4 : 1	28	1.3 : 1	29	1.4 : 1	20	N/A	N/A
18	Nibe	1.6 : 1	1.4 : 1	24	1.3 : 1	23	1.5 : 1	18	1.6 : 1	12
19	Outotec	1.5 : 1	1.4 : 1	26	N/A	N/A	N/A	N/A	N/A	N/A
20	Assa Abloy	1.5 : 1	1.6 : 1	19	1.3 : 1	21	1.6 : 1	15	1.6 : 1	13
21	Oriflame Cosmetics	1.5 : 1	1.5 : 1	22	2.2 : 1	8	N/A	N/A	N/A	N/A
22	Grundfos	1.5 : 1	1.3 : 1	30	1.3 : 1	22	N/A	N/A	N/A	N/A
23	Scania	1.5 : 1	1 : 1	35	1.3 : 1	27	1.5 : 1	17	1.3 : 1	16
24	SKF	1.4 : 1	1.4 : 1	27	1.3 : 1	24	1.4 : 1	24	1.3 : 1	18
25	Wartsila	1.4 : 1	1.5 : 1	23	1.2 : 1	33	1.2 : 1	27	N/A	N/A
26	Sandvik	1.4 : 1	1 : 1.1	39	1.3 : 1	28	1.4 : 1	21	1.6 : 1	14
27	Skanska	1.3 : 1	1.5 : 1	21	1.2 : 1	32	N/A	N/A	N/A	N/A
28	Apoteket	1.3 : 1	3 : 1	3	2.8 : 1	3	2.7 : 1	2	N/A	
29	FLSmidth	1.3 : 1	1.4 : 1	29	N/A	N/A	N/A	N/A	N/A	N/A
30	Uponor Suomi	1.3 : 1	1.2 : 1	31	N/A	N/A	N/A	N/A	N/A	N/A
31	Nokia	1.2 : 1	1.4 : 1	25	1.8 : 1	14	1.8 : 1	12	2.2 : 1	3
32	Metso	1.2 : 1	1.2 : 1	33	1.3 : 1	26	1.4 : 1	22	1.3 : 1	17
33	Rapala	1.2 : 1	1 : 1.9	47	1 : 6.1	60	1 : 5	50	1 : 5.3	35
34	Vestas Wind Systems	1.1 : 1	1.5 : 1	20	1.5 : 1	19	1.3 : 1	25	1 : 1	21
35	Konecranes	1.1 : 1	1.2 : 1	32	N/A	N/A	N/A	N/A	N/A	N/A
36	Cargotec	1.1 : 1	1.1 : 1	34	1.2 : 1	30	1.4 : 1	19	N/A	N/A
37	Danfoss	1 : 1	1 : 1.5	45	1 : 1.3	38	1 : 1.1	28	1 : 1	20
38	SCA	1 : 1	1 : 3.7	56	1 : 4.2	54	1 : 3.5	43	1 : 3.5	29
39	ICA Group	1 : 1	1 : 1.1	36	1 : 1.3	37	1 : 1.2	32	1 : 1.4	24
40	Electrolux	1 : 1.1	1 : 1.1	38	1 : 1.4	39	1 : 1.2	31	N/A	N/A
41	CHR Hansen	1 : 1.1	1 : 1.3	40	1 : 1.5	41	1 : 1.5	36	1 : 1.7	26
42	Telia Sonera	1 : 1.1	1 : 1.1	37	1 : 1.2	34	1 : 1.1	30	1 : 1	22
43	TDC	1 : 1.2	1 : 1.4	42	1 : 1.5	42	1 : 1.3	33	1 : 1.1	23
44	Cermaq	1 : 1.3	1 : 2	48	1 : 4.3	55	N/A	N/A	N/A	N/A
45	Green Cargo	1 : 1.3	1 : 1.4	43	1 : 1.2	35	1 : 1.1	29	N/A	N/A
46	Kemira	1 : 1.7	1 : 1.4	44	1 : 1.8	44	1 : 1.5	35	1 : 1.7	25
47	Telenor	1 : 1.9	1 : 1.3	41	1 : 1.5	40	N/A	N/A	N/A	N/A
48	Statoil	1 : 1.9	1 : 2.1	49	1 : 1.6	43	1 : 1.7	37	N/A	N/A
49	Billerud	1 : 2.1	1 : 3.1	51	1 : 3.4	48	1 : 2.9	40	N/A	N/A
50	Akademiska Hus	1 : 2.6	1 : 2.6	50	1 : 2.9	46	N/A	N/A	N/A	N/A
51	Arla Foods	1 : 3.1	1 : 3.2	53	1 : 3.6	49	1 : 3.2	42	1 : 3	28
52	Trygvesta	1 : 3.2	1 : 1.6	46	1 : 1.3	36	1 : 1.4	34	N/A	N/A

2010		2010	2009		2008		2007		2006	
Rank	Company	RCR	RCR	*Rank*	RCR	*Rank*	RCR	*Rank*	RCR	*Rank*
53	Hufvudstaden	1 : 3.5	1 : 3.2	*54*	1 : 4.2	*53*	1 : 4.8	*48*	1 : 4.6	*33*
54	Raisio	1 : 3.6	1 : 3.4	*55*	1 : 3.7	*50*	N/A	*N/A*	N/A	*N/A*
55	Statkraft	1 : 3.8	1 : 4.3	*59*	1 : 3.9	*52*	1 : 2.8	*39*	1 : 2.3	*27*
56	Castellum	1 : 4	1 : 3.7	*57*	1 : 4.6	*56*	1 : 4.8	*49*	1 : 4.4	*32*
57	Sodra	1 : 4.5	1 : 5.1	*60*	1 : 6.3	*61*	1 : 3.1	*41*	1 : 3.9	*30*
58	Metsaliitto	1 : 4.7	1 : 8.6	*70*	1 : 7.9	*64*	1 : 7.2	*55*	1 : 6.2	*40*
59	Sveaskog	1 : 4.7	1 : 5.4	*63*	1 : 7.1	*63*	1 : 4.4	*46*	1 : 6	*39*
60	Orkla	1 : 5.1	1 : 6.1	*65*	1 : 5.6	*59*	1 : 5.7	*52*	1 : 8	*42*
61	Holmen	1 : 5.1	1 : 4.1	*58*	1 : 5.3	*57*	1 : 4.6	*47*	1 : 4.7	*34*
62	Sponda	1 : 5.8	1 : 5.2	*61*	1 : 8.4	*65*	N/A	*N/A*	N/A	*N/A*
63	Stora Enso	1 : 5.8	1 : 17.1	*78*	1 : 16.5	*77*	1 : 12.3	*62*	1 : 8.7	*43*
64	Ahlstrom	1 : 5.8	1 : 6.4	*67*	1 : 7	*62*	1 : 6.3	*53*	1 : 5.3	*36*
65	SAS Group	1 : 5.9	1 : 5.3	*62*	1 : 8.7	*66*	1 : 7.1	*54*	1 : 5.9	*38*
66	A.P. Moller - Maersk	1 : 7.2	1 : 13.5	*75*	1 : 9.4	*67*	1 : 12.1	*61*	N/A	*N/A*
67	Norden	1 : 7.4	1 : 10.1	*73*	1 : 2.9	*45*	1 : 2.3	*38*	N/A	*N/A*
68	UPM	1 : 7.7	1 : 9	*71*	1 : 10.2	*69*	1 : 8.3	*57*	1 : 7.4	*41*
69	Citycon	1 : 7.7	1 : 6.4	*66*	N/A	*N/A*	N/A	*N/A*	N/A	*N/A*
70	All Transport i Östergötland	1 : 8.5	1 : 8.6	*69*	1 : 3.4	*47*	1 : 5.5	*51*	1 : 5.6	*37*
71	DnB Nor	1 : 10.3	1 : 12.7	*74*	1 : 13.5	*75*	N/A	*N/A*	N/A	*N/A*
72	Outokumpu	1 : 11.5	1 : 9.3	*72*	1 : 11.4	*72*	1 : 10.9	*60*	N/A	*N/A*
73	Grieg Shipping Group	1 : 12.2	1 : 21.8	*80*	1 : 12.2	*74*	1 : 9	*59*	1 : 12.9	*46*
74	Neste Oil	1 : 13.1	1 : 13.7	*76*	1 : 11.2	*71*	N/A	*N/A*	N/A	*N/A*
75	Swedbank	1 : 14.7	1 : 14.5	*77*	1 : 13.9	*76*	N/A	*N/A*	N/A	*N/A*
76	Yara International	1 : 15.1	1 : 28.7	*83*	1 : 10.4	*70*	1 : 17.2	*64*	1 : 24.5	*47*
77	Dong Energy	1 : 18.1	1 : 27.1	*82*	1 : 20.3	*80*	1 : 29.9	*67*	1 : 37.2	*49*
78	Rautaruukki	1 : 18.7	1 : 57.7	*87*	1 : 9.5	*68*	1 : 8.7	*58*	1 : 9.4	*44*
79	Danske Bank	1 : 24.9	1 : 22.7	*81*	1 : 35.7	*82*	N/A	*N/A*	N/A	*N/A*
80	Fortum	1 : 26	1 : 21	*79*	1 : 18.8	*79*	1 : 12.4	*63*	1 : 12.4	*45*
81	Vattenfall	1 : 31.2	1 : 40	*85*	1 : 38.5	*83*	1 : 35.6	*68*	1 : 35.1	*48*
82	Kommunekemi	1 : 34.3	1 : 28.7	*84*	1 : 28.1	*81*	N/A	*N/A*	N/A	*N/A*
83	Norske Skog	1 : 146.5	1 : 62	*88*	1 : 45.2	*84*	1 : 17.7	*65*	1 : 57.1	*50*
84	Torm	1 : 193.7	1 : 51.2	*86*	1 : 16.6	*78*	1 : 18.1	*66*	N/A	*N/A*
N/A	Axfood	N/A	2 : 1	*12*	1.8 : 1	*13*	1.9 : 1	*10*	2 : 1	*7*
N/A	Copenhagen Airports	N/A	N/A	*N/A*	1.2 : 1	*31*	1.3 : 1	*26*	1.1 : 1	*19*
N/A	Danisco	N/A	1 : 3.2	*52*	1 : 3.9	*51*	1 : 4.1	*44*	1 : 4	*31*
N/A	Energinet	N/A	1 : 6.9	*68*	1 : 11.6	*73*	1 : 7.8	*56*	1 : 61	*51*
N/A	Rockwool Internat.	N/A	1 : 6	*64*	1 : 5.5	*58*	1 : 4.3	*45*	N/A	*N/A*

Table 7: RCRs Nordic companies 2006 to 2010

4.2 Future e^2–Value Performance Results

Based on the EU greenhouse gases reduction target of 20% by 2020 and based on the extrapolated trend of the Nordic countries' previous economic development (both NDP and net capital stock) we have established a future benchmark. This future performance scenario allows us to assess which companies will continue to create e^2-Value when their 2010 performance is compared against these more stringent targets.

Table 8 shows the results of this future performance assessment. It shows the absolute e²-Values as well as the Return to Cost Ratios. Overall, the benchmark gets more demanding in the future scenario. This is on the one hand because of an anticipated growth of the return Net Domestic Product and on the other hand because of the targeted CO_2-emissions reduction, which outweighs by far the estimated increase of the net capital stock over time. As a result, all companies assessed show lower e²-Values, with a maximum e^2-Value of €3.3bn for Ericsson, as compared to €3.65bn in the past performance scenario. Accordingly, also the number of companies generating a positive e^2-Value reduced (from 38 in 2010 to 27 in the future scenario). Moreover, we can also observe a change in the ranking, as for instance the case of Nokia shows (rank four in 2010 and rank six in the 2020 scenario).

To allow for a fair comparison of the companies' performances again the RCR can be calculated which corrects for the different company sizes. As the results both show the Return to Cost Ratios for 2020 are less favorable than the 2010 results. Just as with the 2010 results DNV, H&M and Novo Nordisk lead the 2020 RCR ranking. Vattenfall is the company predicted to have the largest negative e^2-Value with -€359bn, which is more than double the amount that the second to last company A.P. Moller - Maersk's shows (-€144bn). Vattenfall's position moves to 81st out of 84 when considering RCR and Torm then shows the lowest RCR of 1:333. If the resources used by Torm in 2010 instead had been used by the Nordic economy on average in 2020, 333 times more value would have been created. Put differently, with the resource Torm needs to generate €1 of NVA in 2010 a company representing the average Nordic economy in 2020 would generate €333 of NVA.

	Company	e^2-Value 2010 → 2020		Company	RCR 2010 → 2020
1	Ericsson (LM)	€ 3,349,962,538	1	DNV	4.8 : 1
2	Novo Nordisk	€ 3,084,056,573	2	H&M	2.8 : 1
3	H&M	€ 2,791,571,516	3	Novo Nordisk	2.7 : 1
4	Atlas Copco	€ 1,412,325,223	4	Kongsberg Gruppen	2.5 : 1
5	Kone	€ 1,164,550,056	5	Nortura	2.1 : 1
6	Nokia	€ 862,522,895	6	Kone	2 : 1
7	Aker Solutions	€ 753,773,260	7	Atlas Copco	1.9 : 1
8	Scania	€ 680,158,991	8	H. Lundbeck	1.8 : 1
9	DNV	€ 633,181,118	9	Orion	1.8 : 1
10	SAAB	€ 463,346,196	10	SAAB	1.7 : 1
11	Kongsberg Gruppen	€ 452,871,644	11	Ericsson (LM)	1.7 : 1
12	H. Lundbeck	€ 424,932,379	12	Aker Solutions	1.6 : 1
13	Posten Norge	€ 397,819,083	13	Swedish Match	1.6 : 1
14	Swedish Match	€ 290,376,367	14	Gunnebo	1.5 : 1
15	Assa Abloy	€ 278,373,448	15	Posten Norge	1.4 : 1
16	Nortura	€ 244,300,840	16	Coloplast	1.4 : 1
17	Coloplast	€ 194,030,981	17	Outotec	1.4 : 1
18	Orion	€ 185,089,268	18	Scania	1.3 : 1
19	Wartsila	€ 141,174,972	19	Tomra Systems	1.3 : 1
20	Grundfos	€ 127,075,283	20	Apoteket	1.3 : 1
21	Gunnebo	€ 87,823,790	21	Nibe	1.2 : 1
22	Outotec	€ 78,222,678	22	Assa Abloy	1.2 : 1
23	Apoteket	€ 60,277,825	23	Oriflame Cosmetics	1.2 : 1
24	Tomra Systems	€ 40,041,536	24	Grundfos	1.1 : 1
25	Oriflame Cosmetics	€ 39,983,852	25	Wartsila	1.1 : 1
26	Nibe	€ 38,733,884	26	Nokia	1.1 : 1
27	FLSmidth	€ 37,414,859	27	FLSmidth	1.1 : 1
28	Cargotec	-€ 6,708,704	28	SKF	1 : 1
29	SKF	-€ 11,879,225	29	Sandvik	1 : 1
30	Rapala	-€ 13,334,716	30	Cargotec	1 : 1
31	Sandvik	-€ 21,697,068	31	Vestas Wind Systems	1 : 1
32	Uponor Suomi	-€ 31,987,126	32	Skanska	1 : 1
33	Vestas Wind Systems	-€ 32,630,032	33	Metso	1 : 1.1
34	Skanska	-€ 78,429,461	34	Uponor Suomi	1 : 1.1
35	All Transport i Östergötland	-€ 80,626,038	35	Rapala	1 : 1.1
36	CHR Hansen	-€ 129,909,857	36	Telia Sonera	1 : 1.2
37	Green Cargo	-€ 171,093,081	37	Danfoss	1 : 1.4
38	Cermaq	-€ 191,454,566	38	Konecranes	1 : 1.4
39	Metso	-€ 202,383,278	39	TDC	1 : 1.4
40	Konecranes	-€ 208,726,705	40	CHR Hansen	1 : 1.4
41	Hufvudstaden	-€ 265,093,598	41	ICA Group	1 : 1.5
42	Raisio	-€ 309,939,541	42	Electrolux	1 : 1.5
43	Danfoss	-€ 393,100,098	43	SCA	1 : 1.6
44	Castellum	-€ 449,073,126	44	Cermaq	1 : 1.7
45	TDC	-€ 522,327,563	45	Green Cargo	1 : 2
46	Citycon	-€ 525,392,051	46	Kemira	1 : 2.4
47	ICA Group	-€ 540,757,236	47	Telenor	1 : 2.5
48	Billerud	-€ 594,153,365	48	Akademiska Hus	1 : 2.7
49	Sponda	-€ 594,853,272	49	Statoil	1 : 3
50	Akademiska Hus	-€ 624,571,987	50	Trygvesta	1 : 3.2
51	Kemira	-€ 633,310,672	51	Billerud	1 : 3.4
52	Trygvesta	-€ 718,464,785	52	Hufvudstaden	1 : 3.7

	Company	e^2-Value 2010 →► 2020		Company	RCR 2010 →► 2020
53	Kommunekemi	-€ 732,283,910	53	Castellum	1 : 4.2
54	Telia Sonera	-€ 771,790,873	54	Arla Foods	1 : 5.1
55	Sveaskog	-€ 946,021,259	55	Statkraft	1 : 5.4
56	Electrolux	-€ 1,263,374,422	56	Raisio	1 : 5.6
57	Grieg Shipping Group	-€ 2,024,909,472	57	Sveaskog	1 : 6
58	Norden	-€ 2,066,164,064	58	Sponda	1 : 6.7
59	Holmen	-€ 2,319,379,193	59	Sodra	1 : 7.5
60	Sodra	-€ 3,078,338,244	60	Metsaliitto	1 : 7.8
61	Ahlstrom	-€ 3,634,632,085	61	Holmen	1 : 8
62	Telenor	-€ 4,495,626,746	62	Orkla	1 : 8.3
63	Arla Foods	-€ 4,506,316,125	63	Citycon	1 : 9.1
64	Outokumpu	-€ 5,535,425,664	64	Stora Enso	1 : 9.8
65	Torm	-€ 6,874,389,974	65	Ahlstrom	1 : 10
66	SCA	-€ 7,030,225,758	66	DnB Nor	1 : 10.2
67	Statkraft	-€ 7,753,470,623	67	SAS Group	1 : 10.3
68	Metsaliitto	-€ 8,464,679,454	68	Norden	1 : 12.2
69	Norske Skog	-€ 10,356,836,273	69	AP Moeller-Maersk	1 : 12.4
70	Orkla	-€ 12,025,784,605	70	UPM	1 : 12.9
71	SAS Group	-€ 13,458,973,515	71	Swedbank	1 : 14.5
72	Neste Oil	-€ 15,058,981,215	72	All Transport i Östergötland	1 : 14.8
73	Rautaruukki	-€ 15,890,236,063	73	Outokumpu	1 : 20.3
74	Stora Enso	-€ 21,132,199,820	74	Grieg Shipping Group	1 : 20.5
75	Swedbank	-€ 21,652,904,400	75	Neste Oil	1 : 22.3
76	UPM	-€ 23,474,070,956	76	Danske Bank	1 : 24.6
77	DnB Nor	-€ 31,983,469,024	77	Yara International	1 : 26.4
78	Yara International	-€ 34,620,756,452	78	Dong Energy	1 : 31.1
79	Statoil	-€ 43,073,850,399	79	Rautaruukki	1 : 33
80	Dong Energy	-€ 47,298,461,882	80	Fortum	1 : 45.5
81	Danske Bank	-€ 63,225,834,832	81	Vattenfall	1 : 55.1
82	Fortum	-€ 99,841,994,120	82	Kommunekemi	1 : 61
83	A.P. Moller - Maersk	-€ 144,243,173,482	83	Norske Skog	1 : 252.4
84	Vattenfall	-€ 359,150,222,595	84	Torm	1 : 333.6
N/A	Axfood	N/A	N/A	Axfood	N/A
N/A	Copenhagen Airports	N/A	N/A	Copenhagen Airports	N/A
N/A	Danisco	N/A	N/A	Danisco	N/A
N/A	Energinet	N/A	N/A	Energinet	N/A
N/A	Rockwool Internat.	N/A	N/A	Rockwool Internat.	N/A

Table 8: e^2-Value and RCR of Nordic companies in the future scenario

5 Discussion

This section provides a discussion of the results of this study. It first looks at the results presented in the preceding chapter with a particular focus on the top ranking companies (section 5.1). It then goes on to look at sector specific differences in the e^2-Value performance (section 5.2). Subsequently, country differences will be highlighted and discussed in more detail. The final discussion section (5.4) then focuses on the availability and quality of the environmental performance data that is currently available.

5.1 The Top 5 Performers

The following Table 9 summarizes the top five rankings of this assessment. It distinguishes between

- e^2-Value and RCR, reflecting the companies' performance in absolute and in relative terms respectively, and
- past and future performance, benchmarking the companies against the Nordic economy in 2010 and against the political targets of the Nordic economy in 2020 respectively (see also section 2.3).

	Ranking according to	
	e^2-Value	Return to Cost Ratio
Past performance (2010)	(1) Ericsson (LM)	(1) DNV
	(2) Novo Nordisk	(2) H&M
	(3) H&M	(3) Novo Nordisk
	(4) Nokia	(4) Kongsberg Gruppen
	(5) Atlas Copco	(5) Kone
Future performance (2010 -> 2020)	(1) Ericsson (LM)	(1) DNV
	(2) Novo Nordisk	(2) H&M
	(3) H&M	(3) Novo Nordisk
	(4) Atlas Copco	(4) Kongsberg Gruppen
	(5) Kone	(5) Nortura

Table 9: Top 5 positions in e^2-Value and RCR rankings 2010 and 2020

When we compare the e^2-Value ranking of the past performance with the future performance assessment, we find that the first three positions are identical but that the ranking changes on positions four and five. Ericsson leads the ranking, followed by Novo Nordisk and H&M in both assessment scenarios. Nokia, ranking fourth in the past performance assessment, falls back on sixth position in the future scenario, while Atlas Copco and Kone climbed up one position each. This is largely due to the fact that Nokia used its CO_2 less efficiently than Atlas Copco and Kone: Despite the lower efficiency Nokia still created a higher e^2-Value in 2010 because it is significantly bigger than Atlas Copco and Kone and therefore the CO_2 value contribution exceeds that of Atlas Copco and Kone. The targeted CO_2 emissions reduction of the benchmark within the future scenario then, however, outweighs the slight advantage resulting from the size effect.

Table 9 also highlights one more time the differences between the absolute e²-Value results and the RCR which corrected the results for company size. Compared to the e²-Value ranking it is only Novo Nordisk and H&M that appear among the top five within the RCR ranking which now is led by DNV in both temporal perspectives.

5.2 Sector Comparison

An analysis of corporate resource efficiency needs to keep in mind the particularities of specific sectors. Looking at the results of all companies assessed in this study it becomes obvious that their individual performance varies widely. With reference to the Return to Cost Ratios it can be seen that the best performers in 2010 used their economic capital and their CO_2 up to almost five times as efficiently as the Nordic economy on average. The least efficient company (Torm) in contrast used the bundle of these two resources nearly 194 times less efficiently than the benchmark. These numbers can be interpreted in different ways. On the one hand, by reallocating resources to more efficient companies we would expect to see a considerable increase of Net Value Added at constant or even decreasing resource use. On the other hand, it can be argued that some inefficient companies provide an essential service to our economy and reallocating resources is thus not an option. This might for example be the case with some energy companies or utilities. A low e²-Value indicates that the price that customers pay for these products or services does not reflect the value they create and, therefore, prices are too low.

The stark performance differences mentioned above can to a large degree be ascribed to the nature of the companies' business, i.e. to their sector affiliation. In this study companies from 22 different sectors have been assessed (see Table 4). The following Figure 7 shows the Return to Cost Ratio of all companies[4] in 2010, clustered according to their sector affiliation.

[4] Excluding *Axfood*, *Copenhagen Airports*, *Danisco*, *Energinet* and *Rockwool International* as no data were available for 2010.

Figure 7: RCRs 2010 by sector affiliation

It is worth mentioning that some sectors are represented by one or two companies only[5]. In such cases, sector affiliation can still give an indication on potential reasons underlying the specific performance of a single company. However, these company performance results, in contrast, do barely allow deriving any conclusions on the performance of an entire sector.

[5] This is the case of the sectors automobile, construction services, consulting & business services, communication services, misc. manufacturing industries, sanitary systems, tobacco manufacturing.

Figure 7 reveals that in 2010 10 of 21 sectors (automobile, construction services, consulting & business services, electrical equipment & components, engineering & machinery, measurement & control instruments, misc. manufacturing industries, sanitary systems, tobacco manufacturing and wholesale & retail) show by and large positive RCRs, i.e. create a positive e^2-Value. Put differently, in 2010 the majority of the companies in these sectors used their resources more efficiently than the Nordic economy on average. The sectors communication services, financial services, primary metal industries, oil & gas, real estate and utilities seem comparably more resource intensive, showing companies with only negative RCRs in 2010. That is, all companies assessed within these sectors use their resources less efficiently than the Nordic economy on average and thus destroy e^2-Value. The remaining sectors show both, companies with positive and negative RCRs.

At the same time, it becomes apparent that the companies' RCRs within some sectors differ widely. In the case of the transportation sector for example the best performing company is about twice (RCR 2:1) as efficient as the benchmark, while the worst performing company shows a negative RCR of nearly 1:194. The reasons for these differences can be manifold such as different product portfolios, different production technologies or different processes to name just a few examples.

The following table ranks the sectors according to their average Return to Cost Ratios which were calculated using the weighted average performance of the respective companies. When interpreting the sector averages it should be kept in mind that afore mentioned differences between individual companies can vary widely within one sector. Furthermore does the ranking not include sectors which are represented in this study by only one company.

Rank	Sector	RCR 2010
1	Consulting & business services	3.7 : 1
2	Measurement & control instruments	2.3 : 1
3	Wholesale & retail	2.1 : 1
4	Automobile	1.6 : 1
5	Engineering & machinery	1.5 : 1
6	Electrical equipment & components	1.3 : 1
7	Communication services	1 : 1.4
8	Food	1 : 2
9	Fabricated metal products	1 : 2.7
10	Chemicals	1 : 2.8
11	Forestry & paper	1 : 3.1
12	Oil & gas	1 : 3.3
13	Real estate	1 : 3.8
14	Transportation	1 : 6.7
15	Financial services	1 : 15.7
16	Primary metal industries	1 : 16.1
17	Utilities	1 : 25.6

Table 10: Sector ranking based on RCR 2010

We can see that only six sectors (consulting & business services; measurement & control systems; wholesale & retail; automobile; engineering and machinery; electrical equipment & components) generate positive Return to Cost Ratios and thus contribute to the creation of

e^2-Value in the Nordic economy. It is hardly surprising that the ranking is led by the consulting & business services sector which uses its resources 3.7 times more value creating than the Nordic economy on average. Generally offering knowledge based services only, companies within this sector do neither require CO_2 for production processes nor high amounts of capital to conduct their business. The wholesale & retail sector (rank 3) shows similar characteristics, though capital use here among others depends on the kind of products traded. The other sectors showing a positive RCR are manufacturing industries that are rather R&D and knowledge intensive, thus less resource intensive than for instance heavy industry sectors such as oil & gas or primary metal industries which rank 12 and 16 respectively. It might - at first glance - seem rather surprising that service providers such as real estate or financial services[6] are to be found among the five worst performing sectors considered in this study. However, in contrast to for instance consultancy services, these sectors generally require a comparatively high amount of capital, which outweighs their efficient CO_2 use in negative terms. The worst performance is shown by the sector utilities, including particularly CO_2 intensive businesses such as energy supplier and waste management companies. To visualize the impact the use of total assets and the use of CO_2 emissions has on the overall result of each sector, the following matrix (Figure 8) splits up the RCRs of the sector average for each of both resources. Furthermore, it shows the results of 2010 in comparison to the RCRs achieved against the 2020 benchmark scenario (indicated by an arrow).

[6] There is a methodological specificity regarding financial assets of companies in the financial sectors. They are likely to hold a high amount of financial securities. Financial securities reflect the value of assets that are used in other parts of the economy. There can therefore be an element of double-counting. One should however keep in mind that the double-counting is not restricted to financial assets but also applies to economic returns. A profit that is handed to the providers of capital in the form of a dividend will for example also be counted twice.

