Which Companies Create Sustainable Value

First Insights from a new Research Project

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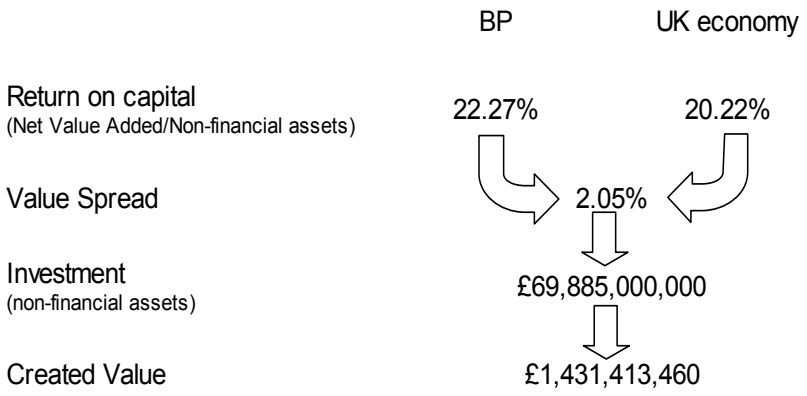
What's this presentation all about?

- Introduction of the Sustainable Value approach.
- Presentation of the ADVANCE-Project.
- Presentation of the first empirical results on the creation of Sustainable Value by European companies.
- Implications and discussion.

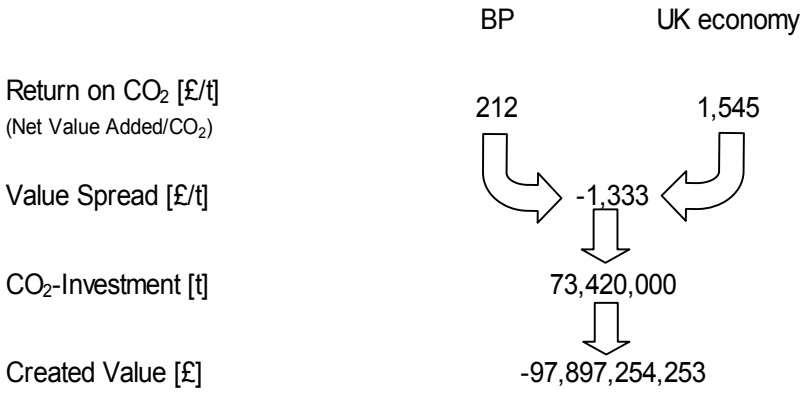
Here's what David Green had to say...
...in 1894

> But, when we once recognize the sacrifice of opportunity as an element in the cost of production, we find that the principle has a very wide application. Not only time and strength, but commodities, capital, and many of the free gifts of nature, such as mineral deposits and the use of fruitful land, must be economized if we are to act reasonably. Before devoting any one of these resources to a particular use, we must consider the other uses from which it will be withheld by our action; and the most advantageous opportunity which we deliberately forego constitutes a sacrifice for which we must expect at least an equivalent return.
>
> (Green 1894)

Let's look at it in economic terms:
Creating economic value



... an analogous environmental perspective: Creating environmental value



The Sustainable Value Approach

- Sustainable Value allows to express sustainability performance in monetary terms, i.e. in €, £ or US-$.
- Sustainable Value allows to assess the sustainable performance of companies or other economic entities similar to financial performance.
- Sustainable Value is based on opportunity costs.
- It allows an integrative triple bottom line performance assessment.
- The assessment is based on data which is publicly available.
- And it does not require external cost figures or similar.

The ADVANCE - Project

- **ADVANCE** is an EU-funded project to assess the sustainable performance of European industry using the Sustainable Value-approach.
- We will assess more than 50 companies until the end of this year.
- Assessment results will be published in a survey and the methodology will be published in a handbook.
- We will present the findings of our project in conferences all over Europe.
- Visit our project website for more information:

  www.advance-project.org

The use of the Sustainable Value concept in the ADVANCE project.

- Companies use resources.
  - Does a company contribute to sustainability of the national economy, region or industry it operates in?
  - Which resources are used in a value-creating way, which are not?

    ➔ **Past & Current Performance Scenario**
  - Does the company meet reduction targets and still creates Sustainable Value?

    ➔ **Future Scenario**

Practical questions to be addressed before using Sustainable Value

- The Sustainable Value methodology requires figures
  - on the value created and
  - the burden (i.e. emissions) caused

  both on a
  - corporate and a
  - benchmark level (e.g. EU level).
- Figures on the corporate and the benchmark level must be consistent
  - in scope
  - in time
  - in data quality

The choice of the benchmark.

- The choice of the benchmark determines the opportunity cost of the use of environmental resources in companies.
- Benchmark can differ
  - in time (past-oriented vs. future-oriented)
  - in scope (geographical, sector specific).
- The benchmark represents the level to which the use of environmental resources in companies is compared.

  →It determines the explanatory power of Sustainable Value.

