
How does green investment help promoting sustainable development ?

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What does sustainable development mean ? (I)

1. „Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.“

(World Commission on Environment and Development
(Brundtland Report, 1987))

2. „Ein nachhaltiges Unternehmen erbringt Mehrwert in den drei Bereichen: Ökonomie, Ökologie und Soziales. Diese sogenannte Triple-Bottom-Line ist die Grundlage für längerfristig erfolgreiche Investitionen mit attraktiven Renditen

und minimierten Risiken für den Anleger.“

(SustainablePerformance Group, GB 2002, S.8)

What does sustainable development mean ? (II)

(Non completing criteria)

- Non declining utility of future generations (intertemporal solidarity)
- Weak form of sustainability:
Substitution of non renewables with renewables
- Intratemporal solidarity (North-South gap)
- Preservation of biodiversity
- Reduction of CO2-Emissions.
- ...

Motives for and Forms of Green Investment

- Motives for Green Investment of private investors:
 - Profit Orientation (f.e. Backstop-Technology)
 - Ethical considerations
 - Conscience (Feel good factor)
- Forms of Green Investment / Actors:
 - SRI or other topical Portfolios (Public)
 - Foundations/Donations
 - Entrepreneurs/Private Equity
- Facts and questions:
 - No empirical proof for SRI case yet
 - Equal treatment for companies of growth/mature industries ?
 - Companies/Management interested in high stock price

Resource Economics

- Interaction between Economy, Environment and Resources
- Implications of limited Resources on Economy
- Implications of markets and prices on development of Environment and Resources
- Endogenous long term growth and incentives of investments in Research and Development and Human Capital
- Sustainability: Human Capital and Knowledge as Substitutes for finite Resources

- Motors of change mechanism:
 - processes of substitution
 - sectoral structural change
 - negative and positive external effects
 - Incentive systems for homo oeconomicus

Stakeholder vs Shareholder Model

- Limitations of the Shareholder Model:
 - Firm as a black box
 - Homo oeconomicus clearly focussed on own utility
- Limitations of the Stakeholder Model:
 - Appropriateness of Stakeholder groups
 - Unclear guidelines for Management
 - Division of residual income
 - Behaviour of owners (shareholders)

Static Model: When will polluting firms invest in abatement? (I)

Input of the static Model:

- 2 investor groups: green and neutral
- 2 types of companies: polluting and clean technology
- Polluting companies can switch to clean technology
- Shares of clean and polluting firms are not perfectly correlated (different „asset classes“)

- Question: Under which circumstances will some firms with polluting technology switch to clean technology ?

Static Model: When will polluting firms invest in abatement? (II)

$$u_N = x_{NP}(\mu_P - P_P) + x_{NC}(\mu_C - P_C) - \frac{x_{NP}^2 \sigma_P^2 + x_{NC}^2 \sigma_C^2 + 2x_{NP}x_{NC}\sigma_{PC}}{2\tau} \quad (1)$$

$$u_G = x_{GC}(\mu_C - P_C) - \frac{x_{GC}^2 \sigma_C^2}{2\tau} \quad (2)$$

$$P_C = P_P + A \quad (3)$$

Static Model: When will polluting firms invest in abatement? (III)

x_{NC} : number of shares of clean firms held by neutral investors

x_{NP} : number of shares of polluting firms held by neutral investors

$\mu_P - P_P$: expected return of shares of polluting firms

$\mu_C - P_C$: expected return of shares of clean firms

σ_P^2 : variance of expected value of shares of polluting firms

σ_C^2 : variance of expected value of shares of clean firms

σ_{PC} is the covariance of expected values of shares of both categories,

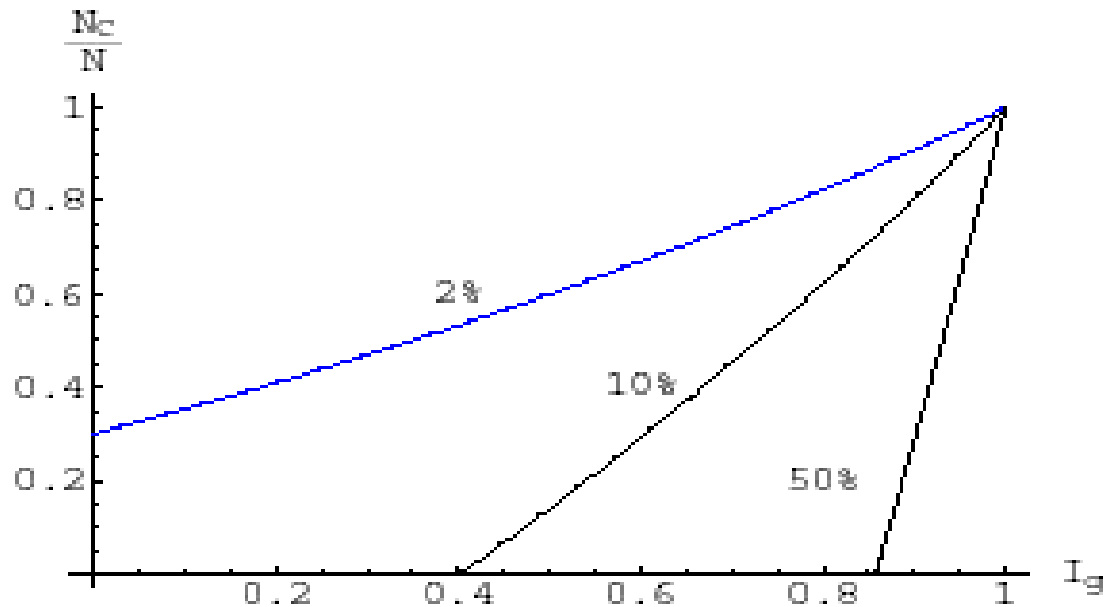
τ : Risk tolerance of investors

P_P is the price of shares of polluting firms

P_C is the price of shares of clean firms

A : costs of investment in abatement (switch to clean technology)

Static Model: When will polluting firms invest in abatement? (IV)



low abatement costs ($K = 2\%$): SRI case,
medium abatement costs ($K = 10\%$): altruistic green investors,
high abatement costs ($K = 50\%$): case for politics/regulator

Conclusions and Questions for Green Investment ...

- How can the population of green investors be raised ?
- How can forces be united ?
- How can transparency be raised ?
- How can most important topics/targets be identified ?
- Where should research be done ?

... and long-lasting questions of sustainable development

- What does sustainable development mean ?
- Which investment criteria are really compatible with sustainable development ?
- How to save Biodiversity and Ecosystems ?
- How to replace exhaustible resources with renewables ?