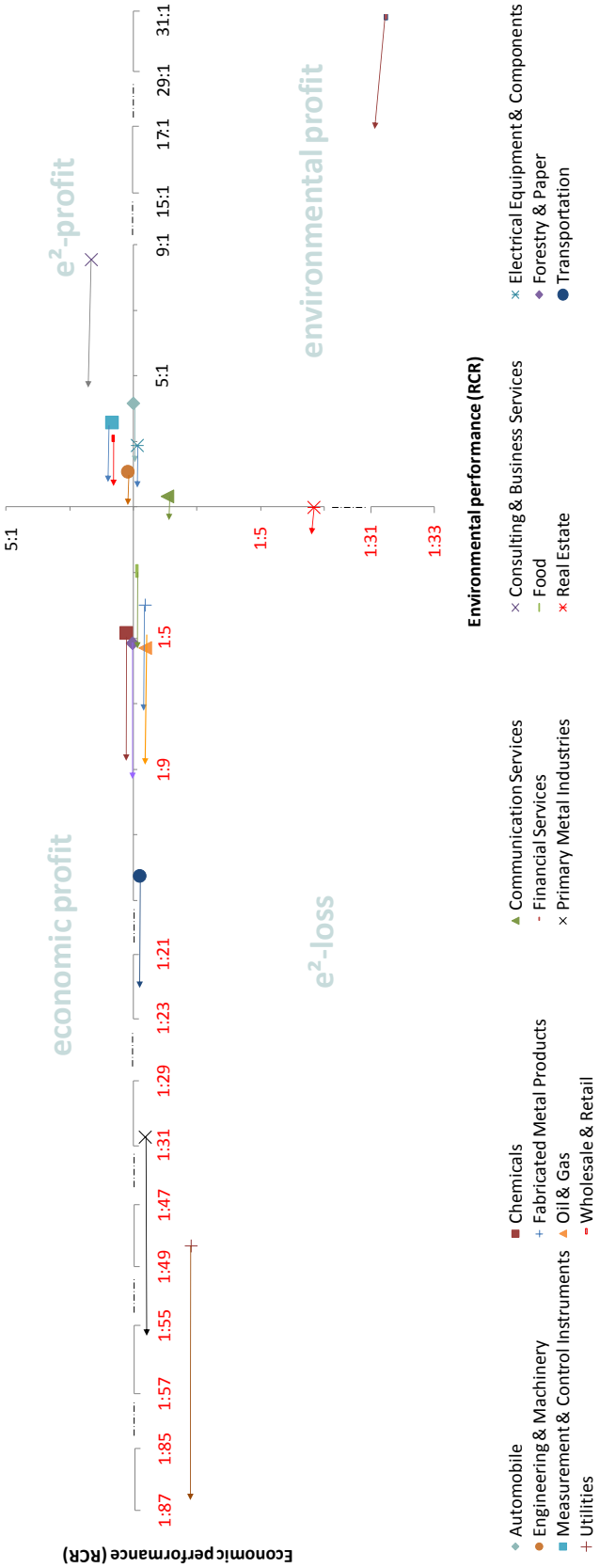

Figure 8: Environmental and economic value creation by selected sectors, 2010 and 2020

We can see clearly that e²-profit, i.e. value creation with the use of both resources, is created only by the sectors consulting & business services, manufacturing of measurement & control instruments, wholesale & retail and engineering & machinery. These sectors thus contribute to both environmental and economic value creation within the Nordic economy. Moreover, with their 2010 performance, they already exceed the European CO_2 emissions reduction target and the assumed average capital efficiency within the Nordic economy in a 2020 scenario.

The average of the companies of the sectors real estate, oil & gas, food production, fabricated metal products, transportation services, primary metal industries and utilities in contrast destroys value with both use of capital and use of CO_2. Particularly striking is the performance of the utilities sector, showing the worst CO_2 and third worst capital efficiency. The chemical sector and the forestry & paper industries show a slightly better economic performance than the Nordic economy on average but fail in using CO_2 more efficiently than the benchmark. The opposite performance can be observed with the remaining sectors, namely automobile industry, electrical equipment & components, financial services and communication services. While contributing to environmental value creation, their contribution to economic value creation is negative compared to the Nordic economy on average. A particularly isolated position is taken by financing services. On the one hand the sector shows the best CO_2 performance. On the other hand its considerable capital intensity becomes apparent when looking at their disastrous economic performance (see footnote 6 page 49).

It is worthwhile having a closer look at the performance of the automobile sector. With a RCR of 1:1.01 for the use of total assets and a RCR of 4.2:1 for the use of CO_2, the sector is located in the lower right field of the matrix, reflecting the creation of environmental profit and a (comparatively small) loss from economic perspective. The strong carbon efficiency though outweighs by far the negative economic performance, leading to an overall positive RCR of 1.6:1 (see Table 10 above). Interestingly, the automobile sector thereby outperforms the sector engineering & machinery (RCR 1.5:1), although the latter generates both, economic as well as environmental value and thus e²-profit (see Figure 8, upper right field of the matrix). Consequently this example shows that, in terms of overall value creation, it can in some cases make sense to forego economic efficiency for the sake of an improved environmental performance (Figge et al., 2008).

In the future scenario the performance of all sectors deteriorates in terms of CO_2 use when their 2010 performance is compared to the anticipated 2020 performance of the benchmark. In terms of capital efficiency, in contrast, all sectors show a slightly better performance than 2010. This opposed development is reasoned in an increasing CO_2 efficiency and a decreasing capital efficiency of the benchmark until 2020. The anticipated CO_2 reduction is based on political targets and relatively higher than the anticipated growth of the NDP, which is based on trend extrapolations. Thus, just as politically desired the benchmark CO_2-efficiency in 2020 is higher than in 2010. Capital efficiency in contrast

decreases, simply because the benchmark's net capital stock grows stronger (likewise based on trend extrapolations) than its NDP. This does also not come as a surprise, if we assume that investors will look for the most advantageous investment opportunities first and that we will therefore observe a decreasing marginal return on capital as the capital stock increases.

In the following we will have a closer look at those sectors that are represented by four or more companies in this study in the year 2010.

Chemicals

All together we have assessed six companies within the chemical sector in 2010. As can be seen in Table 11, these companies show both positive as well as negative RCRs, which might to a certain extent be ascribed to the different activities these companies conduct. The best performance for instance is shown by Novo Nordisk (RCR 3.1:1), a producer of pharmaceutical preparations. As Table 11 shows, both, the use of CO_2 and the use of capital contribute to e^2-Value creation.

2010 Company	RCR total assets	RCR CO_2	RCR total	Rank RCR
Novo Nordisk	2 : 1	7.2 : 1	3.1 : 1	3
Orion	1.8 : 1	3.1 : 1	2.3 : 1	7
H. Lundbeck	1.3 : 1	5.7 : 1	2.1 : 1	10
Oriflame Cosmetics	1.2 : 1	2 : 1	1.5 : 1	21
Kemira	1 : 1.7	1 : 1.7	1 : 1.7	46
Yara International	1 : 1.8	1 : 28.3	1 : 15.1	76

Table 11: RCR per resource use in the chemical sector 2010

The company used its total assets about 2 times, and its CO_2 even 7 times more efficiently than the Nordic economy on average. That is, particularly in terms of CO_2 use Novo Nordisk contributes strongly to value creation in the Nordic economy. Showing a similar pattern in resource use and value contribution, second and third-best performers in this sector are Orion and H.Lundbeck, both likewise producers of pharmaceutical preparations. The remaining three companies appear more CO_2 and capital intensive. Kemira, producer of chemicals for water treatment, even destroys e^2-Value with both its capital used and its CO_2 emitted. However, the strongest negative effect on the average sector performance has Yara International, a producer of fertilizers, who brings up the rear and appears particularly CO_2 intensive while the RCR on total assets is negative but still comparably close to the benchmark performance. On these grounds the chemical sector average remains slightly above the benchmark in terms of capital efficiency, but shows a rather poor environmental performance. The future scenario shown in Figure 8 suggests that this sector needs to focus particularly on improving CO_2 efficiency: Against the background of the EU CO_2 emissions reduction target and an assumed constant economic growth of the Nordic economy the chemical sector would even be 8.7 times more inefficient than the Nordic economy, as opposed to a current CO_2-RCR of 1:4.8. Capital efficiency in contrast would remain above the Nordic economy average with a RCR of 1.2:1.

Electrical equipment & components

The four companies assessed within the sector electrical equipment & components on average show an RCR of 1.3:1 (see Table 10). That is, despite the slight underperformance in capital use (see Figure 8) and thanks to a comparatively strong CO_2 performance the sector uses its resources 1.3 times more efficiently than the Nordic economy. Thereby, Ericsson has a major share in the environmental performance of this sector, using its carbon dioxide nearly 10 times as efficiently as the Nordic economy in 2010. Nokia also creates environmental profit by generating 3.7 times more NVA with its CO_2 than the benchmark would have generated with Nokia's CO_2. The company is, in contrast, also the only one of the four companies assessed within this sector that uses its capital less efficiently than the Nordic economy on average. Both Danfoss and Electrolux use their total assets slightly more efficiently than the benchmark (see Table 12). The latter, however, seems more CO_2 intensive, destroying environmental profit with a carbon related RCR of 1:1.2.

2010 Company	RCR total assets	RCR CO_2	RCR total	Rank RCR
Ericsson (LM)	1 : 1	9.5 : 1	1.8 : 1	16
Nokia	1 : 1.3	3.7 : 1	1.2 : 1	31
Danfoss	1.1 : 1	1 : 1	1 : 1	37
Electrolux	1.1 : 1	1 : 1.2	1 : 1.1	40

Table 12: RCR per resource use in the sector communication services 2010

In the future scenario the sector's environmental performance still remains above the benchmark level, using its CO_2 today already 1.6 times more efficiently than the Nordic economy will use its CO_2 in 2020 according to the underlying estimates.

Engineering & machinery

We have assessed 14 companies within the sector engineering & machinery, each of them showing overall a positive RCR in 2010 (see Table 13) and thus contributing to e^2-value creation within the Nordic economy.

2010 Company	RCR total assets	RCR CO_2	RCR total	Rank RCR
Kone	1.9 : 1	4 : 1	2.5 : 1	5
Atlas Copco	1.3 : 1	5.9 : 1	2.2 : 1	9
Aker Solutions	1.3 : 1	4.1 : 1	1.9 : 1	14
Tomra Systems	1.6 : 1	1.9 : 1	1.7 : 1	17
Outotec	1 : 1.1	5 : 1	1.5 : 1	19
Grundfos	1.2 : 1	1.9 : 1	1.5 : 1	22
SKF	1.6 : 1	1.3 : 1	1.4 : 1	24
Wartsila	1 : 1	2.3 : 1	1.4 : 1	25
Sandvik	1.3 : 1	1.5 : 1	1.4 : 1	26
FLSmidth	1 : 1.2	2.4 : 1	1.3 : 1	29
Metso	1 : 1	1.5 : 1	1.2 : 1	32
Vestas Wind Systems	1 : 1.4	2.8 : 1	1.1 : 1	34
Konecranes	1.7 : 1	1 : 1.2	1.1 : 1	35
Cargotec	1 : 1.5	3.4 : 1	1.1 : 1	36

Table 13: RCR per resource use in the sector engineering & machinery 2010

As shown in Figure 8 the sector thereby creates both economic as well as environmental value, with the CO_2 use, however, being the stronger driver for this sector's e^2-Value performance. The positive results might thereby partly result from the often rather R&D and knowledge intensive activities in this sector. Only Konecranes shows a negative CO_2 performance while from the perspective of capital use four companies (Outotec, FLSmidth, Vestas Wind Systems and Cargotec) perform below benchmark level. Overall, however, the companies' performance differences are rather small compared to other sectors with Kone as best performer using its resources about 2.5 times more efficiently than the worst performer Outotec. Also in the future scenario the sector still creates more value with its given capital and CO_2 performance in 2010 than the benchmark would generate with its anticipated performance in 2020.

Financial services

The four companies clustered in this sector show the strongest contrast in terms of capital and carbon use and each of them an overall negative Return to Cost Ratio. The sector is the most capital and at the same time the least CO_2 intensive one among those assessed in this study, using CO_2 30.5 times more efficiently and its total assets about 31.4 times less efficiently than the benchmark. That is, although the sector generates environmental profit, the capital intensity still outweighs the outstanding carbon performance in negative terms, resulting in an overall RCR for the sector of 1:15.7 in 2010. This effect might, as explained above, be partly due to the effect of a double-counting of the financial assets. Companies in this sector will typically hold securities as part of their assets that reflect the value of the assets of other companies in the economy. This double-counting effect will be (partly) compensated by a double-counting of the return that is generated by these assets.

2010 Company	RCR total assets	RCR CO_2	RCR total	Rank RCR
Trygvesta	1 : 6.3	20.2 : 1	1 : 3.2	52
DnB Nor	1 : 20.7	67.1 : 1	1 : 10.3	71
Swedbank	1 : 29.3	97 : 1	1 : 14.7	75
Danske Bank	1 : 49.7	14.8 : 1	1 : 24.9	79

Table 14: RCR per resource use in the sector financial services 2010

As Table 14 shows, the best performing company in this sector is Trygvesta. The strong difference to the other companies particularly with respect to the use of total assets assumedly can be ascribed to the fact that the company is an insurer with an emphasis on insurances that do not encompass an explicit savings element while the other companies are banks. The worst performer in this sector is Danske Bank, using it's resources nearly 25 times less efficiently than the Nordic economy on average. For the reason discussed above the sector shows a slightly better but still disastrous economic performance in the future scenario with an RCR for total assets of 1:31. In terms of CO_2 use the companies on average, however, do still outperform the benchmark by factor 16.9 when their 2010 performance is compared to the 2020 performance of the benchmark.

Food

Within the food sector we have assessed the 2010 e²-Value performance of 5 companies. The sector is comparatively resource intensive, destroying economic as well as environmental value (RCR total assets 1:1.1; RCR CO_2 1:3). The best performer Nortura still uses both total assets as well as CO_2 more efficiently than the benchmark (see Table 15). The remaining companies, however, lag behind benchmark efficiency in terms of both capital use as well as CO_2 use. It is only CHR Hansen which at least creates environmental profit, but overall still shows a negative RCR. The laggard in this sector is Raisio, using its total assets 2.2 times and carbon dioxide 5 times less efficiently than the benchmark.

2010 Company	RCR total assets	RCR CO_2	RCR total	Rank RCR
Nortura	1.7 : 1	4.8 : 1	2.5 : 1	6
CHR Hansen	1 : 1.3	1.2 : 1	1 : 1.1	41
Cermaq	1 : 1.4	1 : 1.1	1 : 1.3	44
Arla Foods	1 : 1.1	1 : 5	1 : 3.1	51
Raisio	1 : 2.2	1 : 5	1 : 3.6	54

Table 15: RCR per resource use in the food sector 2010

Lagging behind benchmark performance already in 2010 by factor 3, the future scenario shows that the sector needs to improve its CO_2-efficiency by factor 5.3 and its capital efficiency by factor 1.1 in order to create economic and environmental value in 2020.

Forestry & paper

As the following Table 16 shows, the forestry & paper sector is also rather resource intensive in terms of both capital as well as CO_2 use. For the year 2010 we have assessed 10 companies within this sector with all but SCA showing a negative RCR overall as well as for each of both resources. SCA is the best performer and shows a positive RCR (2.7:1) at least for the use of capital. This outweighs the company's negative performance in terms of CO_2 enough to reach an overall company performance at the benchmark level. Particularly striking is the performance of the laggard within this sector. Norske Skog uses its CO_2 nearly 266 times less efficiently than the Nordic economy on average.

2010 Company	RCR total assets	RCR CO_2	RCR total	Rank RCR
SCA	2.7 : 1	1 : 1.5	1 : 1	38
Billerud	1 : 1.2	1 : 3.1	1 : 2.1	49
Sodra	1 : 1.3	1 : 7.6	1 : 4.5	57
Metsaliitto	1 : 1.4	1 : 7.9	1 : 4.7	58
Sveaskog	1 : 6.1	1 : 3.3	1 : 4.7	59
Holmen	1 : 3.1	1 : 7.1	1 : 5.1	61
Stora Enso	1 : 1.7	1 : 10	1 : 5.8	63
Ahlstrom	1 : 1.2	1 : 10.5	1 : 5.8	64
UPM	1 : 2.2	1 : 13.1	1 : 7.7	68
Norske Skog	1 : 27.4	1 : 265.5	1 : 146.5	83

Table 16: RCR per resource use in the forestry & paper sector 2010

Showing a RCR for capital use of 1:1 and for CO_2 use of 1:5.2, it might surprise that the overall sector performance as depicted in Figure 8 appears to be comparatively moderate compared to the individual company results shown in Table 16. The reason for this is simply that the sector performance is calculated based on the weighted average of all companies within this sector. That is, the sector performance is significantly influenced by SCA, being best performer and the biggest company in terms of NVA creation at the same time.

With respect to the future scenario, again, one can observe that with the CO_2 performance of 2010 the sector would be worse off in 2020, while economic value creation with the use of total assets would show a minor increase in the RCR (from 1:1.02 to 1:1.03).

With respect to the CO_2 performance it is worthwhile having a brief excursus on the particularities of the forestry & paper sector. The sector commonly covers approximately two thirds of its energy needs by biomass fuels (NCASI, 2005) which has important implications for the sector level analysis. Under the IPCC (Intergovernmental Panel on Climate Change) guidelines for National Greenhouse Gas inventories (IPCC, 2006), biogenic CO_2 is treated under the land use sector rather than the energy sector. Net carbon stock changes in the biomass carbon pool are reported in the land use, land use change and forestry activities (LULUCF) sector for the country where the stock change occurred (IPCC, 2006; Möllersten & Grönkvist, 2007). As biogenic CO_2 stocks are accounted for in this way, emissions to atmosphere from combustion of biomass are not included in GHG emission totals to avoid any double counting. Furthermore, this biogenic carbon is considered as "carbon neutral" since it is essentially atmospheric carbon. Thus, releasing this carbon back into the atmosphere is not considered to add new carbon to the loop unlike the burning of fossil fuels (NCASI, 2005).

However, there is some debate about whether exempting emissions from bio-energy is improper for greenhouse gas accounting under the Kyoto Protocol (Searchinger et al., 2009). For instance, it is argued that by valuing carbon from fossil fuel sources only this could create strong incentives for land use change and conversion of existing forest and agricultural land to bio-energy crops (Melillo et al., 2009; Wise et al., 2009). Furthermore, all CO_2 in the atmosphere must be considered equal and will have the same radiative effects whether the source is fossil or biomass (Möllersten et al., 2007). That is, CO_2 from biomass combustion will undoubtedly have an effect on climate change with this effect not being represented in current GHG emission totals.

Nevertheless, in this survey direct and indirect CO_2 emissions reported cover only emissions from fossil fuel sources as biogenic CO_2 information was not available in all cases. This should be kept in mind when comparing the e^2-Value performance of Nordic companies in both cases across the different sectors covered by this study as well as among the companies of the forestry & paper sector.

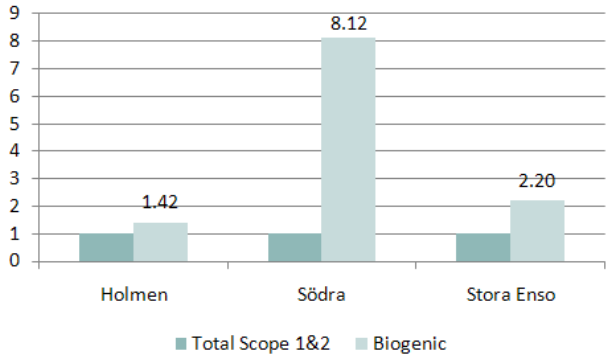

Figure 9: Biogenic emissions as multiples of total scope 1&2 emissions in 2008 (various companies)

Figure 9 above illustrates the significance of biogenic CO_2 emissions in the forestry & paper sector. In the case of the three companies covered in this example, the amount of biogenic emissions ranges between 1.42 times (Holmen) and 8.12 times (Södra) of the total amount of CO_2 from fossil sources emitted by the company.

Real estate

Figure 8 above reflects the particularly high capital intensity of the real estate sector (total assets RCR 1:6.7) which is showing the second worse performance in the use of total assets after the financial services sector (total assets RCR 1:31.2). All companies assessed are using their total assets less efficiently than the benchmark and, moreover, less efficiently than their CO_2. Accordingly, it is particularly the use of total assets that causes the overall negative performance of the sector (RCR 1:3.8). The use of CO_2 emissions, in contrast, varies within the range of being 2.5 times more (Akademiska Hus) and 3.8 times less (Citycon) value creating than the Nordic economy on average. Therefore, the average CO_2 efficiency within the sector is equal to that of the benchmark (CO_2 RCR 1:1).

2010 Company	RCR total assets	RCR CO_2	RCR total	Rank RCR
Akademiska Hus	1 : 4.8	2.5 : 1	1 : 2.6	50
Hufvudstaden	1 : 6.7	2.4 : 1	1 : 3.5	53
Castellum	1 : 7.4	1.6 : 1	1 : 4	56
Sponda	1 : 9	1 : 2.5	1 : 5.8	62
Citycon	1 : 11.6	1 : 3.8	1 : 7.7	69

Table 17: RCR per resource use in the real estate sector 2010

From a future scenario perspective, again, the average of the companies shows a slightly better economic performance. However, if the 2010 performance remains unchanged, the sector would still use its total assets 6.6 times less efficiently than the benchmark would use its capital in the year 2020. In terms of CO_2 use, the performance in the future scenario would fall off. While the companies on average perform at benchmark level in 2010, in 2020 they would lag behind by a factor of 1.8 and thus create an e^2-loss. The companies would therefore need to improve their CO_2 efficiency by 80% until 2020 in order to at least perform on the benchmark level.

Transportation

The companies assessed within the transportation sector appear to be the most CO_2 intensive in this study, although the individual companies show a large spread of results. The best performer, Posten Norge, creates overall as well as with the use of each of the two resources about twice as much value as the benchmark would have generated with these resources. The laggard, Torm, in contrast, is the worst performing company assessed in 2010 in the scope of the entire study, using its resources about 194 times less value creating than the Nordic economy on average. These strong differences might again to a certain extent be rooted in the different business activities and business structures. A significant part of Posten Norge's transport services for instance is conducted by third parties. The related CO_2 emissions do, therefore, not appear in the scope 1 & 2 CO_2 accounting of the company. Another problem in terms of the CO_2 performance particularly within the transportation sector is the question on how emissions of leased or charted vehicles are accounted for. Norden for example, offering sea freight transportation services, reports CO_2-emissions from chartered vessels and leased cars as scope 3 emissions, since they do not hold any ownership on these vehicles. Torm in contrast, likewise a provider of sea freight transportation, reports CO_2 emissions from leased or charted vehicles within their scope 1 emissions, since they have operational control. Although in this case both explanations are following a reasonable rationale, the comparability of the results of these two companies is obviously limited. Nevertheless, this case perfectly highlights an important problem when it comes to fair and comparable CO_2 accounting practices, as also discussed further in section 5.4 of this chapter.

2010 Company	RCR total assets	RCR CO_2	RCR total	Rank RCR
Posten Norge	2.1 : 1	2 : 1	2 : 1	11
Green Cargo	1.1 : 1	1 : 1.7	1 : 1.3	45
SAS Group	1.1 : 1	1 : 10.9	1 : 5.9	65
A.P. Moller - Maersk	1 : 1.2	1 : 13.1	1 : 7.2	66
Norden	1 : 2.8	1 : 12	1 : 7.4	67
All Transport i Östergötland	1 : 1.2	1 : 15.8	1 : 8.5	70
Grieg Shipping Group	1 : 3.4	1 : 20.9	1 : 12.2	73
Torm	1 : 36.7	1 : 350.6	1 : 193.7	84

Table 18: RCR per resource use in the transportation sector 2010

Given the poor performance with most of the companies within this sector it seems rather surprising that the overall sector performance (RCR 1: 6.7) remains comparatively moderate. However, as discussed briefly already for the forestry & paper sector, the weighted average of the companies' performances has also been used here to calculate the sector performance. That is, Torm for instance, bringing up the rear in this sector, is comparatively small in terms of NVA creation and has therefore just a minor weight in the average performance of the sector. However, if the sector keeps its average efficiency of 2010 unchanged until 2020, its contribution to achieve the targeted CO_2 efficiency within the Nordic economy is negative by a factor 22 (as opposed to a CO_2 RCR of 1:12.2 in 2010). In

order to at least contribute to the generation of economic profit in 2020, the sector would have to improve its capital efficiency by 20% until 2020.

Utilities

None of the companies within the utilities sector generates a positive RCR. The performance results, however, are not as extreme negative as within the transportation sector. It is all the more surprising that this sector shows the worst overall performance of all sectors (RCR 1:25.1). This, again, is due to the size of Vattenfall in terms of NVA creation and its strongly negative result (RCR 1:31.2). Having a closer look at the individual resource use, the companies seem particularly CO_2 intensive compared to their capital use. Kommunekemi, the laggard within this sector, creates nearly 67 times less value with its CO_2 than the Nordic economy on average.

2010 Company	RCR total assets	RCR CO_2	RCR total	Rank RCR
Statkraft	1 : 3.4	1 : 4.2	1 : 3.8	55
Fortum	1 : 3	1 : 49	1 : 26	80
Vattenfall	1 : 2.6	1 : 59.8	1 : 31.2	81
Kommunekemi	1 : 1.8	1 : 66.8	1 : 34.3	82

Table 19: RCR per resource use in the utilities sector 2010

In the future scenario the average of the companies' carbon performance falls further behind the benchmark, then being about 85 times less efficient in terms of CO_2 use than the Nordic economy on average (see Figure 8). As with the other sectors, and for the reason given above, the capital efficiency remains comparatively stable, i.e. looks slightly better than 2010 (total assets: RCR 2010 1:2.79; RCR 2020 1:2.76).

5.3 Country Level Comparison

Given the diversity of electricity generation in the Nordic countries, it is of vital importance *where*, i.e. in which country, the electricity that has been consumed by the companies has been generated. In the following we will therefore have a closer look on country specific differences in the e^2-value performance.

Indirect CO_2 Emissions or Electricity Usage

Indirect, or scope 2, CO_2 emissions are those derived from the consumption of secondary energy, i.e. purchased electricity, steam or heat (GHG Protocol, 2011). The amount of indirect CO_2 emissions a company is responsible for is therefore derived, not only by how much energy is purchased, but by the fuel mix used to produce this energy.

In the case of electricity the primary energy mix used to produce electricity varies greatly between the different Nordic countries. At 70% of total electricity production, Denmark is the most reliant on fossil fuels (International Energy Agency, 2011a), this is followed by Finland at 34% (International Energy Agency, 2011b), Sweden with 2% (International Energy Agency, 2011c) and finally Norway where only 0.4% of electricity is fossil fuel dependent. In both Sweden and Finland the majority of the remaining electricity production comes from a

mix of nuclear and hydro-electricity (International Energy Agency, 2011b, 2011c). In Norway 98% of all electricity comes from hydro (International Energy Agency, 2011d). As shown in Table 7 this leads to a large variation in the CO_2 emitted per unit of electricity produced.

Country	Emissions Factor (t CO2/ KWh)
Denmark	0.000639
Finland	0.000259
Sweden	0.000045
Norway	0.000002

Table 20: Electricity-derived CO_2-emission factors for Nordic countries (Sturm, Müller, & Upasena, 2003: 69)

The differences between these emission factors means that the indirect CO_2 emissions, and subsequently the total CO_2 emissions of companies based either in Sweden or Norway can be vastly lower than for companies based in Finland and Denmark who either use a similar or much lower quantity of electricity. This can be illustrated taking the example of Holmen's total emissions in 2009 (Figure 10). Holmen is based in Sweden but operate production facilities in six European countries (Holmen, 2008). If all of Holmen's electricity use in 2009 had occurred in Denmark, its total (direct and indirect) CO_2 emissions would have been four times the amount the company actually emitted based on its actual spread of operations throughout Europe; if all of the company's operations had instead been based in Norway – and hence virtually all of the electricity used by the company had been generated through hydro power – the company would have been able to cut its total CO_2 emissions by 55%.