  →The benchmark should be chosen with deliberation.

Practical steps to use Sustainable Value

- Choose the resources you want to look at.
  → In ADVANCE we look at a set of the following environmental resources: CO_2, SO_2, NO_x, Water, Waste, CH_4 and VOC.
- Choose your benchmark.
  → In ADVANCE the EU15-level serves as the benchmark.
- Collect data on company and benchmark level.
  → ADVANCE: Two Scenarios
  Past performance 2001–2003 and target performance for 2010.
- Calculate Sustainable Value.
  → In ADVANCE: Past performance scenario and future scenario.
- Interpret Sustainable Value.

The rating universe in ADVANCE

- Some 60+ listed companies from the manufacturing sector...
- ... coming from 16 different European countries...
- ... and 19 different sectors.
- Data mining is based on publicly available sources (company reports and websites, EU statistics)
- Sustainable Value can be used for a triple bottom line assessment, however, in ADVANCE we use the approach for a purely environmental assessment.
  → Sustainable Value^{Env}
- Which European companies use their bundle of environmental resources in a value-creating way?

The 5 steps of calculating Sustainable Value

1. Calculate corporate efficiency for each resource.
2. Calculate the efficiency of resource use of the benchmark (opportunity cost).
3. Calculate the value spread (1-2).
4. Multiply with the amount of resources used in the company in order to get the value contribution.
5. Calculate the Sustainable Value by summing up the value contributions and dividing by the number of resources considered.

Sustainable Value^{Env} of Imperial Chemical Industries in 2003...

	Amount of resources used		Efficiency of Imperial Chemical Industries [€/unit] ①		Efficiency of EU 15 [€/unit] ②		Value Contribution ④
CO_2-emissions [t]	2,412,322	* (	1,215	-	2,701)	=	-3,586,836,384 €
NO_x-emissions [t]	3,924	* (	746,662	-	1,004,300)	=	-1,010,972,538 €
SO_x-emissions [t]	4,413	* (	663,911	-	1,779,304)	=	-4,922,327,177 €
Waste generated [t]	644,811	* (	4,544	-	6,270)	=	-1,112,972,765 €
Water used [m³]	45,129,219	* (	65	-	41)	=	1,058,249,403 €
VOC-emissions [t]	2,232	* (	1,312,679	-	970,676)	=	763,350,297 €
CH_4-emissions [t]	0.3	* (	9,766,333,000	-	586,083)	=	2,929,724,075 €
			③				
Sustainable Value Env of Imperial Chemical Industries in 2003							**-840,255,013 €** ⑤

... and over the years 2001 to 2003.

Imperial Chemical Industries

	2001	2002	2003
CO_2-emissions [t]	-3,419,960,197 €	-2,992,277,314 €	-3,586,836,384 €
NO_x-emissions [t]	772,129,604 €	-520,078,568 €	-1,010,972,538 €
SO_x-emissions [t]	-2,800,598,165 €	-3,997,138,298 €	-4,922,327,177 €
Waste generated [t]	-645,737,905 €	-637,735,199 €	-1,112,972,765 €
Water used [m³]	-614,312,121 €	805,400,326 €	1,058,249,403 €
VOC-emissions [t]	-548,385,686 €	1,416,252,896 €	763,350,297 €
CH_4-emissions [t]	3,469,658,522 €	3,213,535,711 €	2,929,724,075 €
Sustainable Value Env	**-541,029,421 €**	**-387,434,350 €**	**-840,255,013 €**
SVE per Sales	-5.2%	-4.0%	-9.9%

Another Example: OMV Group

OMV

	2001	2002	2003
CO_2-emissions [t]	-11,111,116,825 €	-12,228,409,884 €	-13,854,133,170 €
NO_x-emissions [t]	-4,878,500,735 €	-5,194,861,066 €	-5,026,070,708 €
SO_x-emissions [t]	-7,249,021,068 €	-8,310,673,276 €	-9,142,439,008 €
Waste generated [t]	1,126,604,805 €	999,672,898 €	1,252,472,659 €
Water used [m³]	606,107,229 €	512,031,370 €	637,870,475 €
VOC-emissions [t]	-197,818,561 €	-489,240,214 €	-312,845,227 €
CH_4-emissions [t]	216,339,113 €	-164,139,116 €	-25,792,606,407 €
Sustainable Value Env	**-3,069,629,435 €**	**-3,553,659,898 €**	**-7,462,535,912 €**
SVE per Sales	-39.7%	-50.2%	-97.6%

And another one: VATech

VATech

	2001	2002	2003
CO_2-emissions [t]	821,613,837 €	749,021,478 €	759,737,380 €
NO_x-emissions [t]	1,194,996,391 €	1,092,748,340 €	1,087,655,907 €
SO_x-emissions [t]	1,211,083,152 €	1,108,082,365 €	1,103,463,356 €
Waste generated [t]	1,067,769,238 €	980,945,336 €	995,405,155 €
Water used [m³]	1,204,243,834 €	1,106,356,111 €	1,103,061,051 €
VOC-emissions [t]	967,501,678 €	839,812,133 €	788,960,985 €
CH_4-emissions [t]	1,142,535,761 €	1,032,637,462 €	1,024,008,740 €
Sustainable Value Env	**1,087,106,270 €**	**987,086,175 €**	**980,327,511 €**
SVE per Sales	27.2%	25.5%	25.0%