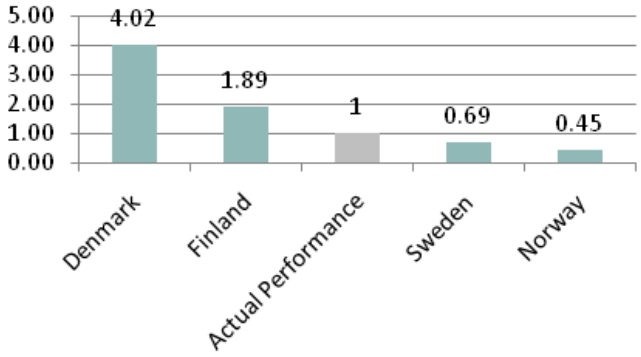

Figure 10: Hypothetical CO_2 performance of Holmen in 2009 in the four Nordic countries

The example illustrates the major impact the energy mix in a given context can have on a company's overall CO_2 performance. Therefore it is important to analyse the electricity consumption of a company alongside indirect CO_2 emissions in order to establish whether low indirect emissions are a coincidence of location or the result of a determined effort to reduce electricity use. Whilst the situation sketched out above describes an extreme case – as all of the companies analysed in this study operate in more than one country – it clearly shows that the primary energy mix to generate electricity is a potentially crucial factor.

The following Figure 11 provides an overview on the country specific results. Apart from a few upper and particularly lower outliers no significant differences between the Nordic countries can be observed.

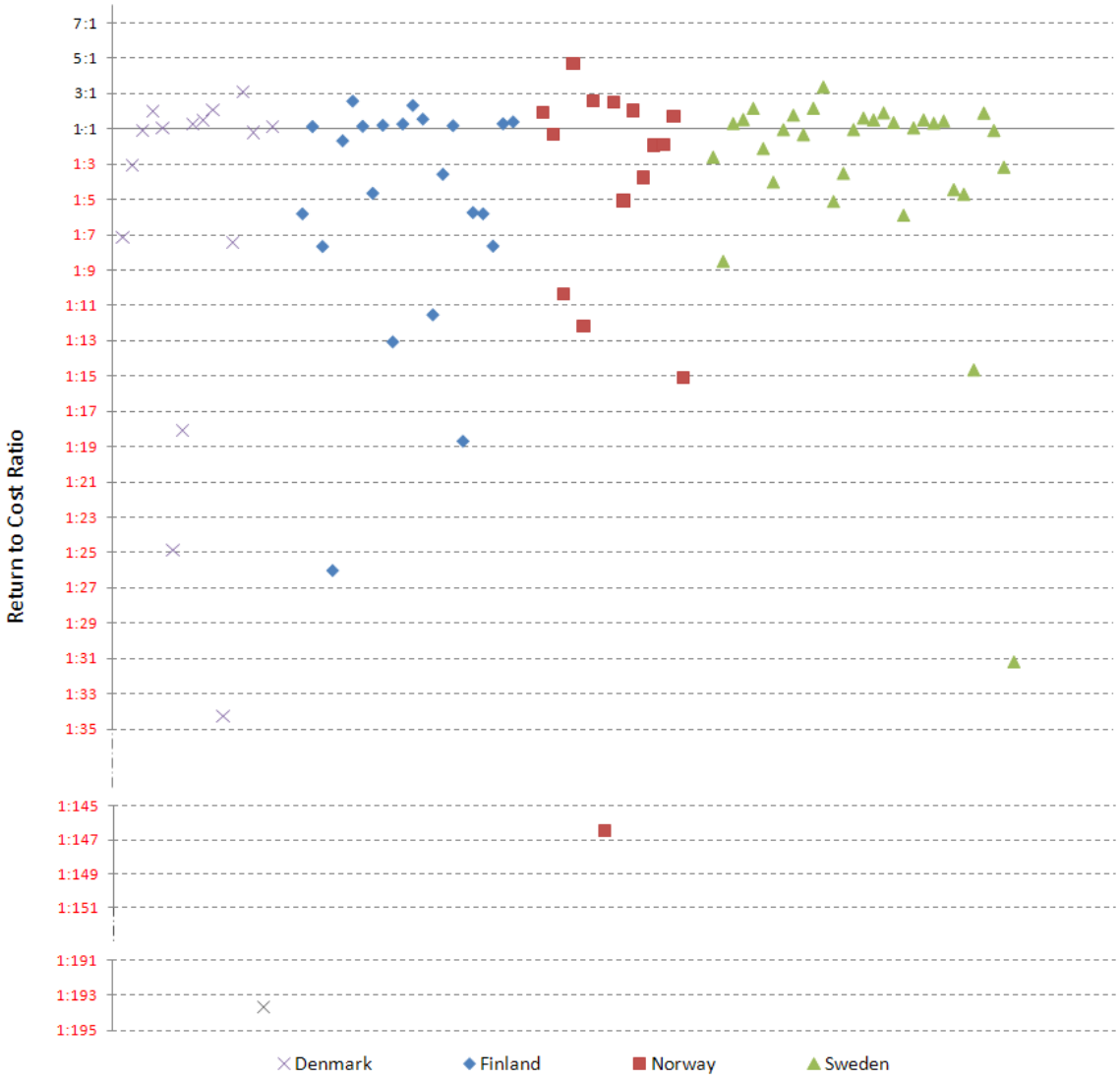

Figure 11: RCRs 2010 by country of origin

One reason is that the majority of the companies assessed operate in more than one country or even on a global scale. Furthermore, the figure provides no information on whether the results are influenced stronger by the use of capital or rather by the use of CO_2.

5.4 Reporters and Non-reporters

As outlined in chapter 3.1, a significant number of companies could not be included in this study because either no environmental performance data was available – or the data that was available did not allow for any meaningful analysis. Some of these cases are discussed below.

At the outset of this study we had approximately 350 companies considered to be included in the study. However, more than two thirds of these companies had to be removed from due to problems with data quality and availability. Table 21 below shows the companies covered by the Forbes Global 2000 Leading Companies list between 2008 and 2011 inclusive for the countries of study. The table shows a rating for each company in the list depending on whether the authors:

- were able to use freely available data without any data manipulation (green)
- had to correct data manually/ to make estimations/ to further clarify on how to interpret data correctly by consulting the respective company or other publicly available documents (such as homepage, other company reports, CDP)/ had to make assumptions based on further facts and figures given in the text (amber)
- or were not able to include the company in the study at all (red).

Where a company has been excluded from the study we have made a note of the reason for its removal, thereby highlighting some of the key problems with corporate responsibility and sustainability reporting at present.

Forbes Rank	Company (DK)	Company (FI)	Company (NO)	Company (SE)
1	Møller-Maersk ●	Nokia ●	Statoil ●	Nordea Bank ●[3]
2	Danske Bank Group ●	Fortum ●	DnB NOR ●	Volvo Group ●[2]
3	Novo Nordisk ●	Sampo ●[3]	Telenor ●	Ericsson ●
4	Carlsberg ●[2]	Stora Enso ●	Yara International ●	TeliaSonera ●
5	TDC ●	UPM-Kymmene ●	Norsk Hydro ●[3]	SEB-Skand Enskilda Bank ●
6	Vestas Wind Systems ●	Kone ●	Orkla ●	Svenska Handelsbanken ●[3]
7	Jyske Bank ●[1]	Metso ●	Storebrand ●[3]	Swedbank ●
8	Novozymes ●[2]	Wärtsilä ●	Gjensidige Forsikring ●[2]	Investor ●[1]
9	Sydbank ●[1]	Neste Oil ●	Aker Solutions ●	H&M ●
10	DSV ●[3]	Pohjola Bank ●[1]	SpareBank 1 SR-Bank ●[1]	SCA-Svenska Cellulosa ●
11	TrygVesta ●	Kesko ●[3]	Fred. Olsen Energy ●[1]	Sandvik ●
12	Norden ●	Kemira ●	Renewable Energy ●[1]	Atlas Copco ●
13	FLSmidth & Co ●	Rautaruukki ●	Aker Kvaerner ●[3]	Skanska ●
14	H Lundbeck ●	Outokumpu ●	Hafslund ●[1]	SKF Group ●
15	Torm ●	OKO Bank ●*	NorskeSkog ●	Electrolux Group ●

● included without corrections; ● included after corrections/ clarification; ● excluded ([1] CO_2 emissions not reported; [2] scope of reported CO_2 emissions not defined/ unclear; [3] incomplete scope of reported CO_2 emissions; * OKO Bank now is Pohjola Bank)

Table 21: Status of inclusion of the top 15 of Forbes' "Global 2000. The World's Biggest Companies" by country

The majority of the reasons for excluding companies relate to the reporting of CO_2 emissions – either the data not being reported, the boundary of the CO_2 reporting being unclear or not matching financial reporting boundaries and/or the scope of the CO_2 reporting not being

extensive enough. These reasons highlight some of the problems with corporate greenhouse gas reporting at present and are discussed in more detail below.

No data available. Generally, data availability could be restricted both in terms of financial and environmental data. For some organisations it was not possible to identify corresponding financial data for readily available emissions data, however, more importantly, a notable number of companies do not publish a sustainability report, or do not report any CO_2 performance data in their sustainability reports. Among others, this includes Jyske Bank, Sydbank, Pohjala/OKO Bank, Sparebank1 SR Bank, Fred Olsen Energy and Investor. Several others were beginning to show some progress in reporting CO_2 data, however were still not able to be considered in the study. This included Renewable Energy, who only had data available from 2011 and Hafslund, who had a target for measuring and reporting from 2010.

Incomplete data/scope problems. As outlined in chapter 2.3 it is of utmost importance that the scope of environmental data matches the scope of the company's financial data (Net Value Added). If this precondition is not met, it is not possible to conduct a meaningful Sustainable Value assessment – or any eco-efficiency calculations in general. Problems regarding the scope of the reported data were the most significant problems we encountered during the data mining phase. In some cases, the actual scope of the data is too limited to include the company – for example the scope for Svenska Handelsbanken only refers to some of their operational countries and Aker Kvaerner only reported for some of its subsidiaries. In other cases such as with Carlsberg, Novozymes, the Volvo Group, Gjensidige Forsikring or Norsk Hydro companies report data but no or unclear information on the reported scope.

However, overall still 39 out of 60 from the Forbes sample could be included in the study, which can be considered to be a positive result as 65% of these larger companies could be kept in the study. However, 23 (about 59%) of these companies still needed to have additional data manipulation or further clarification (e.g. with respect to underlying definitions or scopes covered) in order to be included in the study. With respect to H&M for instance, several corrections had to be made, including adjustments of the temporal reporting scope which differed between financial and sustainability reporting as well as corrections for changing from reporting on CO_2 emissions to reporting on CO_2-equivalents during the review period. In other cases, such as Novo Nordisk for example, contradictory or unclear information on the scope covered where made in the environmental or sustainability reports, but could be confirmed for instance either by checking on the company's homepage or contacting the company for further clarification. However, the latter often remain unanswered.

The above problems are surprising given the perceived level of maturity of carbon reporting: in recent years, large-scale efforts such as the Global Reporting Initiative (GRI) Guidelines, the Greenhouse Gas Protocol Initiative, or the Carbon Disclosure Project have played key roles in increased standardization and professionalization of carbon reporting. Whilst the

state of carbon reporting is arguably more mature today compared to previous years – or compared to other environmental indicators such as waste generation or water use – the above examples show that it is still a long way from sufficient. The problem today is arguably not the lack of a commonly acknowledged reporting regime: on paper, the GRI Guidelines and, more specifically, the Greenhouse Gas Protocol alongside the UNEP conversion coefficients for emissions from electricity generation have clearly filled this gap. Instead, the problem appears to be linked to how environmental information is processed in the market. Put differently, if carbon performance data was used in the market by SRI professionals, rating agencies and/or other companies, would large and highly visible companies in a highly energy-intensive sector such as forestry & paper be able to come up with company-specific definitions of their Greenhouse Gas performance, or would flawed or contradictory environmental performance data go unnoticed for a number of years?

Unfortunately, there appears to be a widespread lack of awareness of data quality issues of those providing the market with corporate CO_2 performance data. For the purposes of this study, we have developed an online data collection tool in order to make sure that all relevant information regarding the scope of the carbon performance data is known. The tool is available via the website www.SustainableValue.com.

6 Conclusions and Outlook

In this study we have used the Sustainable Value approach to assess the use of the resource economic capital and of the environmental resource CO_2 by 89 Danish, Finish, Norwegian and Swedish companies across 17 different sectors. The study thus focused on corporate contributions to climate change and to the economic development of the Nordic region. More specifically, we looked at how much more (less) Net Value Added (approximated as sum of EBIT and personnel expenses) has been created with these resources in comparison to the Nordic economy on average. Using NVA as return figure, the results are particularly interesting from a sustainability perspective as NVA represents a company's contribution to the Net Domestic Product of the economies it operates in.

With this additional large scale application of the Sustainable Value approach the study one more time proves the practicability and flexibility of the approach for assessing corporate sustainability performance across different countries and sectors. The approach combines traditional value-based financial performance analysis with the assessment of the use of environmental and/or social resources by companies. To do so it applies the opportunity cost logic that is firmly established in financial markets and measures how much more or less return is being created with the use of a given set of economic, environmental and/or social resources in comparison to an alternative use of these resources (benchmark). This value-based perspective distinguishes the Sustainable Value from other approaches which, in contrast, focus on the burden that is related to corporate resource use. In this study we used a special case of the Sustainable Value by focusing on companies' economic capital and carbon performance. The resulting absolute economic-environmental value (e^2-Value) thus shows in a single monetary indicator a company's contribution to a more sustainable use economic capital and carbon emissions in the Nordic region. Based on the e^2-Value we additionally calculated the Return to Cost Ratio which corrects the results for company size and allows for a meaningful comparison between the companies. The study thus shows which companies and sectors use their economic and environmental resources in a value creating way in comparison to the Nordic economy on average. Moreover, the results identify which of the two resources economic capital or carbon emissions are used in a more (or less) value-creating way by the respective company assessed.

The study takes two temporal perspectives. On the one hand, we have assessed the past performance of the 89 companies looking at the period from 2006 to 2010, benchmarked against the average performance of the Nordic economy for the respective year. This perspective allows for identifying positive and negative performance trends of the individual companies. The results reveal considerable differences in the economic-environmental performance between the sectors as well as between the individual companies assessed. The best performers in terms of e^2-Value creation were Nokia in the years 2006 to 2008 and Ericsson in the years 2009 and 2010. With about €5.8 billion in 2007 Nokia created the highest e^2-Value in the scope of this study. If the total assets and CO_2 used by Nokia in 2007 had instead been used by the average of the Nordic economy, €5.8 billion less Net Value Added would have been generated. Laggard in terms of e^2-Value throughout the entire

review period, in contrast, was Vattenfall, destroying in its worst year (2010) about €200 billion e²-Value. After correcting the results for company size the picture changes slightly, putting H&M in 2006 and 2007 and DNV from 2008 to 2010 on top of the ranking. The latter thereby achieved the best result within this study in 2009, generating about 5.4 times more NVA with its capital and CO_2 use than the Nordic economy on average (RCR 5.4:1). Worst performers after correction for company size were Energinet in 2006 (1:61), Vattenfall in 2007 (1:36), Norske Skog in 2008 (1:45) and 2009 (1:62) and Torm in 2010 (1:194). Looking at the results over the entire assessment period reveals that slightly above 50% of the companies assessed remain in negative territory continuously. Whereas it can give rise to optimism that nearly 60% of these companies (and 64% of all companies assessed) show a positive trend in e²-Value creation, it simultaneously becomes obvious that there is still the need for intensifying efforts on a more sustainable resource use considering that the remaining companies follow a negative trend.

On the other hand, we have established a future scenario for the benchmark based on CO_2 emissions reduction targets of the European Union by 2020 as well as on the estimated economic development of the Nordic economy by 2020. It reflects the necessity to further improve both the economic as well as the environmental performance within the Nordic region towards a more sustainable future. The results show that some companies contribute already today to economic and environmental targets set by the European Union and the Nordic countries for the year 2020. The rankings again are led by Ericsson with respect to absolute e²-Value creation (€3.3bn) and DNV in terms of the RCR performance (4.8:1). The majority of the companies assessed, however, have to make significant efforts in order to catch up with these targets. The rear is brought up again by Vattenfall (e²-Value -€360bn) and Torm (RCR 1:334), respectively.

Taking a closer look at the industry affiliation of the companies assessed reveals sector specific strengths and weaknesses in terms of their use of economic capital and CO_2. A cross sector comparison thus helps identifying those sectors that need to be strengthened in order to support a more sustainable resource use in the Nordic region. It becomes apparent that companies of traditionally capital and/or energy intensive sectors such as financial services, communication services, real estate, primary metal industries, the oil & gas or the utilities sector are showing mainly negative results. Typically R&D and knowledge intensive sectors such as engineering & machinery or electrical equipment & components, in contrast, tend to show mainly positive e²-Values. Particularly in terms of climate change prevention efforts it is interesting to see that the sectors financial services, electrical equipment & components, automobile industry, engineering & machinery, wholesale & retail, measurement & control instruments and consulting & business services on average used their CO_2 already in 2010 as efficiently as the EU CO_2 emission reduction targets aim for by 2020. An intra-sector comparison of the assessment results reveals, moreover, considerable differences between individual companies within the same sector (e.g. transportation or forestry & paper). Although these differences can amongst others be partly ascribed to different product portfolios and to the energy mix of the countries the companies operate in, it shows that there is still large room for improvements in terms of a more efficient resource use.

Overall, this assessment has generated valuable results, providing a transparent and meaningful cross-sector assessment of corporate capital and carbon use in the Nordic countries. It demonstrates one more time the large scale applicability and flexibility of the Sustainable Value approach. Since the Sustainable Value approach is highly compatible with mainstream business decision making the study offers insightful results for different stakeholders, particularly investors, managers and policy makers. For the latter for instance the results could help identifying sectors and companies that are most critical for reaching politically desired economic and environmental performance targets. From an investors perspective the analysis allows to identify where existing or potential investments create most value in terms of both capital and carbon use. Additionally, the study reveals which sectors and companies are particularly exposed to potential regulatory adjustments or limitations in terms of CO_2 use in the future. This aspect could also be of interest for corporate managers. They could, moreover, use the results for setting strategic resource efficiency targets and managing corporate resource use.

The assessment is based entirely on publicly available data and information provided by the companies assessed. In this regard, the biggest challenge in applying the Sustainable Value approach in this study consisted in the differences in data availability and data quality between the companies assessed and between financial and carbon reporting. Firstly, although carbon reporting is quite advanced and wide spread, the number of companies to be considered in this assessment was limited due to either non-publicly available data, incomplete reporting scope or nebulous indicator and scope definitions. The study thereby shows that reporting quality it is not a matter of company size. About one third of the 60 biggest companies within the four countries considered in this study could not be included. Secondly, only a small number of the companies assessed published figures that were suitable for a direct comparison with other companies. Most of the corporate data published had to be subsequently corrected. It is common knowledge from financial reporting that adjustments occasionally need to be made to published data in order to ensure comparability. Nevertheless, sustainability reporting has some catching up to do with financial reporting. Although particularly in carbon reporting widely acknowledged standards such as the GRI Guidelines or the Greenhouse Gas Protocol do exist, its application in practice still lacks consistency. This refers particularly to a harmonised and transparent presentation of data in order to ensure comparability and comprehensive coverage of the companies' global activities. The minimum objective here should be to consistently report on the different scopes of GHG emissions as well as to guarantee the same scope of coverage for financial and emissions data.

Nevertheless, the Sustainable Value approach proved to be a robust and meaningful analysis tool providing informative and comparative results on the sustainability performance of companies. Here too, the basic principle is: the better the data base, the more meaningful and robust the results of the analysis. As the results of this study have shown, companies vary not just in respect of their carbon performance, but also in terms of scope and quality of their carbon reporting. Potential future applications could deliver additional valuable results for both researchers and practitioners if the choice of resource indicators was

broader and if the sample size in terms companies, sectors and countries was larger. This requires, however, a further standardisation and improved quality of corporate sustainability reporting.

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Annex I – Benchmark Data

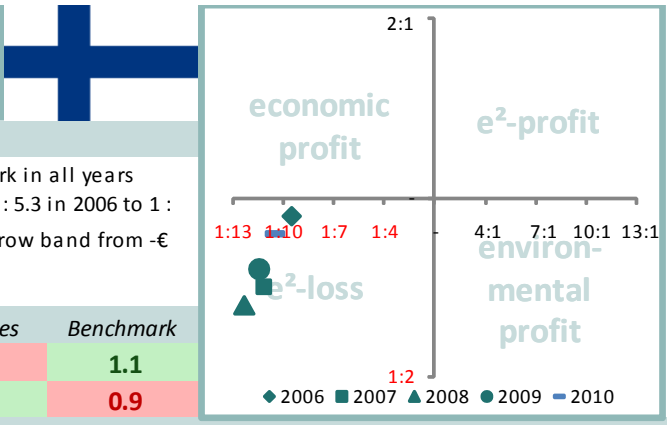
Indicator	2006	2007	2008	2009	2010	2020*
Denmark						
Net Domestic Product (€)	184,269,300,000	190,953,000,000	195,102,200,000	184,317,200,000	196,735,300,000	252,629,400,000
Net Capital Stock (€)	481,010,017,675	505,185,859,544	534,536,151,461	539,564,661,142	559,665,981,994	728,039,000,000
CO_2 (t)	58,976,399	54,202,045	50,723,686	48,367,826	48,785,627	40,806,298
Finland						
Net Domestic Product (€)	140,098,000,000	152,197,000,000	156,093,000,000	143,976,000,000	151,395,000,000	202,397,400,000
Net Capital Stock (€)	405,714,860,192	428,171,935,983	447,349,513,219	459,490,116,587	466,264,560,034	603,990,000,000
CO_2 (t)	67,883,099	66,182,499	58,102,598	55,192,124	63,688,564	45,276,933
Norway						
Net Domestic Product (€)	235,424,100,000	246,957,600,000	264,589,800,000	226,702,300,000	265,935,200,000	402,303,000,000
Net Capital Stock (€)	623,099,524,801	665,964,968,627	684,508,802,144	648,184,352,918	745,202,494,382	1,013,860,000,000
CO_2 (t)	43,510,962	45,298,777	44,417,827	42,842,660	45,500,000	24,362,059
Sweden						
Net Domestic Product (€)	278,940,300,000	296,315,500,000	289,930,600,000	250,335,100,000	300,741,000,000	404,195,800,000
Net Capital Stock (€)	970,485,783,543	1,023,634,526,692	1,121,818,749,614	1,010,202,602,872	1,193,694,920,734	1,792,089,000,000
CO_2 (t)	53,241,747	52,003,236	50,138,634	46,663,621	52,883,685	33,987,792

** future scenario: financial data based on trend extrapolation (base years 2000 to 2013); CO_2 data based on policy targets (see chapter 2.3)*

Annex II – Company Profiles

Ahlstrom

Forestry & Paper



Summary

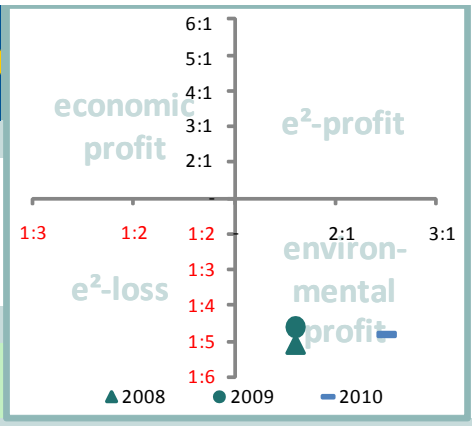
Ahlstrom performed significantly below the benchmark in all years under review. Its RCR has deteriorated slightly from 1 : 5.3 in 2006 to 1 : 5.8 in 2010. Its e^2-Value ranges within a relatively narrow band from -€ 2,073.4m (2008) to -€ 1,747.8m (2009).

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1	0.9	1.1
CO_2-emissions		1.1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 51.8m	-€ 194.0m	-€ 207.1m	-€ 141.4m	-€ 72.5m	-€ 66.8m
CO_2 value contribution	-€ 3,474.6m	-€ 3,892.8m	-€ 3,939.8m	-€ 3,354.2m	-€ 3,823.3m	-€ 7,202.5m
e^2-Value	**-€ 1,763.2m**	**-€ 2,043.4m**	**-€ 2,073.4m**	**-€ 1,747.8m**	**-€ 1,947.9m**	**-€ 3,634.6m**
Return to Cost Ratio	**1 : 5.3**	**1 : 6.3**	**1 : 7**	**1 : 6.4**	**1 : 5.8**	**1 : 10**

Akademiska Hus AB

Real Estate



Summary

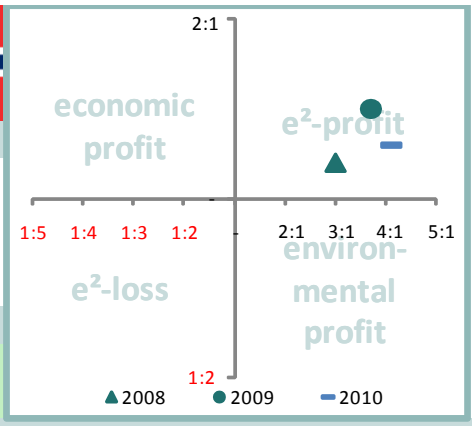
Akademiska Hus performed below the benchmark in all three years under review, with an RCR ranging from 1 : 2.9 (2008) to 1 : 2.6 (2009, 2010). Its positive value contribution for CO_2 has been outweighed by its negative capital value contribution. The minor improvement over time has been driven by a reduction in CO_2 emissions.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1	1	1.1
CO_2-emissions		1.5	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	-€ 1,430.2m	-€ 1,157.5m	-€ 1,370.8m	-€ 1,350.1m
CO_2 value contribution	N/A	N/A	€ 132.8m	€ 123.9m	€ 215.5m	€ 101.0m
e^2-Value	N/A	N/A	**-€ 648.7m**	**-€ 516.8m**	**-€ 577.7m**	**-€ 624.6m**
Return to Cost Ratio	N/A	N/A	**1 : 2.9**	**1 : 2.6**	**1 : 2.6**	**1 : 2.7**

Aker Solutions

Engineering & Machinery



Summary

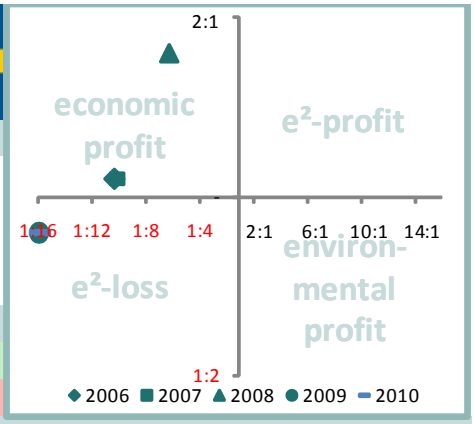
Aker Solutions performed above the benchmark in terms of use of capital and CO_2 performance between 2008 and 2010. Its RCR increased from 1.7 : 1 in 2008 to 1.9 : 1 in 2010. This has mainly been driven by the company's CO_2 performance.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1	1	1.1
CO_2-emissions		1.3	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	€ 270.0m	€ 714.7m	€ 411.1m	€ 429.3m
CO_2 value contribution	N/A	N/A	€ 1,282.5m	€ 1,514.7m	€ 1,458.3m	€ 1,078.2m
e²-Value	N/A	N/A	**€ 776.2m**	**€ 1,114.7m**	**€ 934.7m**	**€ 753.8m**
Return to Cost Ratio	N/A	N/A	**1.7 : 1**	**2.1 : 1**	**1.9 : 1**	**1.6 : 1**

All Transport i Östergötland AB

Transportation



Summary

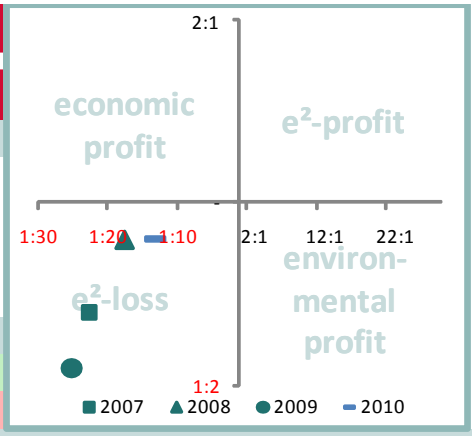
All Transport I Östergötland performed below the benchmark in terms of CO_2 performance throughout the study period and its use of capital varied above and below the benchmark over the study period. Overall, its RCR decreased from 1 : 5.6 in 2006 to 1 : 8.5 in 2010.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1	0.7	1.1
CO_2-emissions		0.8	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 0.6m	€ 0.8m	€ 6.8m	-€ 1.2m	-€ 1.2m	-€ 1.1m
CO_2 value contribution	-€ 57.0m	-€ 66.1m	-€ 77.7m	-€ 75.8m	-€ 86.4m	-€ 160.1m
e²-Value	**-€ 28.2m**	**-€ 32.6m**	**-€ 35.5m**	**-€ 38.5m**	**-€ 43.8m**	**-€ 80.6m**
Return to Cost Ratio	**1 : 5.6**	**1 : 5.5**	**1 : 3.4**	**1 : 8.6**	**1 : 8.5**	**1 : 14.8**

A.P. Moller - Maersk

Transportation



Summary

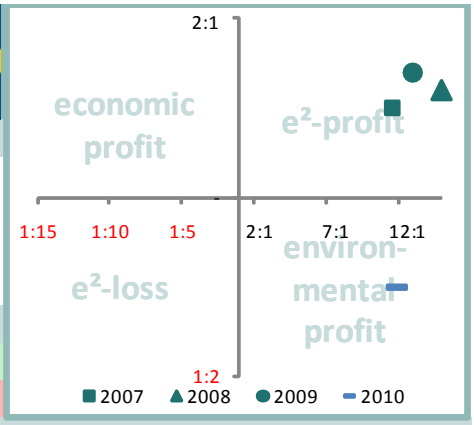
A.P. Moeller Maersk has performed below the benchmark in all years under review. This performance is mainly based on an inefficient use of CO_2. Over time, however, its RCR has improved from 1 : 12.1 (2006) to 1 : 7.2 (2010) as a result of an increase in return and a reduction of CO_2-emissions by factor 1.3.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.4	0.9	1.1
CO_2-emissions		1.3	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	-€ 5,404.6m	-€ 2,709.3m	-€ 6,457.3m	-€ 2,655.9m	-€ 2,472.9m
CO_2 value contribution	N/A	-€ 200,132.6m	-€ 198,498.1m	-€ 177,323.0m	-€ 153,322.3m	-€ 286,013.4m
e²-Value	**N/A**	**-€ 102,768.6m**	**-€ 100,603.7m**	**-€ 91,890.2m**	**-€ 77,989.1m**	**-€ 144,243.2m**
Return to Cost Ratio	**N/A**	**1 : 12.1**	**1 : 9.4**	**1 : 13.5**	**1 : 7.2**	**1 : 12.4**

Apoteket AB

Wholesale & Retail



Summary

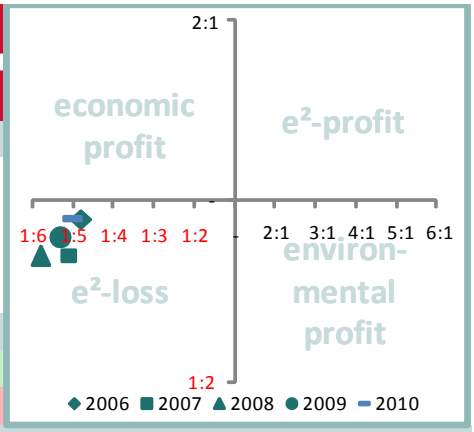
Apoteket had a positive e^2 value between 2007 and 2009 with most of the value coming from its CO_2 performance. Its e^2 value was negative in 2010 due to a negative capital value contribution. The RCR increased from 2.7:1 to 3:1 before falling to 1.3:1 in 2010

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.5	0.8	1.1
CO_2-emissions		2.2	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	€ 204.5m	€ 219.5m	€ 236.4m	-€ 138.3m	-€ 133.1m
CO_2 value contribution	N/A	€ 540.5m	€ 573.6m	€ 526.1m	€ 273.6m	€ 253.6m
e²-Value	**N/A**	**€ 372.5m**	**€ 396.6m**	**€ 381.2m**	**€ 67.7m**	**€ 60.3m**
Return to Cost Ratio	**N/A**	**2.7 : 1**	**2.8 : 1**	**3 : 1**	**1.3 : 1**	**1.3 : 1**

Arla Foods

Food



Summary

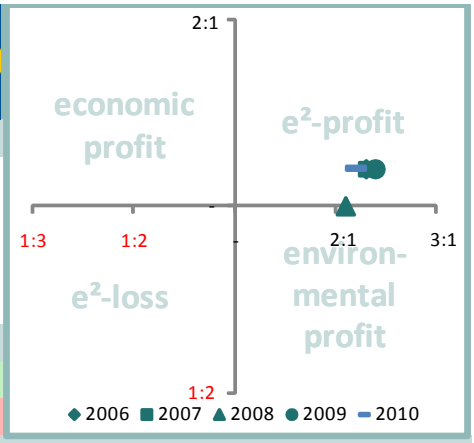
Arla Foods performed below the benchmark throughout the study period. The e^2 value varied between a narrow range over the time period, between -€2,081.0m in 2006 to -€2557.4m in 2008. The main factor driving performance was the CO_2 value contribution which peaked at -€4836.5m in 2008

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1	0.9	1.1
CO_2-emissions		1.1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 152.4m	-€ 321.4m	-€ 278.3m	-€ 176.6m	-€ 140.8m	-€ 125.9m
CO_2 value contribution	-€ 4,009.7m	-€ 4,343.6m	-€ 4,836.5m	-€ 4,458.0m	-€ 4,447.2m	-€ 8,886.8m
e^2-Value	**-€ 2,081.0m**	**-€ 2,332.5m**	**-€ 2,557.4m**	**-€ 2,317.3m**	**-€ 2,294.0m**	**-€ 4,506.3m**
Return to Cost Ratio	**1 : 3**	**1 : 3.2**	**1 : 3.6**	**1 : 3.2**	**1 : 3.1**	**1 : 5.1**

Assa Abloy

Fabricated Metal Products



Summary

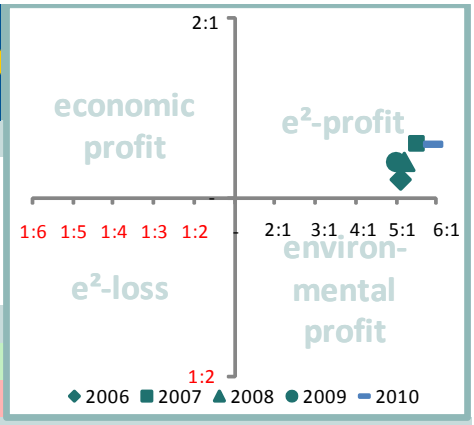
Assa Abloy performed above the benchmark in all years with an e^2 value ranging between €372.7m (2008) and €632.4m (2007). The CO_2 value contribution outweighed the capital value contribution in all years and in 2008 the capital value contribution was negative. The RCR varied between 1.3:1 (2008) and 1.6:1 (2006, 2007 and 2009).

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.1	0.8	1.1
CO_2-emissions		1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 263.7m	€ 323.5m	-€ 17.2m	€ 274.1m	€ 250.4m	€ 267.7m
CO_2 value contribution	€ 866.8m	€ 941.2m	€ 762.6m	€ 849.4m	€ 913.4m	€ 289.0m
e^2-Value	**€ 565.3m**	**€ 632.4m**	**€ 372.7m**	**€ 561.7m**	**€ 581.9m**	**€ 278.4m**
Return to Cost Ratio	**1.6 : 1**	**1.6 : 1**	**1.3 : 1**	**1.6 : 1**	**1.5 : 1**	**1.2 : 1**

Atlas Copco

Engineering & Machinery



Summary

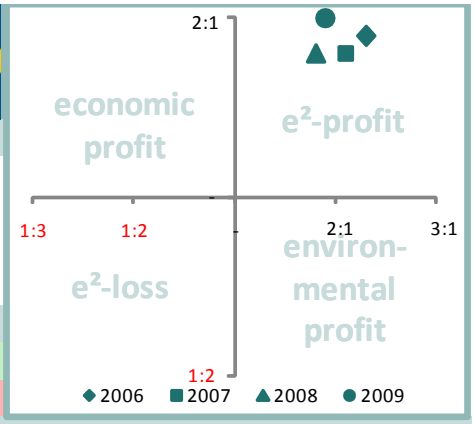
Atlas Copco performed above the benchmark in all years over the study period. The CO_2 value contribution was significantly larger than the capital value contribution. The actual e^2 value varied between €969.2m (2006) and €1603.4m (2010).

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.4	0.8	1.1
CO_2-emissions		1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 182.9m	€ 713.1m	€ 493.1m	€ 280.3m	€ 723.4m	€ 750.6m
CO_2 value contribution	€ 1,755.5m	€ 2,256.3m	€ 2,379.8m	€ 1,715.0m	€ 2,483.3m	€ 2,074.1m
e^2-Value	**€ 969.2m**	**€ 1,484.7m**	**€ 1,436.4m**	**€ 997.7m**	**€ 1,603.4m**	**€ 1,412.3m**
Return to Cost Ratio	**1.8 : 1**	**2.2 : 1**	**2 : 1**	**1.9 : 1**	**2.2 : 1**	**1.9 : 1**

Axfood

Wholesale & Retail



Summary

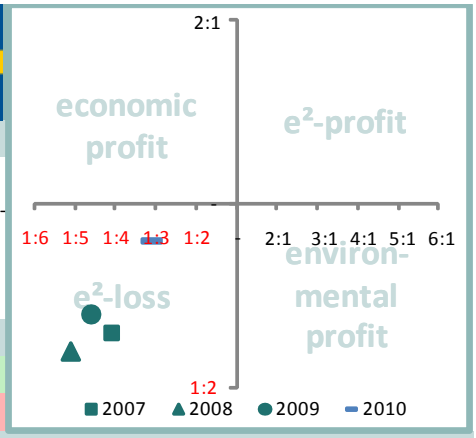
Axfood performed above the benchmark in all years data was available for (2006 to 2009). The e^2-Value ranged from €189.8m (2008) to €211.4m (2006). The value contribution to the overall e^2-Value came roughly equally from the capital performance and the CO_2 performance.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1	1	1.1
CO_2-emissions		0.9	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 192.5m	€ 186.8m	€ 190.1m	€ 206.7m	N/A	N/A
CO_2 value contribution	€ 230.3m	€ 227.2m	€ 189.6m	€ 195.2m	N/A	N/A
e^2-Value	**€ 211.4m**	**€ 207.0m**	**€ 189.8m**	**€ 201.0m**	**N/A**	**N/A**
Return to Cost Ratio	**2 : 1**	**1.9 : 1**	**1.8 : 1**	**2 : 1**	**N/A**	**N/A**

Billerud

Forestry & Paper



Summary

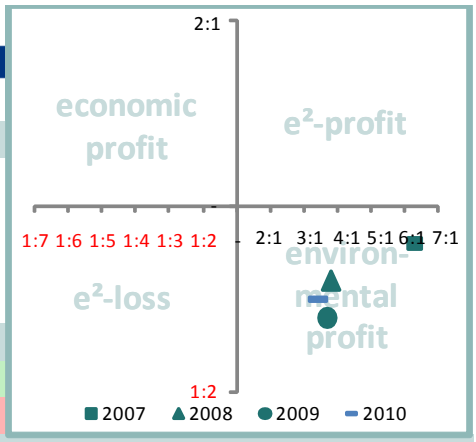
Billerud performed below the benchmark for all years data was available (2007 to 2010). The e^2-Value varied between -€406.6m (2008) to -€284.9m (2010). Whilst both the capital and CO_2 value contributions were negative for each available year the CO_2 contribution had a more significant impact.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.3	1	1.1
CO_2-emissions		1.1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	-€ 134.3m	-€ 138.2m	-€ 95.2m	-€ 44.5m	-€ 40.9m
CO_2 value contribution	N/A	-€ 626.8m	-€ 674.9m	-€ 586.0m	-€ 525.3m	-€ 1,147.4m
e^2-Value	**N/A**	**-€ 380.6m**	**-€ 406.6m**	**-€ 340.6m**	**-€ 284.9m**	**-€ 594.2m**
Return to Cost Ratio	**N/A**	**1 : 2.9**	**1 : 3.4**	**1 : 3.1**	**1 : 2.1**	**1 : 3.4**

Cargotec

Engineering & Machinery



Summary

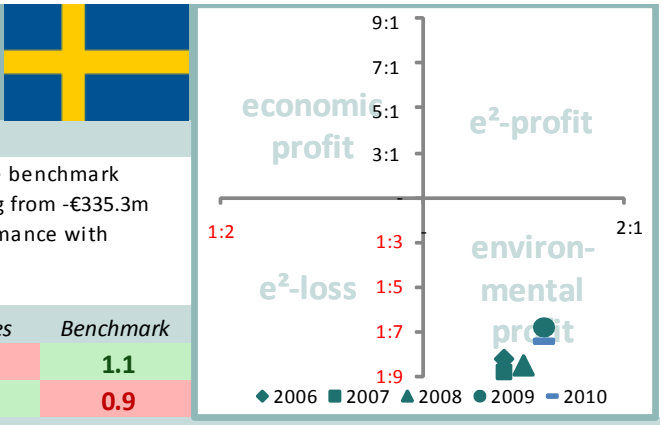
Cargotec's overall e^2-Value performance was above the benchmark over the period 2007 to 2010, however the actual e^2-Value fell from €212.5m (2007) to a low of €31.9m (2009). The actual CO_2 value contribution was positive throughout the study period, however capital value contribution was negative.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.8	0.9	1.1
CO_2-emissions		0.7	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	-€ 159.5m	-€ 251.1m	-€ 292.1m	-€ 296.5m	-€ 286.1m
CO_2 value contribution	N/A	€ 584.6m	€ 517.5m	€ 356.0m	€ 405.4m	€ 272.7m
e^2-Value	**N/A**	**€ 212.5m**	**€ 133.2m**	**€ 31.9m**	**€ 54.4m**	**-€ 6.7m**
Return to Cost Ratio	**N/A**	**1.4 : 1**	**1.2 : 1**	**1.1 : 1**	**1.1 : 1**	**1 : 1**

Castellum

Real Estate



Summary

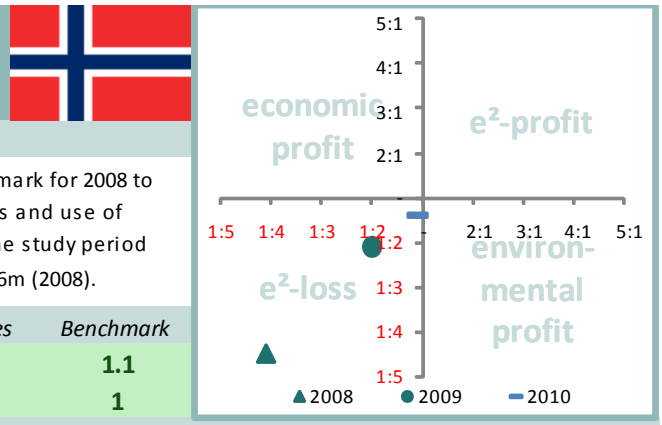
Castellum's e²-Value performance was well below the benchmark throughout the study period, with the e²-Value ranging from -€335.3m (2009) to -€435.3m (2007). This was due to poor performance with regards to use of capital.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.3	0.8	1.1
CO_2-emissions		1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 783.7m	-€ 903.9m	-€ 875.3m	-€ 717.6m	-€ 893.1m	-€ 880.8m
CO_2 value contribution	€ 31.7m	€ 33.2m	€ 38.4m	€ 47.1m	€ 52.0m	-€ 17.4m
e²-Value	**-€ 376.0m**	**-€ 435.3m**	**-€ 418.5m**	**-€ 335.3m**	**-€ 420.6m**	**-€ 449.1m**
Return to Cost Ratio	**1 : 4.4**	**1 : 4.8**	**1 : 4.6**	**1 : 3.7**	**1 : 4**	**1 : 4.2**

Cermaq ASA

Food



Summary

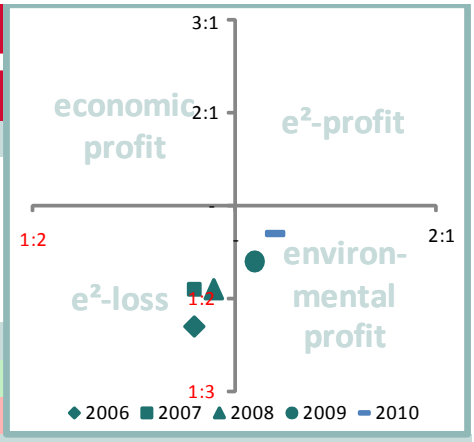
Cermaq's e²-Value performance was below the benchmark for 2008 to 2010 due to poor performance from both CO_2 emissions and use of capital. The performance did however improve over the study period with the e²-Value moving from -€299.8m (2008) to -€74.6m (2008).

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	2.9	1.1	1.1
CO_2-emissions		1.2	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	-€ 318.9m	-€ 147.1m	-€ 110.5m	-€ 106.1m
CO_2 value contribution	N/A	N/A	-€ 280.6m	-€ 136.6m	-€ 38.8m	-€ 276.9m
e²-Value	**N/A**	**N/A**	**-€ 299.8m**	**-€ 141.8m**	**-€ 74.6m**	**-€ 191.5m**
Return to Cost Ratio	**N/A**	**N/A**	**1 : 4.3**	**1 : 2**	**1 : 1.3**	**1 : 1.7**

CHR Hansen

Food



Summary

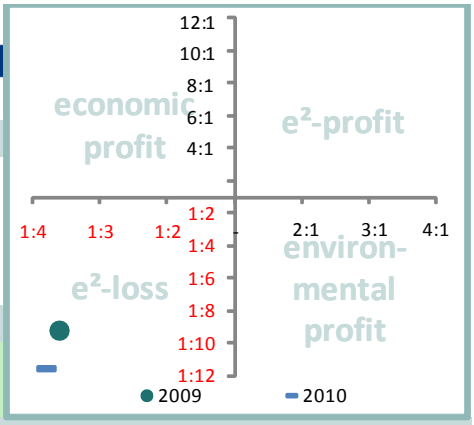
CHR Hansen's e^2-Value performance was below that of the benchmark throughout the study period, however performance did improve from -€138.9m in 2006 to -€26.3m in 2010. The use of capital contributed was the largest factor, but did improve with time along with CO_2 performance.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.7	0.9	1.1
CO_2-emissions		1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 234.5m	-€ 197.2m	-€ 202.9m	-€ 148.5m	-€ 96.1m	-€ 91.2m
CO_2 value contribution	-€ 43.2m	-€ 32.3m	-€ 28.2m	€ 12.7m	€ 43.6m	-€ 168.6m
e^2-Value	**-€ 138.9m**	**-€ 114.7m**	**-€ 115.5m**	**-€ 67.9m**	**-€ 26.3m**	**-€ 129.9m**
Return to Cost Ratio	**1 : 1.7**	**1 : 1.5**	**1 : 1.5**	**1 : 1.3**	**1 : 1.1**	**1 : 1.4**

Citycon

Real Estate



Summary

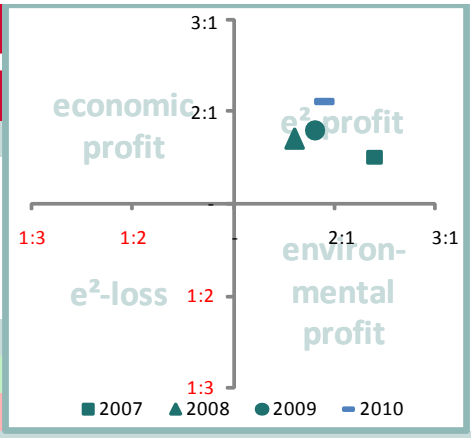
Citycon's e^2-Value was well below the benchmark during 2009 (-€398.4m) and 2010 (-€432.4m). This was due in part to below the benchmark CO_2 performance, but mainly poor use of capital compared to the benchmark.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.9	0.9	1
CO_2-emissions		1.1	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	N/A	-€ 606.6m	-€ 685.3m	-€ 676.3m
CO_2 value contribution	N/A	N/A	N/A	-€ 190.3m	-€ 179.3m	-€ 374.5m
e^2-Value	**N/A**	**N/A**	**N/A**	**-€ 398.4m**	**-€ 432.3m**	**-€ 525.4m**
Return to Cost Ratio	**N/A**	**N/A**	**N/A**	**1 : 6.4**	**1 : 7.7**	**1 : 9.1**

Coloplast

Measurement & Control Systems



Summary

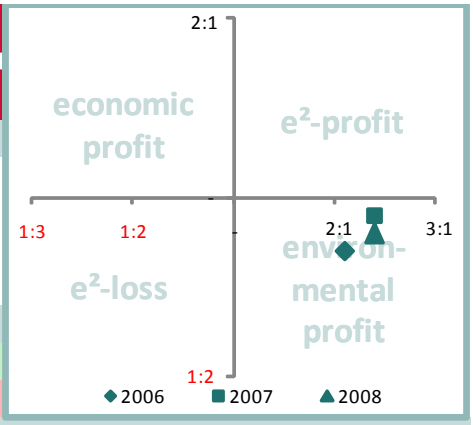
Coloplast's e^2-Value performance was well above the benchmark over the study period with the e^2-Value varying from €219.4m in 2008 to €332.0m in 2010. This was due to above the benchmark performance in terms of both use of capital and CO_2 emissions. The RCR varied from 1.6:1 (2008) to 2:1 (2010).

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.3	1	1.1
CO_2-emissions		0.7	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	€ 181.7m	€ 225.1m	€ 251.8m	€ 349.5m	€ 353.3m
CO_2 value contribution	N/A	€ 305.4m	€ 213.6m	€ 250.2m	€ 314.4m	€ 34.8m
e^2-Value	**N/A**	**€ 243.6m**	**€ 219.4m**	**€ 251.0m**	**€ 332.0m**	**€ 194.0m**
Return to Cost Ratio	**N/A**	**1.9 : 1**	**1.6 : 1**	**1.8 : 1**	**2 : 1**	**1.4 : 1**

Copenhagen Airports

Transportation



Summary

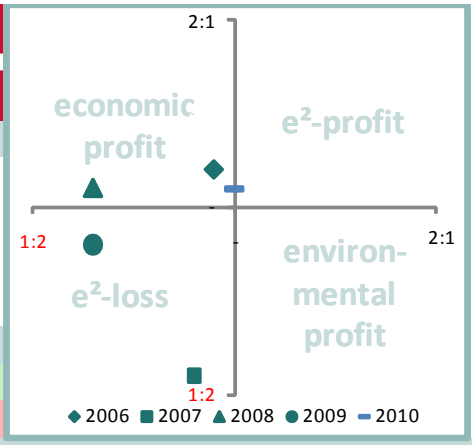
Copenhagen Airports e^2-Value performance ranged between €28.8m to €73.0m when data was available between 2006 and 2008. This result was made up of a positive CO_2 performance and a negative performance for use of capital. The RCR varied slightly between 1.1:1 and 1.3:1.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1	1	1
CO_2-emissions		1.3	0.8

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 88.1m	-€ 35.8m	-€ 64.6m	N/A	N/A	N/A
CO_2 value contribution	€ 145.7m	€ 181.8m	€ 164.9m	N/A	N/A	N/A
e^2-Value	**€ 28.8m**	**€ 73.0m**	**€ 50.1m**	**N/A**	**N/A**	**N/A**
Return to Cost Ratio	**1.1 : 1**	**1.3 : 1**	**1.2 : 1**	**N/A**	**N/A**	**N/A**

Danfoss

Electrical Equipment & Components



Summary

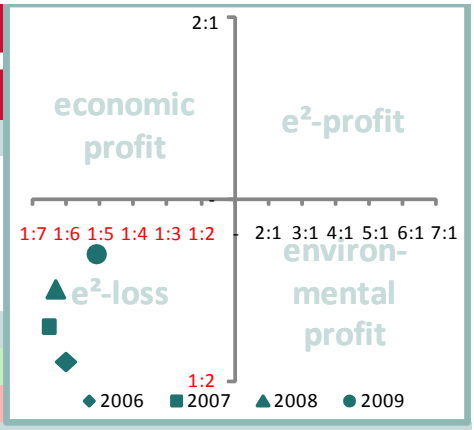
Danfoss's e^2-Value performance swiched from above benchmark (€35.9m in 2006) to below benchmark performance for 2007 to 2009 (with a low of -€352.4m) before returning to positive in 2010 (€49.5m). This was mainly due to poor and varying CO_2 performance, but also poor performance of capital use in 2009.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.1	0.8	1.1
CO_2-emissions		1.1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 130.4m	€ 170.9m	€ 43.8m	-€ 183.7m	€ 122.3m	€ 134.0m
CO_2 value contribution	-€ 58.5m	-€ 309.6m	-€ 627.5m	-€ 521.1m	-€ 23.3m	-€ 920.2m
e^2-Value	**€ 35.9m**	**-€ 69.4m**	**-€ 291.8m**	**-€ 352.4m**	**€ 49.5m**	**-€ 393.1m**
Return to Cost Ratio	**1 : 1**	**1 : 1.1**	**1 : 1.3**	**1 : 1.5**	**1 : 1**	**1 : 1.4**

Danisco

Chemicals



Summary

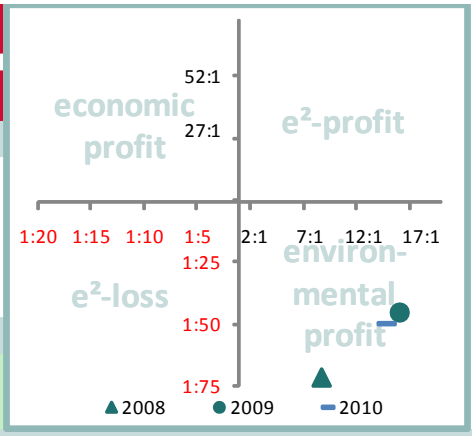
Danisco's e^2-Value was significantly below the benchmark for all years with data available with values improving from -€2242.3m (2006) to -€1404.1m (2009). This was mainly driven by poor CO_2 performance, however use of capital was also below the benchmark for all years analysed.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.8	1.6	1.1
CO_2-emissions		1.6	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 691.8m	-€ 353.7m	-€ 309.7m	-€ 190.3m	N/A	N/A
CO_2 value contribution	-€ 3,792.8m	-€ 2,834.0m	-€ 3,196.4m	-€ 2,617.9m	N/A	N/A
e^2-Value	**-€ 2,242.3m**	**-€ 1,593.9m**	**-€ 1,753.1m**	**-€ 1,404.1m**	**N/A**	**N/A**
Return to Cost Ratio	**1 : 4**	**1 : 4.1**	**1 : 3.9**	**1 : 3.2**	**N/A**	**N/A**

Danske Bank

Financial Services



Summary

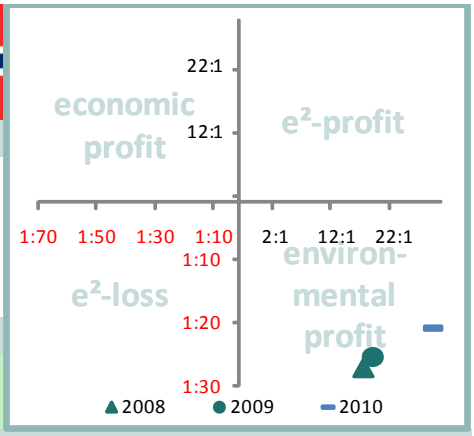
Danske Bank's e^2-Value performance was significantly below the benchmark for all years analysed (2008 to 2010). This was due to very poor use of capital performance, whilst CO_2 performance remained strongly above the benchmark throughout. The RCR varied between 1:35.7 (2008) to 1:22.7 (2009).