Past Performance vs. Future Scenario

- So far the past performance of the companies has been analysed.
- Sustainability requires that corporate performance is improved.
- Thus, we lift the bar and choose target efficiencies as a benchmark.
- These target efficiencies are composed of:
  - Growth targets
  - Kyoto targets (CO_2 and CH_4)
  - Gothenburg targets (SO_2, NO_x, VOC)
  - EU waste targets
  - Extrapolation of water use
- Target year is 2010.
- Which European companies are already set for meeting 2010's performance targets?

Some results from the Future Scenario (i)

Imperial Chemical Industries

	2003	Future Scenario
CO2-emissions [t]	-3,586,836,384 €	-6,076,165,217 €
NOx-emissions [t]	-1,010,972,538 €	-4,658,122,674 €
SOx-emissions [t]	-4,922,327,177 €	-10,979,205,870 €
Waste generated [t]	-1,112,972,765 €	-3,390,639,807 €
Water used [m³]	1,058,249,403 €	559,643,782 €
VOC-emissions [t]	763,350,297 €	-1,650,712,199 €
CH4-emissions [t]	2,929,724,075 €	2,929,725,989 €
Sustainable Value Env	**-840,255,013 €**	**-3,323,639,428 €**

Some results from the Future Scenario (ii)

OMV

	2003	Future Scenario
CO2-emissions [t]	-13,854,133,170 €	-19,736,090,200 €
NOx-emissions [t]	-5,026,070,708 €	-11,106,513,161 €
SOx-emissions [t]	-9,142,439,008 €	-17,385,555,152 €
Waste generated [t]	1,252,472,659 €	1,088,199,433 €
Water used [m³]	637,870,475 €	396,462,955 €
VOC-emissions [t]	-312,845,227 €	-2,381,887,142 €
CH4-emissions [t]	-25,792,606,407 €	-25,495,089,280 €
Sustainable Value Env	**-7,462,535,912 €**	**-10,660,067,507 €**

Some results from the Future Scenario (iii)

VATech

	2003	Future Scenario
CO2-emissions [t]	759,737,380 €	620,281,338 €
NOx-emissions [t]	1,087,655,907 €	1,053,266,367 €
SOx-emissions [t]	1,103,463,356 €	1,086,993,594 €
Waste generated [t]	995,405,155 €	922,498,446 €
Water used [m³]	1,103,061,051 €	1,097,265,824 €
VOC-emissions [t]	788,960,985 €	414,738,035 €
CH4-emissions [t]	1,024,008,740 €	1,025,105,860 €
Sustainable Value Env	**980,327,511 €**	**888,592,780 €**

Let's wrap up for today

- Sustainable Value is the first value-oriented approach to corporate sustainable performance assessment.
- It's based on opportunity cost and compatible with managerial thinking.
- It shows whether resources are used in companies in a value-creating way.
- Sustainable Value assesses corporate sustainable performance in monetary terms.
- ADVANCE demonstrates the applicability of the Sustainable Value approach on a large European scale.
- The results of ADVANCE will be published in a survey.
- A handbook as well as training workshops will follow.

Publications

- Figge, F. & Hahn, T. (forthcoming): "The Cost of Sustainability Capital and the Creation of Sustainable Value of Companies", Journal of Industrial Ecology.
- Figge, F. & Hahn, T, (forthcoming): "Sustainable Value - Ein wertorientierter Ansatz zur Ermittlung der Nachhaltigkeitseffizienz und der nachhaltigen Wertschöpfung von Unternehmen", in: Busch, T. & Liedke, C. (Hrsg.): Materialeffizienz: Potenziale bewerten, Innovationen fördern, Beschäftigung sichern. München: ökom.
- Figge, F. & Hahn, T. (2004): "Sustainable Value Added. Measuring Corporate Contributions to Sustainability Beyond Eco-Efficiency", Ecological Economics, 48(2), 173-187.
- Figge, F. & Hahn, T. (2004): "Value-oriented impact assessment: the economics of a new approach to impact assessment", Journal of Environmental Planning and Management, 47(6), 921-941.
- Figge, F. & Hahn, T. (2004): "Sustainable Value Added - ein neues Maß des Nachhaltigkeitsbeitrags von Unternehmen am Beispiel der Henkel KGaA", Quarterly Journal of Economic Research, 73(1), 126-141.
- Figge, F. (2001): "Environmental Value Added - Ein neues Maß zur Messung der Öko-Effizienz", Zeitschrift für Angewandte Umweltforschung, 14(1-4), 184-197.

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