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.2	1.1	1.1
CO_2-emissions		1.3	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	-€ 152,168.1m	-€ 123,226.2m	-€ 130,397.0m	-€ 128,806.4m
CO_2 value contribution	N/A	N/A	€ 1,917.8m	€ 2,604.9m	€ 2,499.3m	€ 2,354.8m
e^2-Value	**N/A**	**N/A**	**-€ 75,125.2m**	**-€ 60,310.6m**	**-€ 63,948.8m**	**-€ 63,225.8m**
Return to Cost Ratio	**N/A**	**N/A**	**1 : 35.7**	**1 : 22.7**	**1 : 24.9**	**1 : 24.6**

DnB Nor

Financial Services



Summary

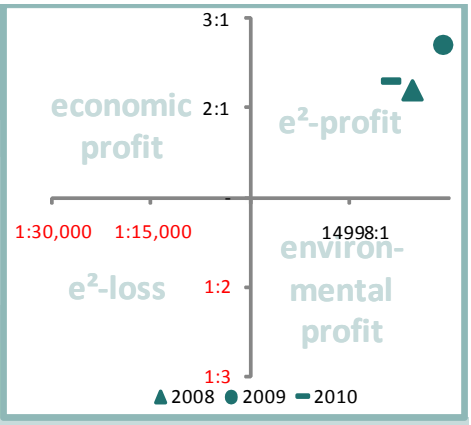
DnB Nor's e^2-Value performance was significantly below the benchmark for all years analysed (2008 to 2010) with values varying between -€29,142m (2009) and -€33,497m (2008). This was due to poor use of capital performance, whilst CO_2 performance remained strongly above the benchmark throughout.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.3	1	1.1
CO_2-emissions		1.2	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	-€ 69,604.9m	-€ 60,719.0m	-€ 68,195.7m	-€ 67,339.2m
CO_2 value contribution	N/A	N/A	€ 2,609.2m	€ 2,434.0m	€ 3,413.5m	€ 3,372.3m
e^2-Value	**N/A**	**N/A**	**-€ 33,497.8m**	**-€ 29,142.5m**	**-€ 32,391.1m**	**-€ 31,983.5m**
Return to Cost Ratio	**N/A**	**N/A**	**1 : 13.5**	**1 : 12.7**	**1 : 10.3**	**1 : 10.2**

DNV

Consulting & Business Services



Summary

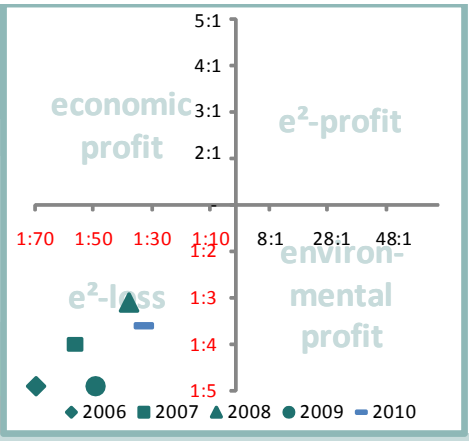
DNV's e^2-Value performance was well above the benchmark throughout the study period, varying from €582.8m (2008) to €631.2m (2010). This was due to above benchmark performances for both use of capital and CO_2 performance. The RCR varied between 4.5:1 (2008) to 5.4:1 (2009).

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.1	0.9	1.1
CO_2-emissions		0.8	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	€ 415.4m	€ 486.7m	€ 460.5m	€ 464.6m
CO_2 value contribution	N/A	N/A	€ 750.1m	€ 771.0m	€ 801.8m	€ 801.8m
e^2-Value	**N/A**	**N/A**	**€ 582.8m**	**€ 628.9m**	**€ 631.2m**	**€ 633.2m**
Return to Cost Ratio	**N/A**	**N/A**	**4.5 : 1**	**5.4 : 1**	**4.7 : 1**	**4.8 : 1**

DONG Energy

Oil & Gas



Summary

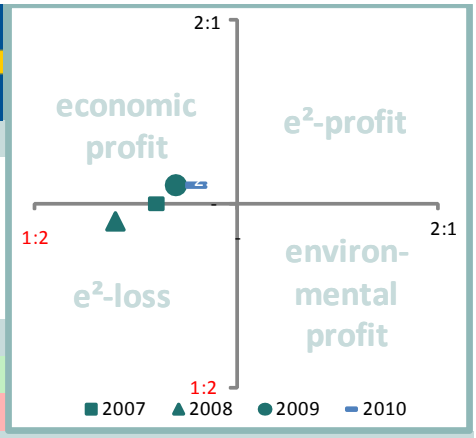
DONG Energy's overall e^2-Value performance was extremely poor compared to the benchmark, however did show some improvement over time with a value of -€35,523m (2006) to -€26868m (2010). This was mostly due to extremely poor CO2 performance, however use of capital was also well below the benchmark.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.6	0.8	1.1
CO_2-emissions		1.5	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 3,805.8m	-€ 3,048.3m	-€ 3,111.8m	-€ 3,899.7m	-€ 4,116.6m	-€ 4,048.6m
CO_2 value contribution	-€ 67,240.2m	-€ 56,032.5m	-€ 55,046.7m	-€ 48,632.0m	-€ 49,621.1m	-€ 90,548.4m
e^2-Value	**-€ 35,523.0m**	**-€ 29,540.4m**	**-€ 29,079.2m**	**-€ 26,265.9m**	**-€ 26,868.8m**	**-€ 47,298.5m**
Return to Cost Ratio	**1 : 37.2**	**1 : 29.9**	**1 : 20.3**	**1 : 27.1**	**1 : 18.1**	**1 : 31.1**

Electrolux AB

Electrical Equipment & Components



Summary

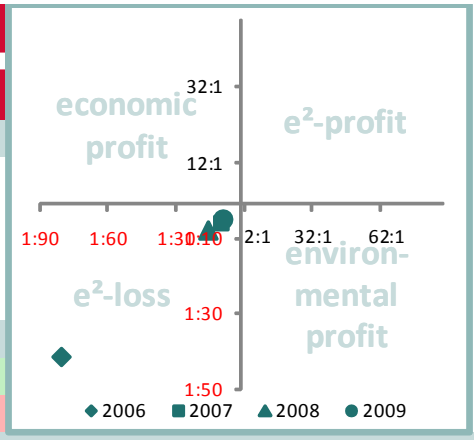
Electrolux's e^2-Value performance was well below the benchmark, however did showed an overall improvement from 2007 (-€513.1m) to -€142.5m (2010). Overall performance was mainly driven by poor CO_2 performance with capital performance being negative in 2007-8 and positive in 2009-10.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1	0.9	1.1
CO_2-emissions		1.2	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	-€ 39.7m	-€ 261.5m	€ 123.3m	€ 137.0m	€ 164.3m
CO_2 value contribution	N/A	-€ 986.5m	-€ 1,258.7m	-€ 662.5m	-€ 422.0m	-€ 2,691.0m
e^2-Value	**N/A**	**-€ 513.1m**	**-€ 760.1m**	**-€ 269.6m**	**-€ 142.5m**	**-€ 1,263.4m**
Return to Cost Ratio	**N/A**	**1 : 1.2**	**1 : 1.4**	**1 : 1.1**	**1 : 1.1**	**1 : 1.5**

Energinet

Utilities



Summary

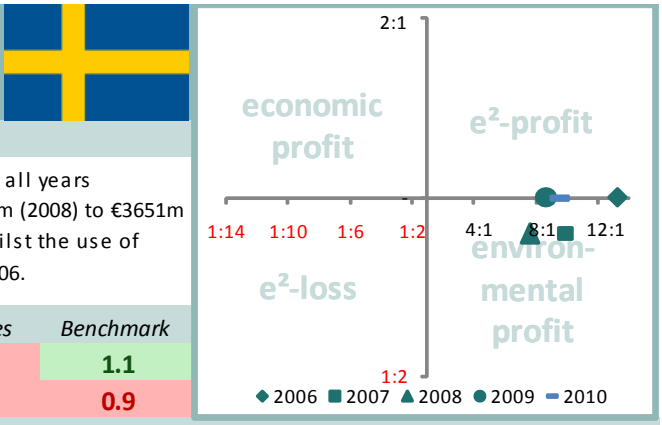
Energinet's e^2-Value performance was below the benchmark and varied in a narrow band from -€924.3m (2006) to -€1170.3m (2008). This was mainly driven by poor CO_2 emissions performance, however use of capital contributed. The RCR of 1:61 in 2006 was significanly worse than other years (1:6.9 to 1:11.6).

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	10.6	0.7	1.1
CO_2-emissions		0.9	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 623.1m	-€ 710.0m	-€ 745.3m	-€ 635.8m	N/A	N/A
CO_2 value contribution	-€ 1,225.5m	-€ 1,284.4m	-€ 1,595.3m	-€ 1,291.3m	N/A	N/A
e^2-Value	**-€ 924.3m**	**-€ 997.2m**	**-€ 1,170.3m**	**-€ 963.5m**	**N/A**	**N/A**
Return to Cost Ratio	**1 : 61**	**1 : 7.8**	**1 : 11.6**	**1 : 6.9**	**N/A**	**N/A**

Ericsson (LM Ericsson)

Electrical Equipment & Components



Summary

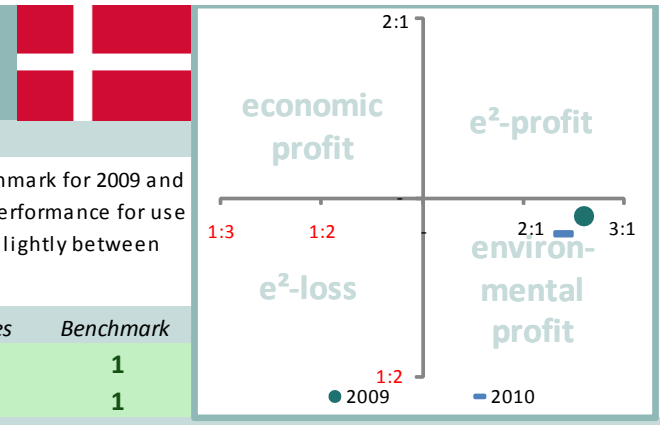
Ericsson's e^2-Value was well above the benchmark for all years analysed and varied within a narrow band from €2449m (2008) to €3651m (2009). This was driven by strong CO_2 performance, whilst the use of capital was mostly below the benchmark excepting 2006.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.1	0.8	1.1
CO_2-emissions		0.8	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 219.4m	-€ 1,363.6m	-€ 1,626.3m	-€ 88.7m	-€ 252.7m	-€ 148.8m
CO_2 value contribution	€ 7,004.1m	€ 6,445.2m	€ 6,524.4m	€ 6,361.7m	€ 7,556.2m	€ 6,848.7m
e^2-Value	**€ 3,611.8m**	**€ 2,540.8m**	**€ 2,449.1m**	**€ 3,136.5m**	**€ 3,651.8m**	**€ 3,350.0m**
Return to Cost Ratio	**1.9 : 1**	**1.5 : 1**	**1.5 : 1**	**1.8 : 1**	**1.8 : 1**	**1.7 : 1**

FLSmidth

Engineering & Machinery



Summary

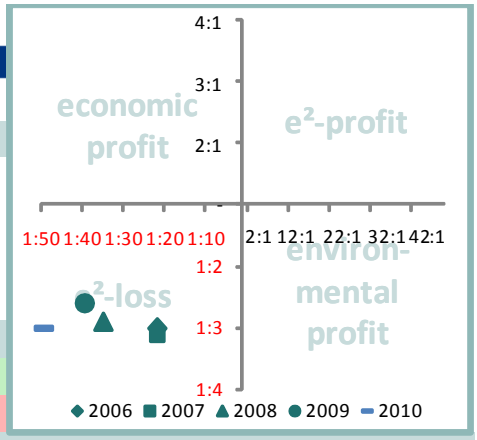
FLSmidth's e^2-Value performance was above the benchmark for 2009 and 2010. This was due to good CO_2 performance, whilst performance for use of capital was below the benchmark. The RCR varied slightly between 1.4:1 (2009) to 1.3:1 (2010).

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1	1	1
CO_2-emissions		1	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	N/A	-€ 68.2m	-€ 124.4m	-€ 113.6m
CO_2 value contribution	N/A	N/A	N/A	€ 486.4m	€ 452.0m	€ 188.4m
e^2-Value	**N/A**	**N/A**	**N/A**	**€ 209.1m**	**€ 163.8m**	**€ 37.4m**
Return to Cost Ratio	**N/A**	**N/A**	**N/A**	**1.4 : 1**	**1.3 : 1**	**1.1 : 1**

Fortum Corporation

Utilities



Summary

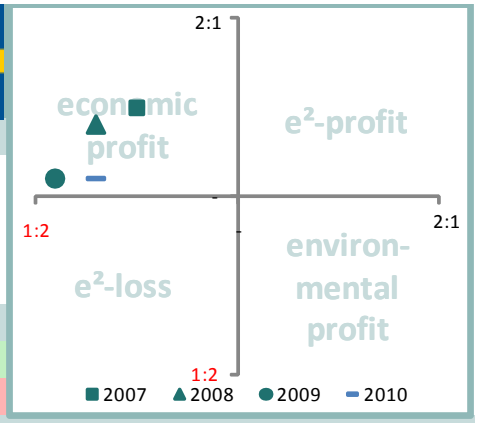
Fortum's e²-Value performance was significantly below the benchmark for all years of the study period and performance worsened from -€21,580.8m (2006) to -€56,006.8m (2010). This was due to extremely poor and worsening CO_2 emissions performance as well as poor use of capital performance.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.2	0.8	1.1
CO_2-emissions		0.4	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 3,797.5m	-€ 4,022.9m	-€ 4,332.4m	-€ 3,686.5m	-€ 4,491.6m	-€ 4,411.1m
CO_2 value contribution	-€ 39,364.1m	-€ 40,400.0m	-€ 76,123.3m	-€ 88,621.6m	-€ 107,522.0m	-€ 195,272.9m
e²-Value	**-€ 21,580.8m**	**-€ 22,211.4m**	**-€ 40,227.9m**	**-€ 46,154.1m**	**-€ 56,006.8m**	**-€ 99,842.0m**
Return to Cost Ratio	**1 : 12.4**	**1 : 12.4**	**1 : 18.8**	**1 : 21**	**1 : 26**	**1 : 45.5**

Green Cargo AB

Transportation



Summary

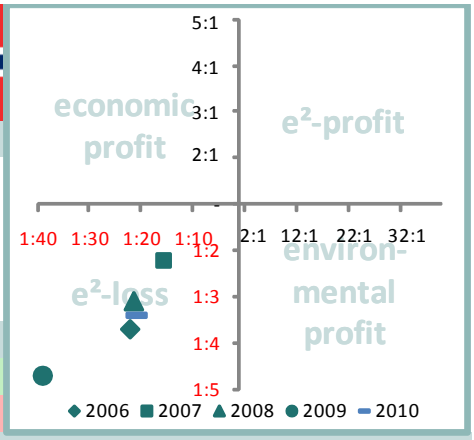
Green Cargo's e²-Value performance was below the benchmark for the years analysed (2007 to 2010) ranging from -€15.3m (2007) to -€63.9m (2009). This was due to poor CO_2 performance, whilst use of capital remained above the benchmark. The RCR varied from 1:1.1 (2007) to 1:1.4 (2009).

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.8	0.8	1.1
CO_2-emissions		1.2	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	€ 72.0m	€ 58.7m	€ 13.4m	€ 8.2m	€ 10.2m
CO_2 value contribution	N/A	-€ 102.7m	-€ 136.8m	-€ 141.1m	-€ 121.2m	-€ 352.3m
e²-Value	**N/A**	**-€ 15.3m**	**-€ 39.1m**	**-€ 63.9m**	**-€ 56.5m**	**-€ 171.1m**
Return to Cost Ratio	**N/A**	**1 : 1.1**	**1 : 1.2**	**1 : 1.4**	**1 : 1.3**	**1 : 2**

Grieg Shipping Group

Transportation



Summary

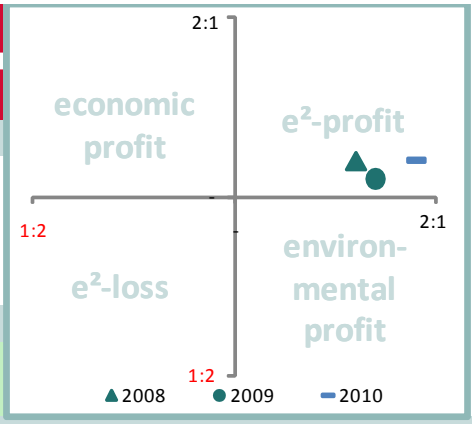
Grieg Shipping Group's e^2-Value performance was well below the benchmark throughout the study period with an overall reduction from -€982.9m (2006) to -€1,159.1m (2010). This was due mainly to poor CO_2 emissions performance, but also use of capital, which was negative throughout the period.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.3	0.8	1.1
CO_2-emissions		1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 224.8m	-€ 152.3m	-€ 200.7m	-€ 221.3m	-€ 250.5m	-€ 246.3m
CO_2 value contribution	-€ 1,741.1m	-€ 1,947.5m	-€ 1,974.5m	-€ 2,293.4m	-€ 2,067.6m	-€ 3,803.5m
e^2-Value	**-€ 982.9m**	**-€ 1,049.9m**	**-€ 1,087.6m**	**-€ 1,257.3m**	**-€ 1,159.1m**	**-€ 2,024.9m**
Return to Cost Ratio	**1 : 12.9**	**1 : 9**	**1 : 12.2**	**1 : 21.8**	**1 : 12.2**	**1 : 20.5**

Grundfos

Engineering & Machinery



Summary

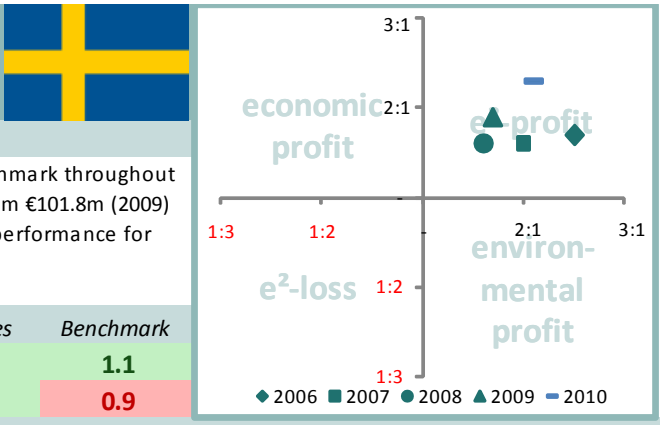
Grundfos's e^2-Value performance was positive for the years analysed (2008 to 2010) and showed an overall improvement from €223.5m (2008) to €335.0m (2010). This was due to above benchmark performances for both use of capital and CO_2 emissions.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.1	0.9	1.1
CO_2-emissions		1	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	€ 118.0m	€ 70.4m	€ 198.8m	€ 208.5m
CO_2 value contribution	N/A	N/A	€ 328.9m	€ 338.5m	€ 471.2m	€ 45.7m
e^2-Value	**N/A**	**N/A**	**€ 223.5m**	**€ 204.5m**	**€ 335.0m**	**€ 127.1m**
Return to Cost Ratio	**N/A**	**N/A**	**1.3 : 1**	**1.3 : 1**	**1.5 : 1**	**1.1 : 1**

Gunnebo

Consulting & Business Services



Summary

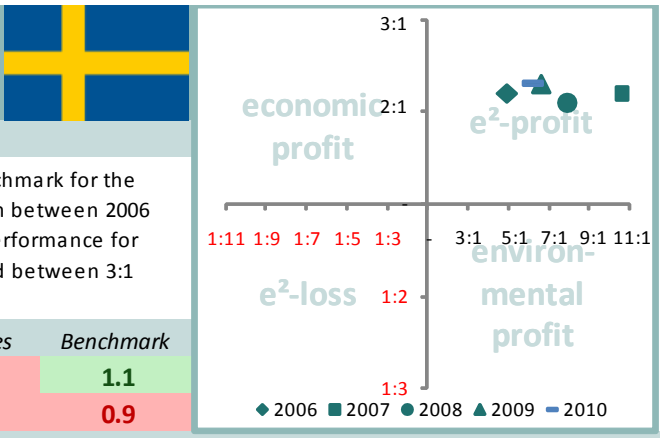
Gunnebo's e²-Value performance was above the benchmark throughout the study period and varied around a narrow range from €101.8m (2009) to €138.0m (2006). This was due to above benchmark performance for both use of capital and CO2 performance.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.9	1.3	1.1
CO_2-emissions		1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 110.1m	€ 105.4m	€ 104.0m	€ 109.5m	€ 141.9m	€ 143.2m
CO_2 value contribution	€ 165.9m	€ 136.6m	€ 105.9m	€ 94.1m	€ 131.2m	€ 32.4m
e²-Value	**€ 138.0m**	**€ 121.0m**	**€ 105.0m**	**€ 101.8m**	**€ 136.6m**	**€ 87.8m**
Return to Cost Ratio	**2 : 1**	**1.8 : 1**	**1.6 : 1**	**1.8 : 1**	**2.2 : 1**	**1.5 : 1**

H&M

Wholesale & Retail



Summary

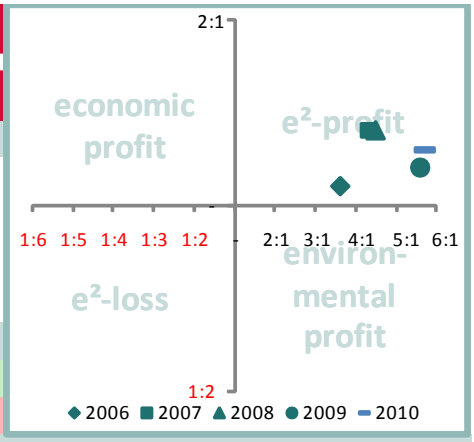
H&M's e²-Value performance was well above the benchmark for the entire study period, ranging from €1893.7m to €3063.1m between 2006 and 2010. This was due to strong above benchmark performance for both use of capital and CO_2 emissions. The RCR varied between 3:1 (2006) to 3.6:1 (2007)

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.5	0.6	1.1
CO_2-emissions		0.9	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 1,533.2m	€ 1,784.6m	€ 1,891.1m	€ 2,045.8m	€ 2,472.9m	€ 2,495.4m
CO_2 value contribution	€ 2,254.1m	€ 3,003.0m	€ 3,182.4m	€ 3,044.3m	€ 3,653.4m	€ 3,087.7m
e²-Value	**€ 1,893.7m**	**€ 2,393.8m**	**€ 2,536.8m**	**€ 2,545.1m**	**€ 3,063.1m**	**€ 2,791.6m**
Return to Cost Ratio	**3 : 1**	**3.6 : 1**	**3.3 : 1**	**3.4 : 1**	**3.4 : 1**	**2.8 : 1**

H. Lundbeck

Pharmaceutical preparations



Summary

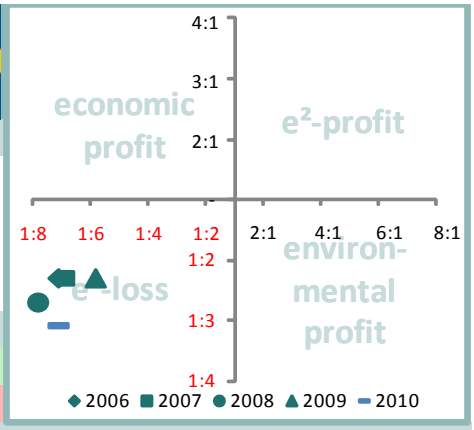
H. Lundbeck's e^2-Value performance was positive for all years and increased from €246.4m in 2006 to €486.4m in 2010. The result was driven by above benchmark performances for both the use of capital and CO_2 emissions, with CO_2 performance being particularly strong. The RCR varied from 1.7:1 to 2.1:1.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.6	0.6	1.1
CO_2-emissions		1.1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 70.4m	€ 214.4m	€ 209.6m	€ 152.5m	€ 198.2m	€ 207.1m
CO_2 value contribution	€ 422.5m	€ 587.9m	€ 586.4m	€ 692.3m	€ 774.6m	€ 642.8m
e^2-Value	**€ 246.4m**	**€ 401.2m**	**€ 398.0m**	**€ 422.4m**	**€ 486.4m**	**€ 424.9m**
Return to Cost Ratio	**1.7 : 1**	**2.1 : 1**	**2.1 : 1**	**2 : 1**	**2.1 : 1**	**1.8 : 1**

Holmen

Forestry & Paper



Summary

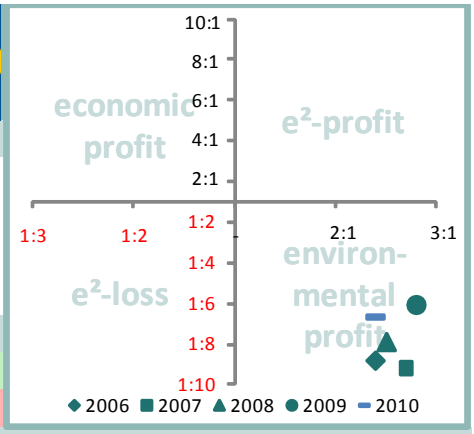
Holmen's e^2-Value performance was strongly negative throughout the study period, however did improve from -€1,899.3m in 2006 to -€1,375.2m in 2010. The performance was the result of poor use of capital and very poor CO_2 performance relative to the benchmark. The RCR varied within a narrow band from 1:5.3 to 1:4.1.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.7	1	1.1
CO_2-emissions		1.8	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 663.8m	-€ 689.1m	-€ 742.7m	-€ 543.2m	-€ 706.3m	-€ 693.9m
CO_2 value contribution	-€ 3,134.8m	-€ 3,053.7m	-€ 2,910.0m	-€ 1,975.3m	-€ 2,044.2m	-€ 3,944.9m
e^2-Value	**-€ 1,899.3m**	**-€ 1,871.4m**	**-€ 1,826.3m**	**-€ 1,259.3m**	**-€ 1,375.2m**	**-€ 2,319.4m**
Return to Cost Ratio	**1 : 4.7**	**1 : 4.6**	**1 : 5.3**	**1 : 4.1**	**1 : 5.1**	**1 : 8**

Hufvudstaden

Real Estate



Summary

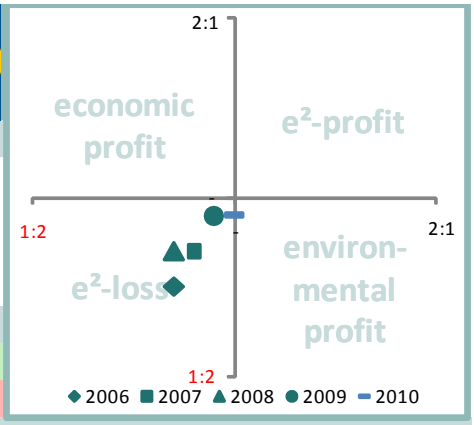
Hufvudstaden's e^2-Value performance was below the benchmark throughout the study period with a RCR varying between 1:3.2 (2009) to 1:4.8 (2010). The negative performance was due to the contribution from the use of capital which was negative throughout the study period, whilst the CO2 contribution remained stable and positive throughout.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.2	1	1.1
CO_2-emissions		1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 664.2m	-€ 682.2m	-€ 578.0m	-€ 443.3m	-€ 564.0m	-€ 556.1m
CO_2 value contribution	€ 50.2m	€ 52.8m	€ 50.2m	€ 56.7m	€ 58.6m	€ 25.9m
e^2-Value	**-€ 307.0m**	**-€ 314.7m**	**-€ 263.9m**	**-€ 193.3m**	**-€ 252.7m**	**-€ 265.1m**
Return to Cost Ratio	**1 : 4.6**	**1 : 4.8**	**1 : 4.2**	**1 : 3.2**	**1 : 3.5**	**1 : 3.7**

ICA Group

Wholesale & Retail



Summary

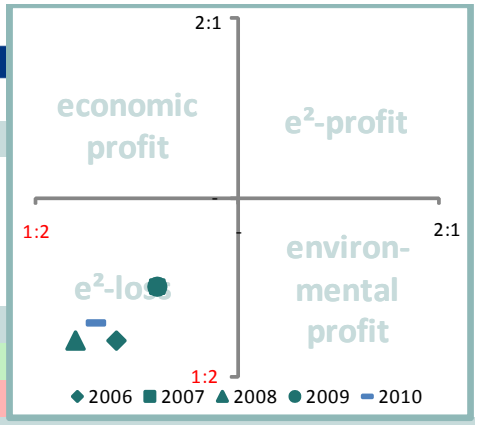
ICA Group's e^2-Value performance was below the benchmark throughout the study period, however improved from -€329.2m (2006) to -€58.1m (2010). The performance was driven roughly equally by below benchmark use of capital and CO_2 emissions performance.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.4	0.9	1.1
CO_2-emissions		1.1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 414.1m	-€ 299.9m	-€ 287.6m	-€ 97.4m	-€ 86.2m	-€ 70.9m
CO_2 value contribution	-€ 244.3m	-€ 213.3m	-€ 344.7m	-€ 84.2m	-€ 30.0m	-€ 1,010.6m
e^2-Value	**-€ 329.2m**	**-€ 256.6m**	**-€ 316.2m**	**-€ 90.8m**	**-€ 58.1m**	**-€ 540.8m**
Return to Cost Ratio	**1 : 1.4**	**1 : 1.2**	**1 : 1.3**	**1 : 1.1**	**1 : 1**	**1 : 1.5**

Kemira Oyj

Chemicals



Summary

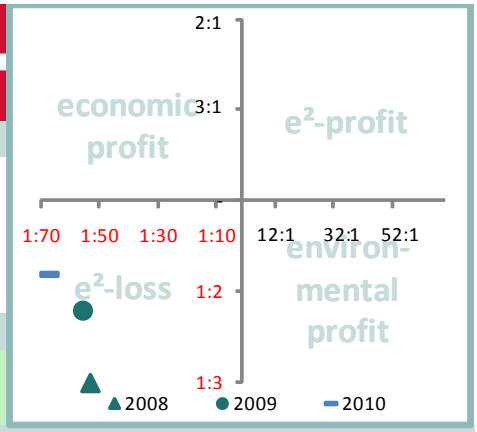
Kemira's e^2-Value performance was below the benchmark throughout the study period, with a RCR varying slightly from 1:1.8 (2008) to 1:1.4 (2009). The below benchmark performance was due to roughly equal poor performance from both use of capital and CO_2 emissions.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.9	1.1	1.1
CO_2-emissions		1.2	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 401.3m	-€ 324.0m	-€ 409.4m	-€ 280.9m	-€ 313.2m	-€ 304.0m
CO_2 value contribution	-€ 307.6m	-€ 278.2m	-€ 397.5m	-€ 208.9m	-€ 331.4m	-€ 962.7m
e^2-Value	**-€ 354.4m**	**-€ 301.1m**	**-€ 403.5m**	**-€ 244.9m**	**-€ 322.3m**	**-€ 633.3m**
Return to Cost Ratio	**1 : 1.7**	**1 : 1.5**	**1 : 1.8**	**1 : 1.4**	**1 : 1.7**	**1 : 2.4**

Kommunekemi

Utilities



Summary

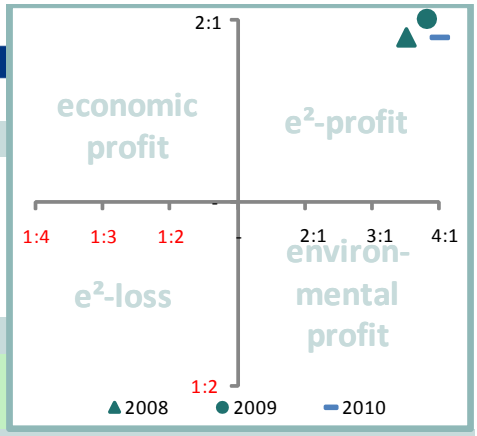
Kommunekemi's e^2-Value performance was below the benchmark for the years analysed (2008 to 2010). The related RCRsfell from 1:28.1 to 1:34.3 between 2008 and 2010. The below benchmark performance was mainly due to poor CO_2 emissions performance, although the performance for use of capital was also slightly below the benchmark.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.8	2.2	1.1
CO_2-emissions		1	1

Performace	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	-€ 32.7m	-€ 16.6m	-€ 9.3m	-€ 9.1m
CO_2 value contribution	N/A	N/A	-€ 838.9m	-€ 757.7m	-€ 803.4m	-€ 1,455.5m
e^2-Value	**N/A**	**N/A**	**-€ 435.8m**	**-€ 387.2m**	**-€ 406.4m**	**-€ 732.3m**
Return to Cost Ratio	**N/A**	**N/A**	**1 : 28.1**	**1 : 28.7**	**1 : 34.3**	**1 : 61**

KONE Oyj

Engineering & Machinery



Summary

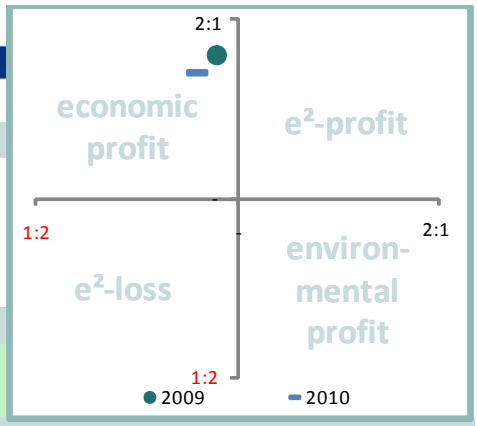
The e^2-Value performance of KONE was well above the benchmark during the years analysed (2008 to 2010). The associated RCR varied between 2.4:1 (2008) to 2.6:1 (2009). The positive performance can be attributed to both strong performances related to CO_2 emissions and use of capital.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.1	0.8	1.1
CO_2-emissions		1	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	€ 946.7m	€ 1,078.1m	€ 1,062.9m	€ 1,077.6m
CO_2 value contribution	N/A	N/A	€ 1,443.0m	€ 1,581.4m	€ 1,712.1m	€ 1,251.5m
e^2-Value	**N/A**	**N/A**	**€ 1,194.8m**	**€ 1,329.7m**	**€ 1,387.5m**	**€ 1,164.6m**
Return to Cost Ratio	**N/A**	**N/A**	**2.4 : 1**	**2.6 : 1**	**2.5 : 1**	**2 : 1**

Konecranes

Engineering & Machinery



Summary

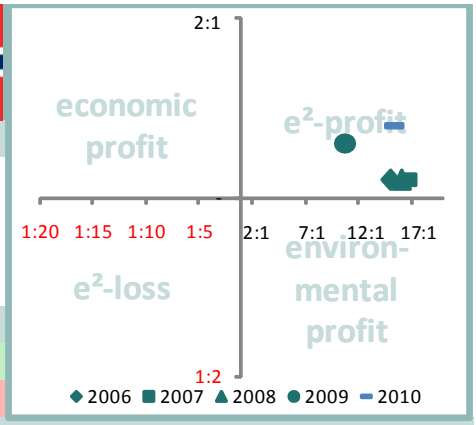
Konecranes e^2-Value performance was slightly above the benchmark for both 2009 and 2010, with respective RCRs of 1.2:1 and 1.1:1. The positive performance was due to a strong performance for use of capital dampened by a negative CO_2 performance.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1	0.9	1
CO_2-emissions		1	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	N/A	€ 262.4m	€ 230.9m	€ 235.0m
CO_2 value contribution	N/A	N/A	N/A	-€ 72.5m	-€ 104.5m	-€ 652.5m
e^2-Value	**N/A**	**N/A**	**N/A**	**€ 94.9m**	**€ 63.2m**	**-€ 208.7m**
Return to Cost Ratio	**N/A**	**N/A**	**N/A**	**1.2 : 1**	**1.1 : 1**	**1 : 1.4**

Kongsberg Gruppen ASA

Measurement & Control Systems



Summary

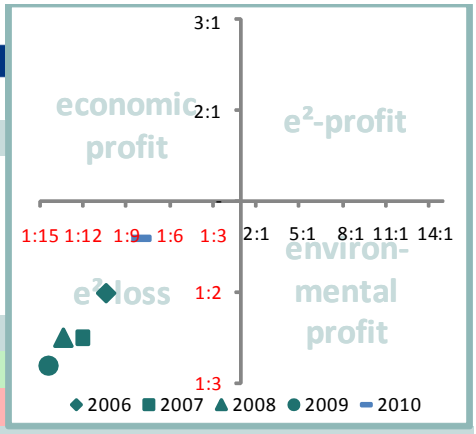
Kongsberg Gruppen's e^2-Value performance increased from €178.6m in 2006 to €469.5m in 2010. This was made up of positive contributions from both use of capital and CO_2 performance, with CO_2 performance being strongest. The RCR value ranged from 2:1 (2008) to 2.6:1 (2010)

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	2.2	0.5	1.1
CO_2-emissions		0.5	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 35.6m	€ 57.4m	€ 43.6m	€ 149.0m	€ 225.1m	€ 231.5m
CO_2 value contribution	€ 321.7m	€ 419.4m	€ 501.5m	€ 523.8m	€ 713.8m	€ 674.2m
e^2-Value	**€ 178.6m**	**€ 238.4m**	**€ 272.6m**	**€ 336.4m**	**€ 469.5m**	**€ 452.9m**
Return to Cost Ratio	**2.1 : 1**	**2.1 : 1**	**2 : 1**	**2.4 : 1**	**2.6 : 1**	**2.5 : 1**

Metsaliitto

Forestry & Paper



Summary

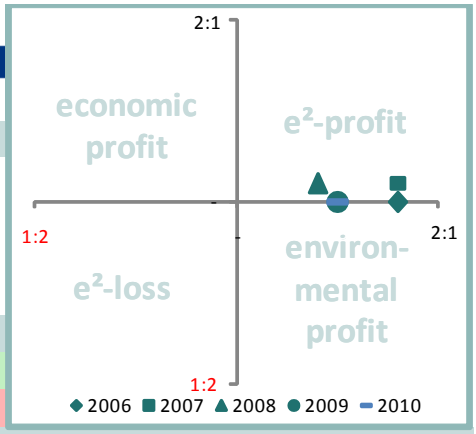
Metsaliitto's e^2-Value performance was significantly below the benchmark for all years however increased from -€7,404.5m (2006) to -€4,546.8m (2010). The poor performance was made up of a below benchmark contribution for use of capital and a significantly below benchmark performance for CO_2 emissions.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.9	1.5	1.1
CO_2-emissions		1.7	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 1,422.0m	-€ 1,616.4m	-€ 1,346.1m	-€ 1,108.5m	-€ 508.1m	-€ 487.2m
CO_2 value contribution	-€ 13,387.0m	-€ 12,060.3m	-€ 10,969.8m	-€ 8,415.1m	-€ 8,585.5m	-€ 16,442.2m
e^2-Value	**-€ 7,404.5m**	**-€ 6,838.3m**	**-€ 6,157.9m**	**-€ 4,761.8m**	**-€ 4,546.8m**	**-€ 8,464.7m**
Return to Cost Ratio	**1 : 6.2**	**1 : 7.2**	**1 : 7.9**	**1 : 8.6**	**1 : 4.7**	**1 : 7.8**

Metso

Engineering & Machinery



Summary

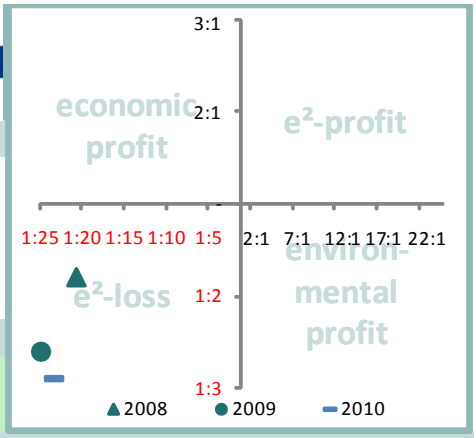
Metso's e²-Value performance was above the benchmark for all years of the study period and had an associated RCR varying between 1.2:1 (2009 and 2010) and 1.4:1 (2007). The performance was made up of above benchmark CO_2 performance, however use of capital contribution was below the benchmark in2009 and 2010.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.1	0.8	1.1
CO_2-emissions		0.9	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 12.5m	€ 197.1m	€ 256.3m	-€ 72.1m	-€ 40.8m	-€ 18.4m
CO_2 value contribution	€ 704.3m	€ 865.3m	€ 581.9m	€ 501.2m	€ 598.4m	-€ 386.4m
e²-Value	**€ 358.4m**	**€ 531.2m**	**€ 419.1m**	**€ 214.6m**	**€ 278.8m**	**-€ 202.4m**
Return to Cost Ratio	**1.3 : 1**	**1.4 : 1**	**1.3 : 1**	**1.2 : 1**	**1.2 : 1**	**1 : 1.1**

Neste Oil

Oil & Gas



Summary

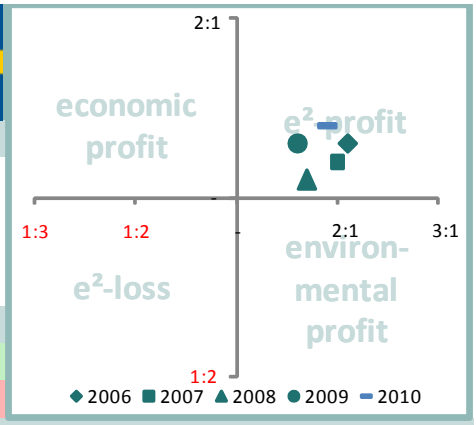
Neste Oil's e²-Value performance was significantly below the benchmark for the years analysed showing a slight improvement from -€8,869.4m to -€8,516.4m. Both the use of capital and CO_2 emissions performances were below the benchmark, however the CO_2 contribution was the most significant.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.8	0.7	1.1
CO_2-emissions		1.1	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	-€ 656.0m	-€ 1,051.0m	-€ 1,340.6m	-€ 1,316.2m
CO_2 value contribution	N/A	N/A	-€ 17,082.8m	-€ 15,995.4m	-€ 15,692.2m	-€ 28,801.8m
e²-Value	**N/A**	**N/A**	**-€ 8,869.4m**	**-€ 8,523.2m**	**-€ 8,516.4m**	**-€ 15,059.0m**
Return to Cost Ratio	**N/A**	**N/A**	**1 : 11.2**	**1 : 13.7**	**1 : 13.1**	**1 : 22.3**

NIBE Industrier AB

Fabricated Metal Products



Summary

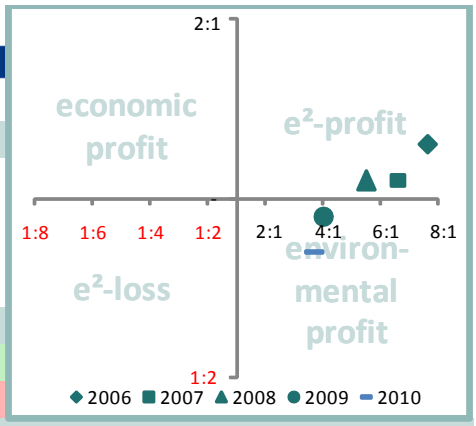
NIBE's e^2-Value performance was slightly above the benchmark with positive contributions from both use of capital and CO_2 emissions. The RCR varied from 1.3:1 in 2008 to 1.6:1 in 2006 and 2010.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.2	0.8	1.1
CO_2-emissions		0.9	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 44.1m	€ 33.5m	€ 20.3m	€ 44.4m	€ 63.5m	€ 65.5m
CO_2 value contribution	€ 95.9m	€ 98.0m	€ 76.2m	€ 65.4m	€ 108.1m	€ 12.0m
e^2-Value	**€ 70.0m**	**€ 65.7m**	**€ 48.2m**	**€ 54.9m**	**€ 85.8m**	**€ 38.7m**
Return to Cost Ratio	**1.6 : 1**	**1.5 : 1**	**1.3 : 1**	**1.4 : 1**	**1.6 : 1**	**1.2 : 1**

Nokia Group

Electrical Equipment & Components



Summary

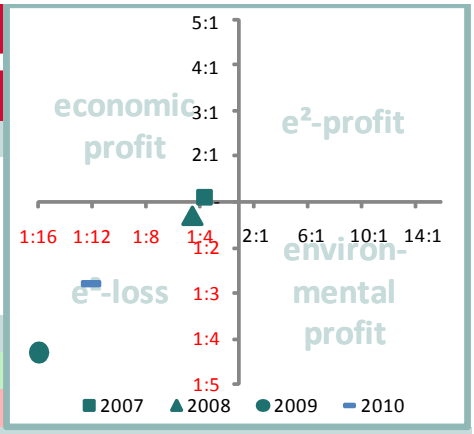
Nokia's e^2-Value performance fell from a peak of €5,808.2m in 2007 to €1,735.7m in 2010. The fall can be mainly attributed to a the capital value contribution falling from €2178.5m in 2006 to -€2,875.1m in 2010.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.9	0.6	1.1
CO_2-emissions		0.6	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 2,178.5m	€ 687.3m	€ 614.9m	-€ 1,289.6m	-€ 2,875.1m	-€ 2,736.7m
CO_2 value contribution	€ 8,289.4m	€ 10,929.1m	€ 10,520.6m	€ 6,827.8m	€ 6,346.5m	€ 4,461.7m
e^2-Value	**€ 5,233.9m**	**€ 5,808.2m**	**€ 5,567.8m**	**€ 2,769.1m**	**€ 1,735.7m**	**€ 862.5m**
Return to Cost Ratio	**2.2 : 1**	**1.8 : 1**	**1.8 : 1**	**1.4 : 1**	**1.2 : 1**	**1.1 : 1**

Norden

Transportation



Summary

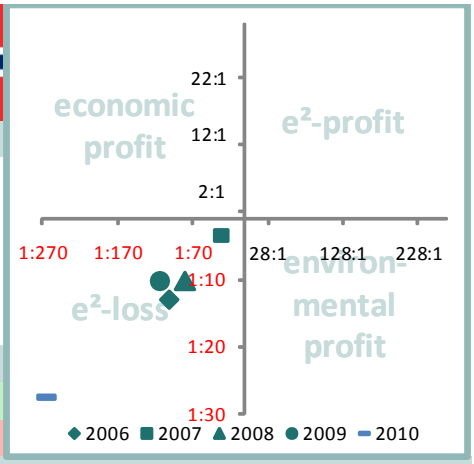
Norden's e^2-Value performance was well below the benchmark for the years analysed falling from -€515.6m in 2007 to -€1,183.6m in 2010. The poor performance can mainly be attributed to poor CO_2 performance, however use of capital was also below the benchmark in all years except 2007.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.4	0.7	1.1
CO_2-emissions		0.7	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	€ 36.2m	-€ 101.8m	-€ 330.0m	-€ 335.5m	-€ 329.3m
CO_2 value contribution	N/A	-€ 1,067.3m	-€ 1,294.0m	-€ 1,485.3m	-€ 2,031.7m	-€ 3,803.0m
e^2-Value	**N/A**	**-€ 515.6m**	**-€ 697.9m**	**-€ 907.6m**	**-€ 1,183.6m**	**-€ 2,066.2m**
Return to Cost Ratio	**N/A**	**1 : 2.3**	**1 : 2.9**	**1 : 10.1**	**1 : 7.4**	**1 : 12.2**

Norske Skog

Forestry & Paper



Summary

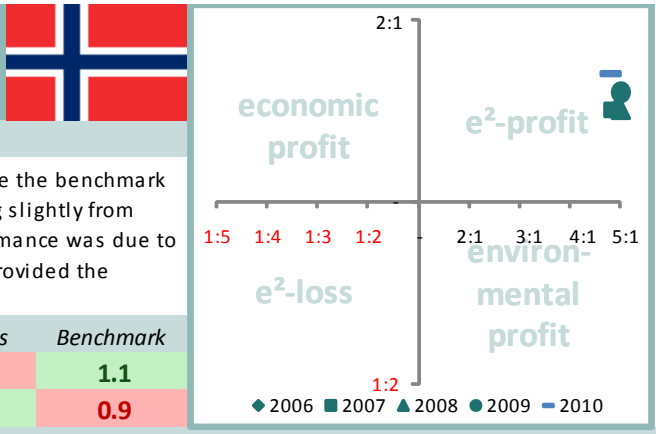
Norske Skog's e^2-Value performance was well below the benchmark, however improved from -€8,235.0m in 2006 to -€5,991.6m in 2010. The contributions from use of capital and CO_2 emissions were both below the benchmark, however CO_2 emissions made the largest negative contribution. The corresponding RCR varied from 1:17.7 (2007) to 1:146.5 (2010).

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.3	1.5	1.1
CO_2-emissions		1.6	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 1,753.9m	-€ 1,300.4m	-€ 1,607.8m	-€ 1,036.9m	-€ 1,087.1m	-€ 1,073.6m
CO_2 value contribution	-€ 14,716.2m	-€ 16,163.8m	-€ 13,896.7m	-€ 12,684.9m	-€ 10,896.2m	-€ 19,640.0m
e^2-Value	**-€ 8,235.0m**	**-€ 8,732.1m**	**-€ 7,752.3m**	**-€ 6,860.9m**	**-€ 5,991.6m**	**-€ 10,356.8m**
Return to Cost Ratio	**1 : 57.1**	**1 : 17.7**	**1 : 45.2**	**1 : 62**	**1 : 146.5**	**1 : 252.4**

Nortura

Food



Summary

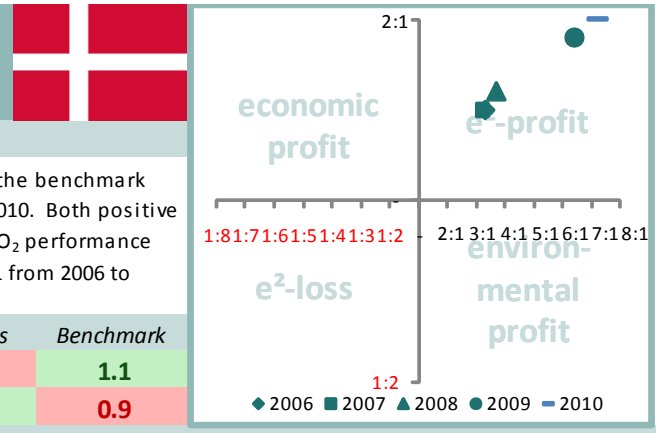
Nortura's e^2-Value performance was consistently above the benchmark during the study period with an associated RCR varying slightly from 2.3:1 for 2006-8 to 2.5:1 for 2009-10. The positive performance was due to positive CO_2 and capital value performance with CO_2 provided the largest contribution.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.2	0.8	1.1
CO_2-emissions		1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 134.8m	€ 149.7m	€ 149.7m	€ 166.7m	€ 189.8m	€ 193.1m
CO_2 value contribution	€ 312.0m	€ 335.2m	€ 348.3m	€ 340.4m	€ 373.2m	€ 295.5m
e^2-Value	**€ 223.4m**	**€ 242.5m**	**€ 249.0m**	**€ 253.6m**	**€ 281.5m**	**€ 244.3m**
Return to Cost Ratio	**2.3 : 1**	**2.3 : 1**	**2.3 : 1**	**2.5 : 1**	**2.5 : 1**	**2.1 : 1**

Novo Nordisk

Chemicals



Summary

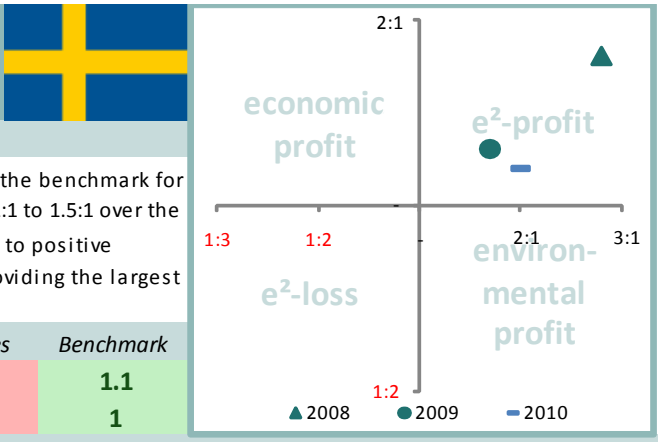
Novo Nordisk's e^2-Value performance was well above the benchmark and increased from €1,512.3m in 2006 to €3,343.3m in 2010. Both positive use of capital and CO_2 performance contributed with CO_2 performance contributing most. The RCR increased from 2.1:1 to 3.1:1 from 2006 to 2010.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.7	0.7	1.1
CO_2-emissions		1.5	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 983.3m	€ 1,064.4m	€ 1,383.0m	€ 1,856.0m	€ 2,452.4m	€ 2,481.9m
CO_2 value contribution	€ 2,041.2m	€ 2,153.8m	€ 2,556.1m	€ 3,391.3m	€ 4,234.2m	€ 3,686.2m
e^2-Value	**€ 1,512.3m**	**€ 1,609.1m**	**€ 1,969.5m**	**€ 2,623.6m**	**€ 3,343.3m**	**€ 3,084.1m**
Return to Cost Ratio	**2.1 : 1**	**2.1 : 1**	**2.3 : 1**	**2.9 : 1**	**3.1 : 1**	**2.7 : 1**

Oriflame Cosmetics AB

Chemicals



Summary

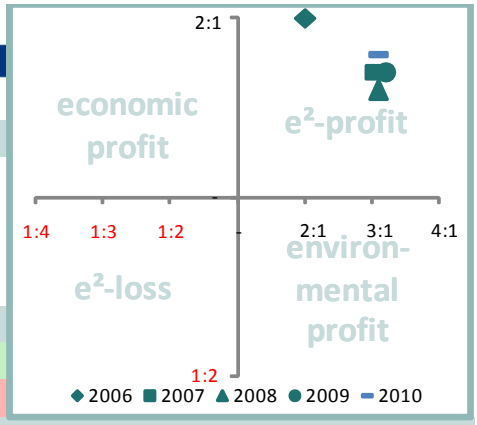
Oriflame Cosmetics' e^2-Value performance was above the benchmark for all years analysed (2008 to 2010). The RCR fell from 2.2:1 to 1.5:1 over the period. The positive e^2 performance can be attributed to positive performances for both capital and CO_2 with the CO_2 providing the largest contribution.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.8	0.8	1.1
CO_2-emissions		0.9	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	€ 152.7m	€ 47.7m	€ 48.1m	€ 50.7m
CO_2 value contribution	N/A	N/A	€ 217.5m	€ 96.8m	€ 136.6m	€ 29.2m
e^2-Value	**N/A**	**N/A**	**€ 185.1m**	**€ 72.2m**	**€ 92.3m**	**€ 40.0m**
Return to Cost Ratio	**N/A**	**N/A**	**2.2 : 1**	**1.5 : 1**	**1.5 : 1**	**1.2 : 1**

Orion Oyj

Chemicals



Summary

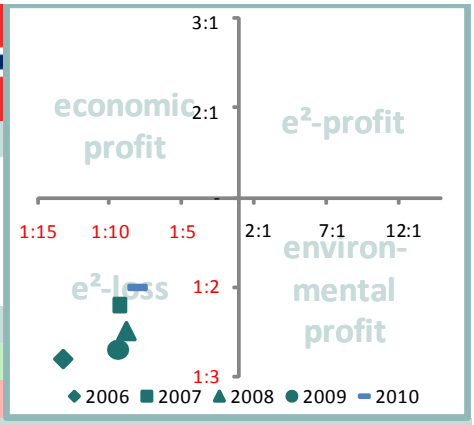
Orion's e^2-Value performance ranged from €184.4m in 2007 to €238.2m in 2010 and the corresponding RCR varied very slightly between 2.1:1 (2008) and 2.3:1 (2010). Both use of capital and CO_2 performance contributed to the result, with CO_2 performance having the largest effect.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.2	0.8	1.1
CO_2-emissions		0.9	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	€ 141.4m	€ 134.5m	€ 161.7m	€ 191.7m	€ 194.4m
CO_2 value contribution	N/A	€ 227.5m	€ 242.0m	€ 260.7m	€ 284.7m	€ 175.8m
e^2-Value	**N/A**	**€ 184.4m**	**€ 188.3m**	**€ 211.2m**	**€ 238.2m**	**€ 185.1m**
Return to Cost Ratio	**N/A**	**2.2 : 1**	**2.1 : 1**	**2.2 : 1**	**2.3 : 1**	**1.8 : 1**

Orkla

Fabricated Metal Products



Summary

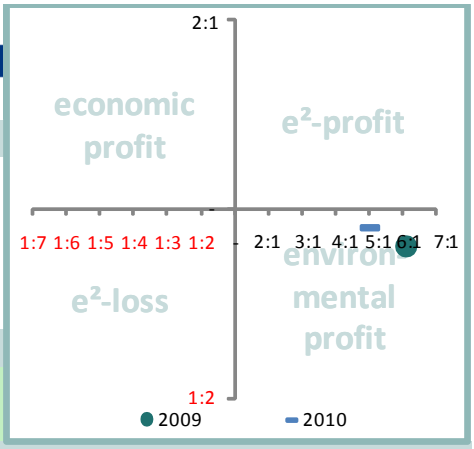
Orkla's e^2-Value performance was significantly below the benchmark over the study period with a corresponding RCR increasing from 1:8 in 2006 to 1:5.1 in 2010. The poor performance can mainly be attributed to a poor CO_2 performance which generally improved over time.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.4	0.9	1.1
CO_2-emissions		1.4	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 2,129.8m	-€ 2,136.3m	-€ 2,442.1m	-€ 2,066.9m	-€ 1,696.9m	-€ 1,656.9m
CO_2 value contribution	-€ 14,733.9m	-€ 15,263.5m	-€ 12,946.8m	-€ 10,064.6m	-€ 11,712.0m	-€ 22,394.7m
e^2-Value	**-€ 8,431.9m**	**-€ 8,699.9m**	**-€ 7,694.4m**	**-€ 6,065.7m**	**-€ 6,704.4m**	**-€ 12,025.8m**
Return to Cost Ratio	**1 : 8**	**1 : 5.7**	**1 : 5.6**	**1 : 6.1**	**1 : 5.1**	**1 : 8.3**

Outotec

Engineering & Machinery



Summary

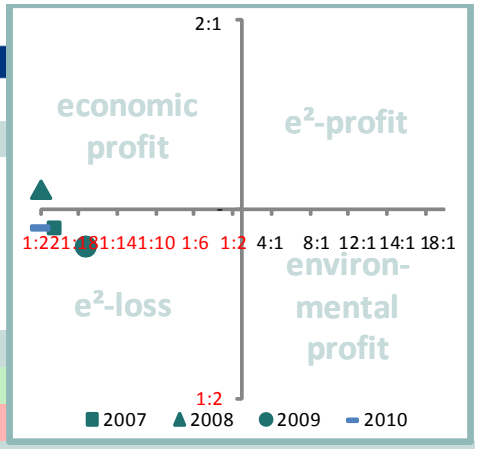
Outotec's e^2-Value performance was above the benchmark for both years assessed (2009-10) and the corresponding RCR fell from 1.4:1 to 1.5:1 between 2009 and 2010. The overall performance was made up of a positive CO_2 performance and a small below benchmark use of capital performance in both years.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.3	0.9	1
CO_2-emissions		0.7	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	N/A	-€ 50.8m	-€ 31.1m	-€ 27.3m
CO_2 value contribution	N/A	N/A	N/A	€ 181.2m	€ 229.5m	€ 183.7m
e^2-Value	**N/A**	**N/A**	**N/A**	**€ 65.2m**	**€ 99.2m**	**€ 78.2m**
Return to Cost Ratio	**N/A**	**N/A**	**N/A**	**1.4 : 1**	**1.5 : 1**	**1.4 : 1**

Outokumpu Oyj

Primary Metal Industries



Summary

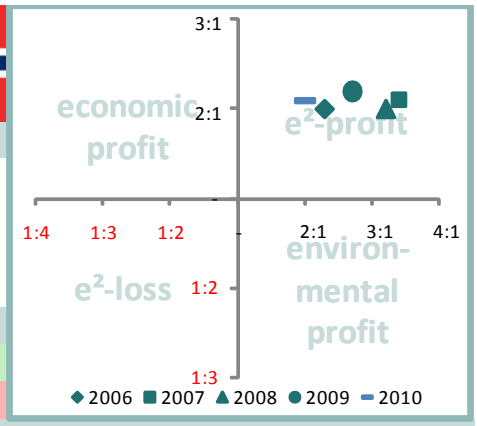
Outokumpu's e^2-Value performance was well below the benchmark and varied from -€1,797.3m (2009) to -€3,073.8m (2008). The main contribution to the below benchmark performance was poor CO2 performance, although the contribution from capital value was below the benchmark too for all years excepting 2008.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.3	0.7	1.1
CO_2-emissions		0.8	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	-€ 23.3m	€ 21.8m	-€ 50.8m	-€ 31.1m	-€ 27.3m
CO_2 value contribution	N/A	-€ 4,455.7m	-€ 6,169.4m	-€ 3,543.8m	-€ 6,009.8m	-€ 11,043.6m
e^2-Value	**N/A**	**-€ 2,239.5m**	**-€ 3,073.8m**	**-€ 1,797.3m**	**-€ 3,020.4m**	**-€ 5,535.4m**
Return to Cost Ratio	**N/A**	**1 : 10.9**	**1 : 11.4**	**1 : 9.3**	**1 : 11.5**	**1 : 20.3**

Posten Norge

Transportation



Summary

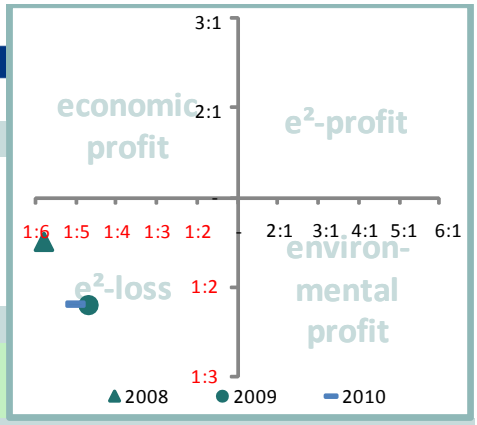
Posten Norge's e^2-Value performance was above the benchmark for all years with a RCR which started at 2.1:1 in 2006, peaking at 2.6:1 in 2007 before gradually falling back to 2:1 in 2010. The contribution from capital and CO_2 performance was roughly equal.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1	1	1.1
CO_2-emissions		1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 650.4m	€ 784.5m	€ 747.8m	€ 749.8m	€ 687.2m	€ 694.5m
CO_2 value contribution	€ 744.8m	€ 1,077.7m	€ 1,039.9m	€ 867.5m	€ 631.3m	€ 101.1m
e^2-Value	**€ 697.6m**	**€ 931.1m**	**€ 893.9m**	**€ 808.7m**	**€ 659.3m**	**€ 397.8m**
Return to Cost Ratio	**2.1 : 1**	**2.6 : 1**	**2.4 : 1**	**2.4 : 1**	**2 : 1**	**1.4 : 1**

Raisio Oyi

Food



Summary

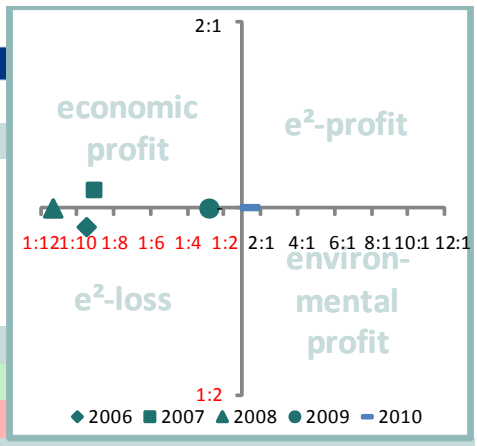
Raisio's e^2-Value performance was below the benchmark for all years analysed (2008 to 2010). The RCR varied around a narrow range from 1:3.4 (2009) to 1:3.7 (2008). The below benchmark performance was largely driven by the contribution from CO_2 performance.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.9	0.7	1.1
CO_2-emissions		1.3	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	-€ 40.0m	-€ 71.0m	-€ 80.9m	-€ 79.1m
CO_2 value contribution	N/A	N/A	-€ 365.3m	-€ 230.6m	-€ 270.4m	-€ 540.8m
e^2-Value	**N/A**	**N/A**	**-€ 202.6m**	**-€ 150.8m**	**-€ 175.6m**	**-€ 309.9m**
Return to Cost Ratio	**N/A**	**N/A**	**1 : 3.7**	**1 : 3.4**	**1 : 3.6**	**1 : 5.6**

Rapala

Misc. Manufacturing Industries



Summary

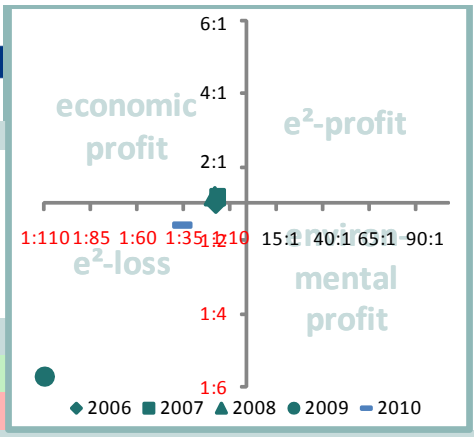
Rapala's e^2-Value performance was well below the benchmark for 2006-9 with a low of -€444.4m (2008), however the company's performance improved significantly in 2009 to -€69.1m and in 2010 the e^2 value was above the benchmark at €12.1m. The corresponding RCR varied from 1:6.1 (2008) to 1.2:1 (2010).

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.2	0.8	1.1
CO_2-emissions		12.7	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 5.4m	€ 4.6m	€ 0.0m	€ 0.9m	-€ 0.9m	€ 0.2m
CO_2 value contribution	-€ 637.9m	-€ 710.5m	-€ 888.9m	-€ 139.2m	€ 25.1m	-€ 26.9m
e^2-Value	**-€ 321.7m**	**-€ 353.0m**	**-€ 444.4m**	**-€ 69.1m**	**€ 12.1m**	**-€ 13.3m**
Return to Cost Ratio	**1 : 5.3**	**1 : 5**	**1 : 6.1**	**1 : 1.9**	**1.2 : 1**	**1 : 1.1**

Rautaruukki Oyij (Ruukki)

Primary Metal Industries



Summary

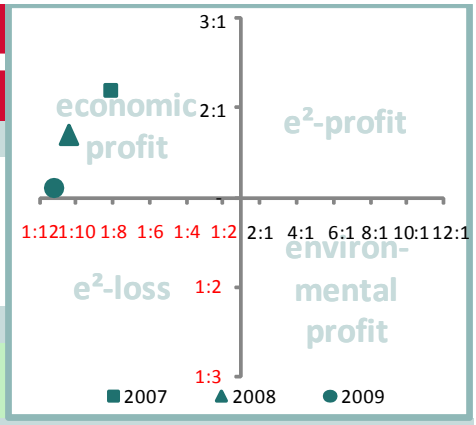
Rautaruukki's e²-Value performance was significantly below the benchmark, varying between a narrow range of -€7,544.5m (2009) to -€9,587.6m (2008). The RCR however had a ratio of around 1:9 for 2006-8 before dipping to 1:57.7 in 2009 and improving in 2010 to 1:18.7. The poor performance was driven by poor CO_2 performance coupled with below benchmark capital performance in 2009-10.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.5	1.2	1.1
CO_2-emissions		1.2	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 31.1m	€ 198.9m	€ 175.7m	-€ 622.5m	-€ 278.4m	-€ 269.1m
CO_2 value contribution	-€ 17,704.2m	-€ 17,978.5m	-€ 19,351.0m	-€ 14,466.4m	-€ 17,290.8m	-€ 31,511.3m
e²-Value	**-€ 8,836.5m**	**-€ 8,889.8m**	**-€ 9,587.6m**	**-€ 7,544.5m**	**-€ 8,784.6m**	**-€ 15,890.2m**
Return to Cost Ratio	**1 : 9.4**	**1 : 8.7**	**1 : 9.5**	**1 : 57.7**	**1 : 18.7**	**1 : 33**

Rockwool international

Stone, Clay, Glass and Concrete Products



Summary

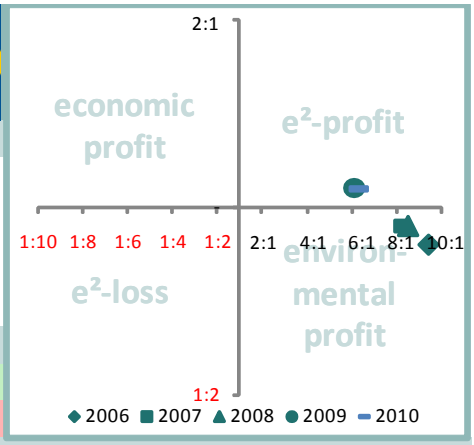
Rockwool International's e²-Value performance was well below the benchmark for the years analysed (2007 to 2009), with an e²-Value varying between -€2,820.5m (2008) and -€2,415.5m (2009). The poor performance was driven by poor CO_2 performance.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.6	0.7	1.1
CO_2-emissions		1.2	1

Performace	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	€ 405.5m	€ 258.8m	€ 45.3m	N/A	N/A
CO_2 value contribution	N/A	-€ 5,380.3m	-€ 5,899.8m	-€ 4,876.4m	N/A	N/A
e²-Value	**N/A**	**-€ 2,487.4m**	**-€ 2,820.5m**	**-€ 2,415.5m**	**N/A**	**N/A**
Return to Cost Ratio	**N/A**	**1 : 4.3**	**1 : 5.5**	**1 : 6**	**N/A**	**N/A**

SAAB

Automobile



Summary

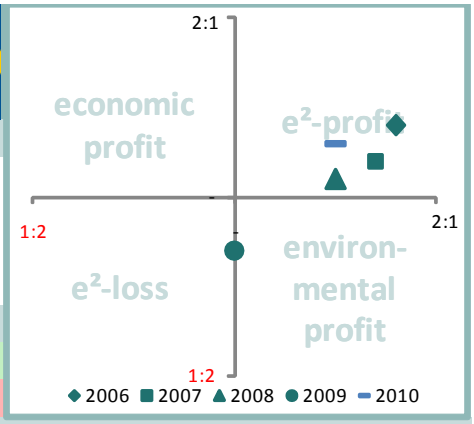
SAAB's e^2-Value performance was above benchmark, increasing from €316.4m (2006) to €527.2m (2010) and the corresponding RCR increasing from 1.5:1 to 1.9:1. The overall performance was driven by a strong CO_2 contribution, however there was a negative capital contribution (-€224.8m in 2006) which became positive (€141.2m) by 2010.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.1	1.1	1.1
CO_2-emissions		0.7	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 224.8m	-€ 108.1m	-€ 80.3m	€ 67.8m	€ 141.2m	€ 152.5m
CO_2 value contribution	€ 857.5m	€ 972.3m	€ 883.9m	€ 776.6m	€ 913.2m	€ 774.2m
e^2-Value	**€ 316.4m**	**€ 432.1m**	**€ 401.8m**	**€ 422.2m**	**€ 527.2m**	**€ 463.3m**
Return to Cost Ratio	**1.5 : 1**	**1.6 : 1**	**1.7 : 1**	**1.8 : 1**	**1.9 : 1**	**1.7 : 1**

Sandvik

Engineering & Machinery



Summary

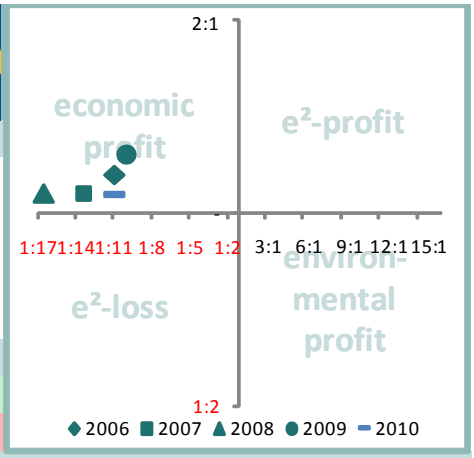
Sandvik's e^2-Value performance was above the benchmark in 2006 (€1,216.7m in 2006), however fell to a low of -€256.1m in 2009 before improving to €930.7m in 2010. This pattern was also seen in the CO_2 and capital contribution, both of which had lows in 2009.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.1	0.8	1.1
CO_2-emissions		0.9	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 935.4m	€ 669.0m	€ 231.9m	-€ 527.6m	€ 722.6m	€ 756.6m
CO_2 value contribution	€ 1,498.0m	€ 1,486.6m	€ 1,295.7m	€ 15.4m	€ 1,138.9m	-€ 800.0m
e^2-Value	**€ 1,216.7m**	**€ 1,077.8m**	**€ 763.8m**	**-€ 256.1m**	**€ 930.7m**	**-€ 21.7m**
Return to Cost Ratio	**1.6 : 1**	**1.4 : 1**	**1.3 : 1**	**1 : 1.1**	**1.4 : 1**	**1 : 1**

SAS Group

Transportation



Summary

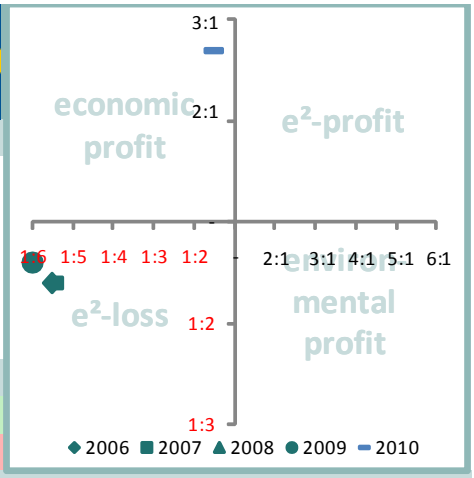
SAS Group's e^2-Value performance was well below the benchmark with the e^2 performance decreasing from -€10,422.8m (2006) to -€12,148.3m (2008) before improving to -€7,130.0m by 2010. The overall performance was dominated by a highly negative CO_2 contribution which showed a similar variation.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.7	1.3	1.1
CO_2-emissions		1.7	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 319.5m	€ 174.0m	€ 138.7m	€ 406.3m	€ 139.9m	€ 155.6m
CO_2 value contribution	-€ 21,165.2m	-€ 23,702.4m	-€ 24,435.4m	-€ 14,198.4m	-€ 14,400.0m	-€ 27,073.5m
e^2-Value	**-€ 10,422.8m**	**-€ 11,764.2m**	**-€ 12,148.3m**	**-€ 6,896.0m**	**-€ 7,130.0m**	**-€ 13,459.0m**
Return to Cost Ratio	**1 : 5.9**	**1 : 7.1**	**1 : 8.7**	**1 : 5.3**	**1 : 5.9**	**1 : 10.3**

SCA

Forestry & Paper



Summary

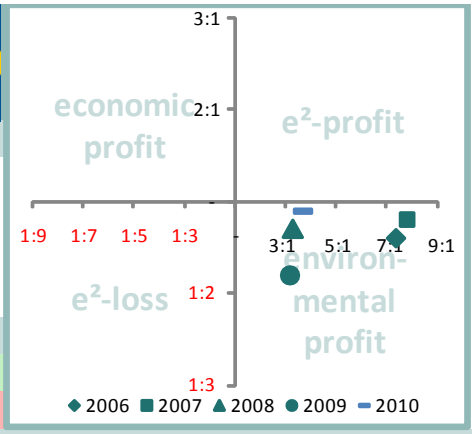
SCA's e^2-Value performance was well below the benchmark for 2006 to 2009, however improved above the benchmark for 2010. The corresponding RCRs varied from 1:4.2 (2008) to 1:1 (2010). The overall performance was largely driven by a strongly negative CO_2 performance, however the capital contribution was also negative, with the exception of 2010 when it was strongly positive.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	4	1	1.1
CO_2-emissions		1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 1,825.0m	-€ 1,987.2m	-€ 2,341.9m	-€ 1,258.8m	€ 7,717.8m	€ 7,773.0m
CO_2 value contribution	-€ 13,707.6m	-€ 14,705.7m	-€ 17,063.6m	-€ 15,128.3m	-€ 6,652.2m	-€ 21,833.4m
e^2-Value	**-€ 7,766.3m**	**-€ 8,346.5m**	**-€ 9,702.7m**	**-€ 8,193.6m**	**€ 532.8m**	**-€ 7,030.2m**
Return to Cost Ratio	**1 : 3.5**	**1 : 3.5**	**1 : 4.2**	**1 : 3.7**	**1 : 1**	**1 : 1.6**

Scania

Automobile



Summary

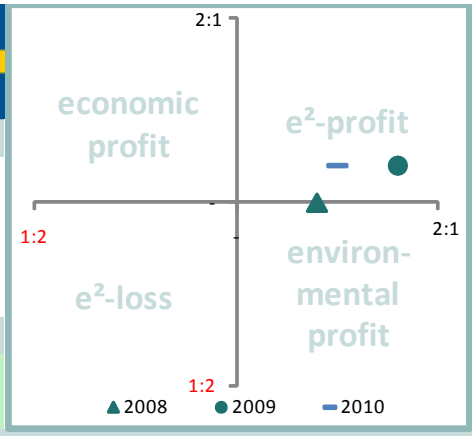
Scania's e²-Value performance varied from €978.8m (2010) to -€72.4m (2009) and was above the benchmark for all years except 2009. The result was driven by a large positive contribution from CO_2 emissions and a negative contribution from use of capital, however results for both dipped in 2009.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.3	0.9	1.1
CO_2-emissions		0.5	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 845.9m	-€ 510.3m	-€ 815.3m	-€ 1,221.1m	-€ 191.1m	-€ 153.6m
CO_2 value contribution	€ 2,033.1m	€ 2,453.1m	€ 2,015.3m	€ 1,076.2m	€ 2,148.7m	€ 1,513.9m
e²-Value	**€ 593.6m**	**€ 971.4m**	**€ 600.0m**	**-€ 72.4m**	**€ 978.8m**	**€ 680.2m**
Return to Cost Ratio	**1.3 : 1**	**1.5 : 1**	**1.3 : 1**	**1 : 1**	**1.5 : 1**	**1.3 : 1**

Skanska

Construction Services



Summary

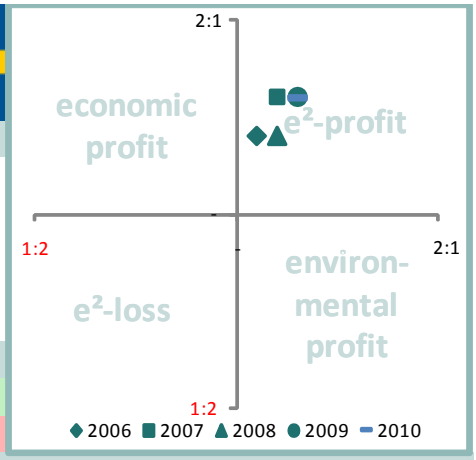
Skanska's e²-Value performance was above the benchmark for all years analysed (2008 to 2010) and the associated RCR went from 1.2:1 (2008) to 1.5:1 (2009) to 1.3:1 (2010). The result was driven by positive value contributions from both use of capital and CO_2 emissions, the latter having the largest effect.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1	1.1	1.1
CO_2-emissions		1	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	€ 64.7m	€ 509.0m	€ 401.6m	€ 431.0m
CO_2 value contribution	N/A	N/A	€ 839.2m	€ 1,256.3m	€ 946.1m	-€ 587.9m
e²-Value	**N/A**	**N/A**	**€ 451.9m**	**€ 882.6m**	**€ 673.8m**	**-€ 78.4m**
Return to Cost Ratio	**N/A**	**N/A**	**1.2 : 1**	**1.5 : 1**	**1.3 : 1**	**1 : 1**

SKF AB

Engineering & Machinery



Summary

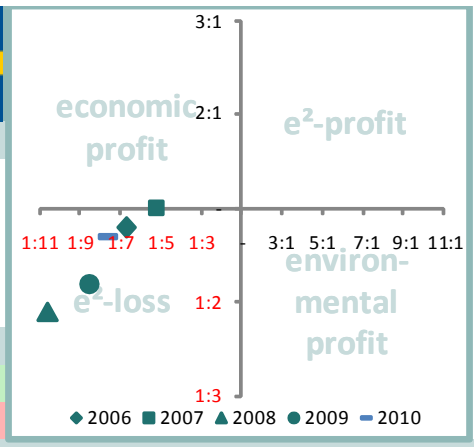
SKF's e^2-Value performance was above the benchmark throughout the study period, increasing from €477.8m (2006) to €859.3m (2010) with the associated RCR varying between 1.3:1 to 1.4:1 over the study period. Both CO_2 and use of capital provided positive contributions to the overall performance, however the use of capital provided the most impact.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.2	0.9	1.1
CO_2-emissions		1.1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	€ 725.5m	€ 1,016.8m	€ 820.1m	€ 797.0m	€ 1,097.1m	€ 1,117.8m
CO_2 value contribution	€ 230.1m	€ 389.6m	€ 423.6m	€ 450.9m	€ 621.4m	-€ 1,141.6m
e^2-Value	**€ 477.8m**	**€ 703.2m**	**€ 621.9m**	**€ 623.9m**	**€ 859.3m**	**-€ 11.9m**
Return to Cost Ratio	**1.3 : 1**	**1.4 : 1**	**1.3 : 1**	**1.4 : 1**	**1.4 : 1**	**1 : 1**

Sodra

Forestry & Paper



Summary

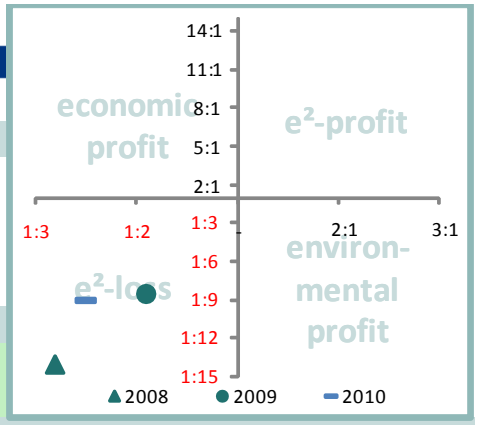
Sodra's e^2-Value performance was consistently below the benchmark throughout the study period varying between -€1,131.3m (2009) to -€1,637.4m (2010) and a corresponding RCR between 1:3.1 (2007) to 1:6.3 (2008). The major contributer to this performance were below benchmark performance for CO_2 emissions

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1	0.8	1.1
CO_2-emissions		1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 84.7m	€ 3.6m	-€ 282.1m	-€ 206.7m	-€ 134.8m	-€ 127.6m
CO_2 value contribution	-€ 2,651.8m	-€ 2,553.7m	-€ 2,517.7m	-€ 2,056.0m	-€ 3,139.9m	-€ 6,029.1m
e^2-Value	**-€ 1,368.2m**	**-€ 1,275.0m**	**-€ 1,399.9m**	**-€ 1,131.3m**	**-€ 1,637.4m**	**-€ 3,078.3m**
Return to Cost Ratio	**1 : 3.9**	**1 : 3.1**	**1 : 6.3**	**1 : 5.1**	**1 : 4.5**	**1 : 7.5**

Sponda

Real Estate



Summary

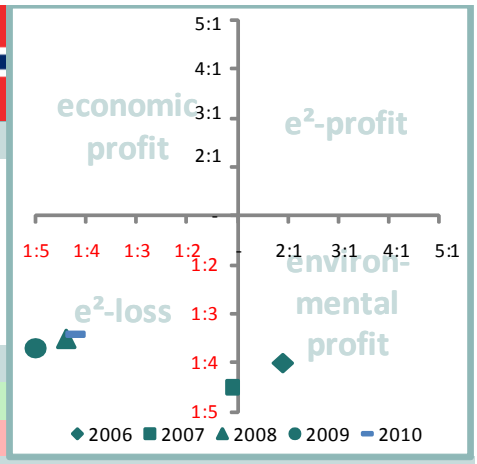
Sponda's e²-Value performance was below the benchmark for the years analysed (2008 to 2010) with an associated RCR between 1:5.2 (2009) to 1:8.4 (2010). Both use of capital and CO_2 emissions had negative value contributions, however the former was a larger component.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.5	1	1.1
CO_2-emissions		0.7	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	-€ 938.5m	-€ 789.0m	-€ 836.6m	-€ 825.3m
CO_2 value contribution	N/A	N/A	-€ 126.3m	-€ 90.9m	-€ 156.1m	-€ 364.4m
e²-Value	**N/A**	**N/A**	**-€ 532.4m**	**-€ 440.0m**	**-€ 496.3m**	**-€ 594.9m**
Return to Cost Ratio	**N/A**	**N/A**	**1 : 8.4**	**1 : 5.2**	**1 : 5.8**	**1 : 6.7**

Statkraft AS

Utilities



Summary

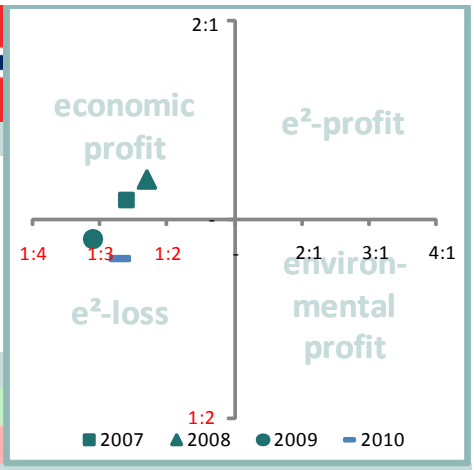
Statkraft's e²-Value performance was below the benchmark throughout the study and increased from -€1,277.4m (2006) to -€4,862.4m (2010). Whilst the contribution from use of capital was large and negative it remained roughly constant throughout, whereas the CO_2 contribution decreased significantly from a positive value to a large negative value over the period.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.7	0.6	1.1
CO_2-emissions		0.1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 3,039.1m	-€ 3,609.6m	-€ 4,014.9m	-€ 3,614.4m	-€ 4,167.6m	-€ 4,096.7m
CO_2 value contribution	€ 484.4m	-€ 134.4m	-€ 5,509.6m	-€ 5,303.8m	-€ 5,557.3m	-€ 11,410.2m
e²-Value	**-€ 1,277.4m**	**-€ 1,872.0m**	**-€ 4,762.3m**	**-€ 4,459.1m**	**-€ 4,862.4m**	**-€ 7,753.5m**
Return to Cost Ratio	**1 : 2.3**	**1 : 2.8**	**1 : 3.9**	**1 : 4.3**	**1 : 3.8**	**1 : 5.4**

Statoil

Oil & Gas



Summary

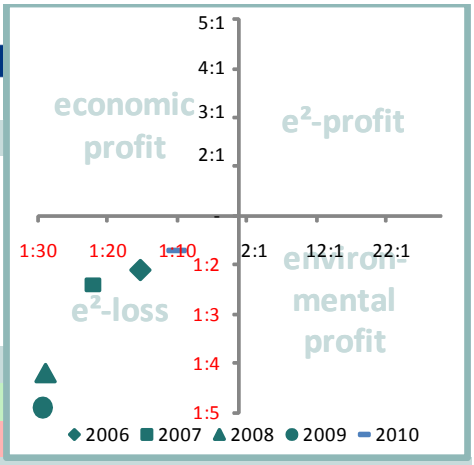
Statoil's e^2 performance was significantly below the benchmark moving from -€16,695.3m(2006) to -€19,983.0m (2010). This was largely due to a highly negative, fairly consistent, contribution from CO_2 performance, however the contribution from use of capital moved from positive to negative over the period.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.9	0.8	1.1
CO_2-emissions		1.1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	€ 2,861.7m	€ 5,068.2m	-€ 1,752.0m	-€ 3,260.9m	-€ 2,965.8m
CO_2 value contribution	N/A	-€ 36,252.3m	-€ 36,283.2m	-€ 36,951.1m	-€ 36,705.1m	-€ 83,181.9m
e^2-Value	**N/A**	**-€ 16,695.3m**	**-€ 15,607.5m**	**-€ 19,351.6m**	**-€ 19,983.0m**	**-€ 43,073.9m**
Return to Cost Ratio	**N/A**	**1 : 1.7**	**1 : 1.6**	**1 : 2.1**	**1 : 1.9**	**1 : 3**

Stora Enso

Forestry & Paper



Summary

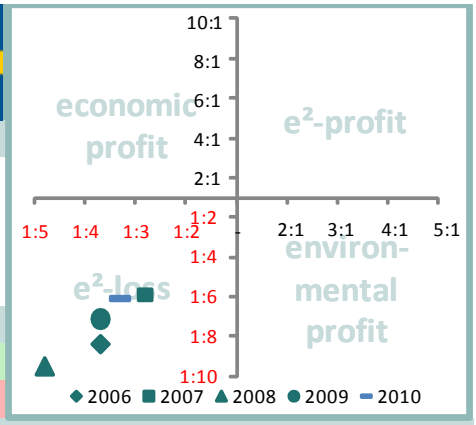
Stora Enso's e^2-Value performance showed an overall improvement from -€21,805.1m (2006) to -€11,583.4m (2010), however the RCR worsened from 1:8.7 (2006) to 1:17.1 (2009) before improving to 1:5.8 (2010). The largest value contribution was CO_2 emissions, however the capital contribution was also negative, but both showed an ovearll improvement over the study period.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.8	1.3	1.1
CO_2-emissions		2.1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 3,048.2m	-€ 3,044.4m	-€ 3,033.5m	-€ 2,799.4m	-€ 1,620.4m	-€ 1,572.3m
CO_2 value contribution	-€ 40,562.0m	-€ 44,942.6m	-€ 26,206.0m	-€ 20,165.8m	-€ 21,546.4m	-€ 40,692.1m
e^2-Value	**-€ 21,805.1m**	**-€ 23,993.5m**	**-€ 14,619.8m**	**-€ 11,482.6m**	**-€ 11,583.4m**	**-€ 21,132.2m**
Return to Cost Ratio	**1 : 8.7**	**1 : 12.3**	**1 : 16.5**	**1 : 17.1**	**1 : 5.8**	**1 : 9.8**

Sveaskog

Forestry & Paper



Summary

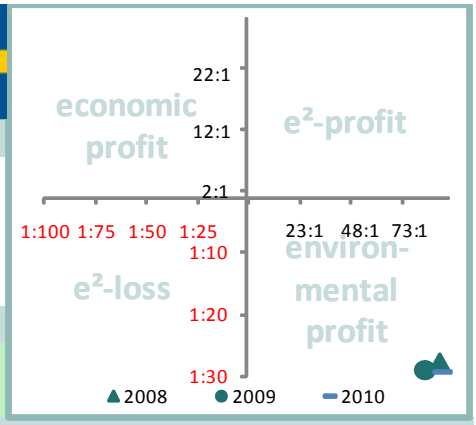
Sveaskog's e^2-Value performance was negative throughout the study period varying over a narrow range between -€606.8m (2009) and -€724.6m (2008). Both the use of capital and CO_2 emissions provided negative contributions however the use of capital was more negative.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.3	1	1.1
CO_2-emissions		1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 1,057.0m	-€ 992.4m	-€ 1,004.8m	-€ 838.6m	-€ 962.6m	-€ 948.8m
CO_2 value contribution	-€ 384.4m	-€ 370.5m	-€ 444.5m	-€ 375.1m	-€ 440.3m	-€ 943.2m
e^2-Value	**-€ 720.7m**	**-€ 681.4m**	**-€ 724.6m**	**-€ 606.8m**	**-€ 701.4m**	**-€ 946.0m**
Return to Cost Ratio	**1 : 6**	**1 : 4.4**	**1 : 7.1**	**1 : 5.4**	**1 : 4.7**	**1 : 6**

Swedbank

Financial Services



Summary

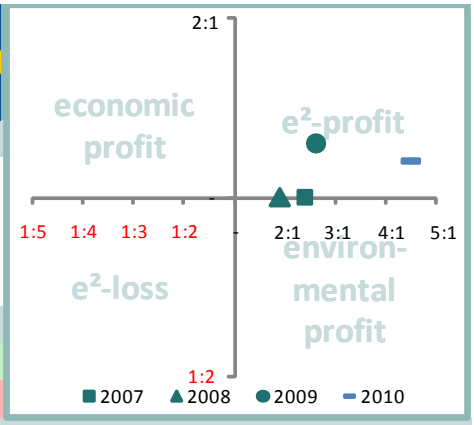
Swedbank's e^2-Value performance was well below the benchmark for the years analysed (2008 to 2010), with an associated RCR decreasing from 1:13.9 to 1:14.7 over the period. The contribution from capital was highly negative and the main driver to the overall performance.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.9	1	1.1
CO_2-emissions		1.1	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	-€ 47,292.2m	-€ 41,322.5m	-€ 45,442.5m	-€ 44,880.2m
CO_2 value contribution	N/A	N/A	€ 1,751.4m	€ 1,458.1m	€ 1,587.6m	€ 1,574.4m
e^2-Value	**N/A**	**N/A**	**-€ 22,770.4m**	**-€ 19,932.2m**	**-€ 21,927.4m**	**-€ 21,652.9m**
Return to Cost Ratio	**N/A**	**N/A**	**1 : 13.9**	**1 : 14.5**	**1 : 14.7**	**1 : 14.5**

Swedish Match

Tobacco Manufacturing



Summary

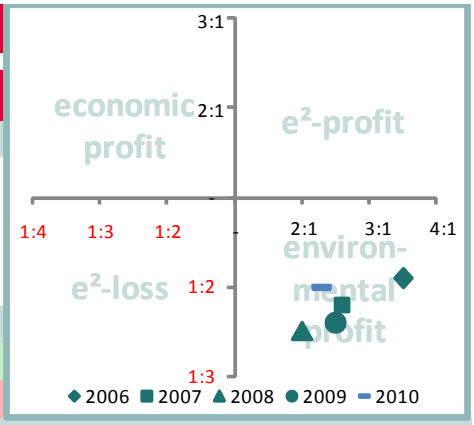
Swedish Match's overall e^2-Value performance was above the benchmark varying from €130.1m (2008) to €352.9m (2010). The result was largely driven by positive CO_2 performance.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.2	0.9	1.1
CO_2-emissions		1.7	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	-€ 21.4m	-€ 16.9m	€ 136.3m	€ 120.9m	€ 128.5m
CO_2 value contribution	N/A	€ 357.3m	€ 277.2m	€ 389.9m	€ 584.9m	€ 452.3m
e^2-Value	**N/A**	**€ 168.0m**	**€ 130.1m**	**€ 263.1m**	**€ 352.9m**	**€ 290.4m**
Return to Cost Ratio	**N/A**	**1.4 : 1**	**1.3 : 1**	**1.7 : 1**	**1.9 : 1**	**1.6 : 1**

TDC

Communication Services



Summary

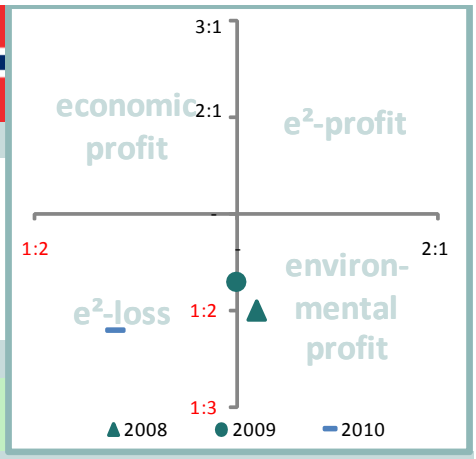
TDC's e^2-Value performance was below the benchmark throughout, with a low of -€672.7m in 2008 and a corresponding RCR of 1:1.5. The overall result was driven by the negative capital value contribution which was larger than the positive CO_2 contribution.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.7	1.2	1.1
CO_2-emissions		1.1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 1,671.5m	-€ 1,990.0m	-€ 1,977.0m	-€ 2,034.2m	-€ 1,373.1m	-€ 1,341.0m
CO_2 value contribution	€ 1,410.5m	€ 992.1m	€ 631.5m	€ 896.0m	€ 745.9m	€ 296.4m
e^2-Value	**-€ 130.5m**	**-€ 499.0m**	**-€ 672.7m**	**-€ 569.1m**	**-€ 313.6m**	**-€ 522.3m**
Return to Cost Ratio	**1 : 1.1**	**1 : 1.3**	**1 : 1.5**	**1 : 1.4**	**1 : 1.2**	**1 : 1.4**

Telenor

Communication Services



Summary

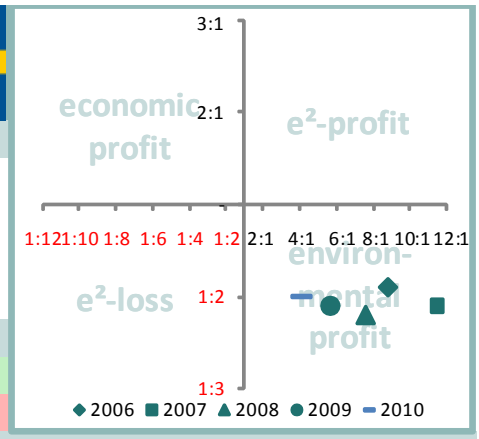
Telenor's e^2-Value was below the benchmark for the years analysed (2008 to 2010). The RCR varied between 1:1.3 (2009) to 1:1.9 (2010). The main driver to the below benchmark performance was the contribution from use of capital, however the contribution from CO_2 emissions was also negative in 2009 and 2010.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.8	1.1	1.1
CO_2-emissions		0.7	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	-€ 3,679.4m	-€ 2,280.4m	-€ 3,587.2m	-€ 3,508.6m
CO_2 value contribution	N/A	N/A	€ 380.8m	-€ 20.3m	-€ 1,719.4m	-€ 5,482.6m
e^2-Value	**N/A**	**N/A**	**-€ 1,649.3m**	**-€ 1,150.3m**	**-€ 2,653.3m**	**-€ 4,495.6m**
Return to Cost Ratio	**N/A**	**N/A**	**1 : 1.5**	**1 : 1.3**	**1 : 1.9**	**1 : 2.5**

Telia Sonera

Communication Services



Summary

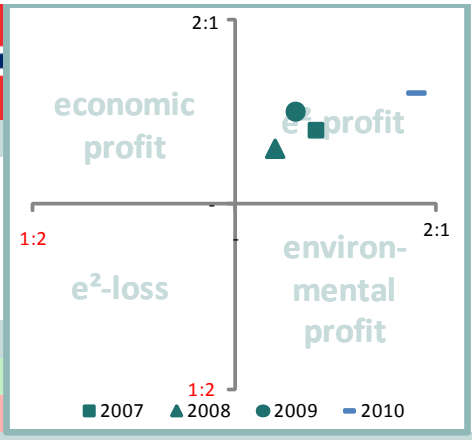
Telia Sonera's overall e^2-Value performance was below the benchmark over the study period varying from -€90.6m (2006) to -€661.7m (2008), whilst the RCR varied between a narrow range from 1:1 (2006) to 1:1.2 (2008). The driver to the below benchmark performance was the contribution from use of capital.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.1	0.8	1.1
CO_2-emissions		0.5	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 3,311.7m	-€ 3,924.3m	-€ 4,649.1m	-€ 3,783.9m	-€ 3,865.2m	-€ 3,771.9m
CO_2 value contribution	€ 3,130.4m	€ 3,246.6m	€ 3,325.6m	€ 2,960.0m	€ 2,987.8m	€ 2,228.3m
e^2-Value	**-€ 90.6m**	**-€ 338.8m**	**-€ 661.7m**	**-€ 411.9m**	**-€ 438.7m**	**-€ 771.8m**
Return to Cost Ratio	**1 : 1**	**1 : 1.1**	**1 : 1.2**	**1 : 1.1**	**1 : 1.1**	**1 : 1.2**

Tomra Systems ASA

Engineering & Machinery



Summary

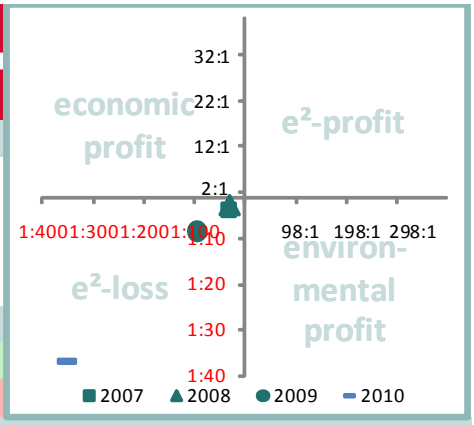
Tomra Systems' e^2-Value performance was above the benchmark for all years analysed (2007-2010) with a RCR ranging from 1.3:1 (2008) to 1.7:1 (2010). The overall performance was made up of positive contributions from both use of capital and CO_2 emissions, both of which varied over the period.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.1	0.9	1.1
CO_2-emissions		1.2	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	€ 47.3m	€ 39.0m	€ 54.0m	€ 68.5m	€ 70.0m
CO_2 value contribution	N/A	€ 51.8m	€ 32.6m	€ 32.6m	€ 90.9m	€ 10.1m
e^2-Value	**N/A**	**€ 49.5m**	**€ 35.8m**	**€ 43.3m**	**€ 79.7m**	**€ 40.0m**
Return to Cost Ratio	**N/A**	**1.4 : 1**	**1.3 : 1**	**1.4 : 1**	**1.7 : 1**	**1.3 : 1**

TORM

Transportation



Summary

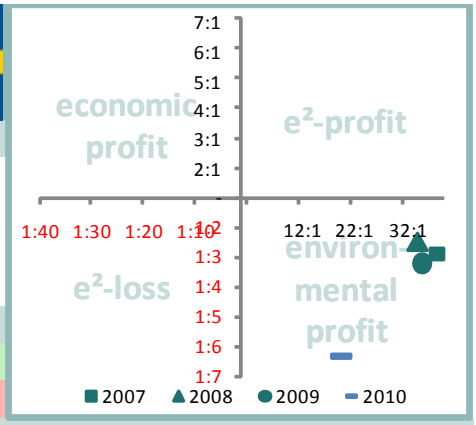
TORM's e^2-Value was below the benchmark varying over a small range from -€3,218.9m (2007) to -€4,291.5m (2008). The main driver to the overall performance was a poor performance from CO_2 emissions. The RCR decreased from 1:16.6 (2008) to 1:193.7 (2010).

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.1	0.8	1.1
CO_2-emissions		0.9	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	-€ 499.3m	-€ 499.1m	-€ 601.8m	-€ 737.9m	-€ 728.8m
CO_2 value contribution	N/A	-€ 5,938.5m	-€ 8,083.9m	-€ 7,509.9m	-€ 7,226.3m	-€ 13,020.0m
e^2-Value	**N/A**	**-€ 3,218.9m**	**-€ 4,291.5m**	**-€ 4,055.9m**	**-€ 3,982.1m**	**-€ 6,874.4m**
Return to Cost Ratio	**N/A**	**1 : 18.1**	**1 : 16.6**	**1 : 51.2**	**1 : 193.7**	**1 : 333.6**

Trygvesta A/S

Financial Services



Summary

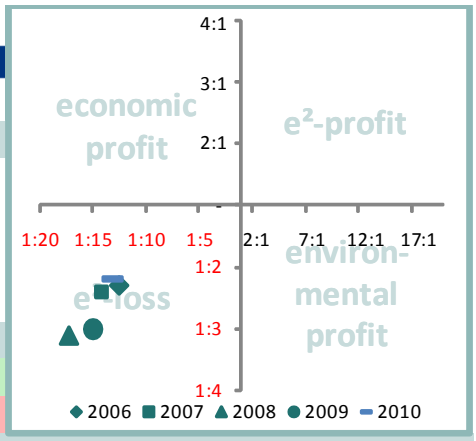
Trygvesta's e^2-Value performance was below the benchmark throughout the study period with an associated RCR ranging from 1:3.2 (2010) to 1:1.3 (2008). The main driver to the overall performance was the below benchmark contribution from use of capital.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.5	0.9	1.1
CO_2-emissions		1.2	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	-€ 1,291.1m	-€ 1,013.7m	-€ 1,249.0m	-€ 1,764.1m	-€ 1,739.1m
CO_2 value contribution	N/A	€ 678.8m	€ 642.3m	€ 555.7m	€ 315.3m	€ 302.2m
e^2-Value	**N/A**	**-€ 306.2m**	**-€ 185.7m**	**-€ 346.6m**	**-€ 724.4m**	**-€ 718.5m**
Return to Cost Ratio	**N/A**	**1 : 1.4**	**1 : 1.3**	**1 : 1.6**	**1 : 3.2**	**1 : 3.2**

UPM Kymmene

Forestry & Paper



Summary

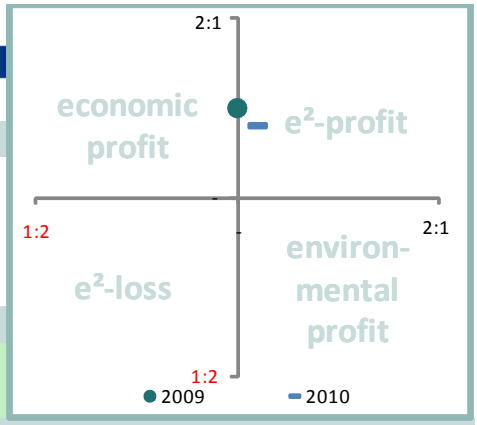
UPM Kymmene's e^2-Value performance was well below the benchmark throughout the study period, with an associated RCR which decreased from 1:7.4 in 2006 to 1:10.2 in 2008 before increasing to 1:7.7 in 2010. The largest contribution to the overall performance was from the CO_2 emissions performance.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	0.9	1	1.1
CO_2-emissions		1.2	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 2,740.8m	-€ 2,723.4m	-€ 3,046.6m	-€ 2,770.0m	-€ 2,287.7m	-€ 2,236.8m
CO_2 value contribution	-€ 24,782.1m	-€ 26,328.9m	-€ 23,152.0m	-€ 18,961.1m	-€ 23,970.2m	-€ 44,711.3m
e^2-Value	**-€ 13,761.4m**	**-€ 14,526.1m**	**-€ 13,099.3m**	**-€ 10,865.5m**	**-€ 13,129.0m**	**-€ 23,474.1m**
Return to Cost Ratio	**1 : 7.4**	**1 : 8.3**	**1 : 10.2**	**1 : 9**	**1 : 7.7**	**1 : 12.9**

Uponor Suomi Oy

Sanitary Systems



Summary

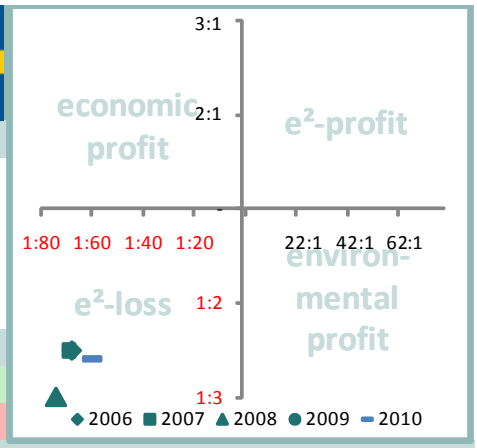
Uponor Suomi Oy's e^2 performance was slighlty above the benchmark in both years analysed with RCRs of 1.2:1 in 2009 increasing to 1.3:1 in 2010. The largest contribution to this performance was from use of capital.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1	1	1
CO_2-emissions		1.2	1

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	N/A	N/A	€ 72.7m	€ 68.4m	€ 70.2m
CO_2 value contribution	N/A	N/A	N/A	€ 4.0m	€ 24.0m	-€ 134.2m
e^2-Value	**N/A**	**N/A**	**N/A**	**€ 38.3m**	**€ 46.2m**	**-€ 32.0m**
Return to Cost Ratio	**N/A**	**N/A**	**N/A**	**1.2 : 1**	**1.3 : 1**	**1 : 1.1**

Vattenfall

Utilities



Summary

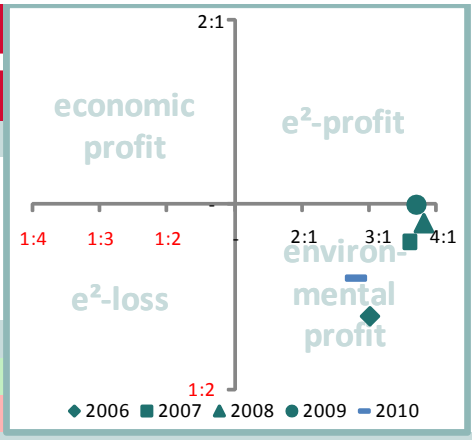
Vattenfall's e^2-Value performance was extremely far below the benchmark and deterioated from -€ 169,212.8m (2006) to -€ 200,574.5m (2010). The poor performance was largely due to the poor CO_2 contribution. The RCR fell from 1:35.1 (2006) to 1:40 (2009) before improving to 1:31.2.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.4	0.6	1.1
CO_2-emissions		0.9	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 7,049.0m	-€ 7,317.8m	-€ 10,084.4m	-€ 12,239.1m	-€ 10,812.5m	-€ 10,604.0m
CO_2 value contribution	-€ 313,376.6m	-€ 339,074.5m	-€ 359,355.5m	-€ 369,275.0m	-€ 390,336.5m	-€ 707,696.5m
e^2-Value	**-€ 160,212.8m**	**-€ 173,196.1m**	**-€ 184,719.9m**	**-€ 190,757.1m**	**-€ 200,574.5m**	**-€ 359,150.2m**
Return to Cost Ratio	**1 : 35.1**	**1 : 35.6**	**1 : 38.5**	**1 : 40**	**1 : 31.2**	**1 : 55.1**

Vestas Wind Systems

Engineering & Machinery



Summary

Vestas' e^2-Value performance was above the benchmark throughout the study period, however the RCR improved from 1:1 in 2006 to 1.5:1 in 2008 and 2009 before falling back to 1.1:1. The contribution from use of capital was negative, however the CO_2 performance was larger and positive.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	2	0.5	1.1
CO_2-emissions		0.5	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 440.1m	-€ 257.0m	-€ 123.2m	-€ 87.1m	-€ 622.3m	-€ 597.0m
CO_2 value contribution	€ 490.7m	€ 828.6m	€ 1,161.4m	€ 1,333.4m	€ 958.4m	€ 531.8m
e^2-Value	**€ 25.3m**	**€ 285.8m**	**€ 519.1m**	**€ 623.2m**	**€ 168.0m**	**-€ 32.6m**
Return to Cost Ratio	**1 : 1**	**1.3 : 1**	**1.5 : 1**	**1.5 : 1**	**1.1 : 1**	**1 : 1**

Wärtsilä Corporation

Engineering & Machinery

Summary

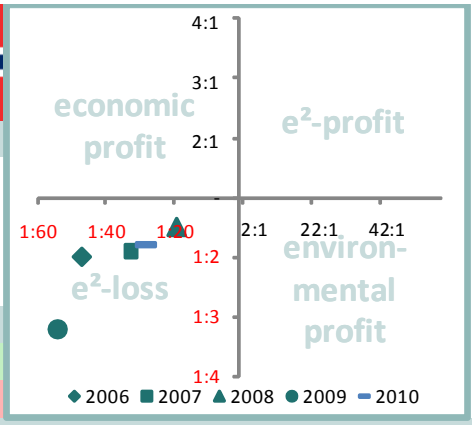
Wärtsilä Corporation's e^2-Value performance was above the benchmark throughout the study period and the associated RCR increased from 1.2:1 in 2006 to 1.4:1 in 2010. The overall performance was driven by strong CO_2 performance, however the use of capital contribution was negative in all years except 2009.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	1.3	0.8	1.1
CO_2-emissions		1.1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	N/A	-€ 157.3m	-€ 160.1m	€ 108.0m	-€ 33.3m	-€ 16.5m
CO_2 value contribution	N/A	€ 474.2m	€ 565.7m	€ 828.9m	€ 778.3m	€ 298.8m
e^2-Value	**N/A**	**€ 158.4m**	**€ 202.8m**	**€ 468.5m**	**€ 372.5m**	**€ 141.2m**
Return to Cost Ratio	**N/A**	**1.2 : 1**	**1.2 : 1**	**1.5 : 1**	**1.4 : 1**	**1.1 : 1**

Yara International

Chemicals



Summary

Yara's e²-Value performance was significantly below the benchmark and fell from -€16,116.2m (2006) -€19,187.1m. The overall performane was made up of below benchmark performance for both use of capital and CO2 emissions, however the CO2 emissions were a much larger factor.

Performance effects	*Return*	*Resources*	*Benchmark*
Total Assets	2	0.5	1.1
CO_2-emissions		1	0.9

Performance	2006	2007	2008	2009	2010	2010 --> 2020
Capital value contribution	-€ 661.8m	-€ 930.3m	-€ 1,072.2m	-€ 1,416.4m	-€ 1,092.3m	-€ 1,062.9m
CO_2 value contribution	-€ 31,570.6m	-€ 32,365.9m	-€ 36,335.7m	-€ 34,801.0m	-€ 37,282.0m	-€ 68,178.6m
e²-Value	**-€ 16,116.2m**	**-€ 16,648.1m**	**-€ 18,704.0m**	**-€ 18,108.7m**	**-€ 19,187.1m**	**-€ 34,620.8m**
Return to Cost Ratio	**1 : 24.5**	**1 : 17.2**	**1 : 10.4**	**1 : 28.7**	**1 : 15.1**	**1 : 26.4**

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