

Introduction to Sustainable Finance

Summer School 2024

Data Science For Sustainable Finance And Economics



Building Competence. Crossing Borders.

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posh@zhaw.ch, 09th September 2024

Curriculum Vitae Jan-Alexander Posth

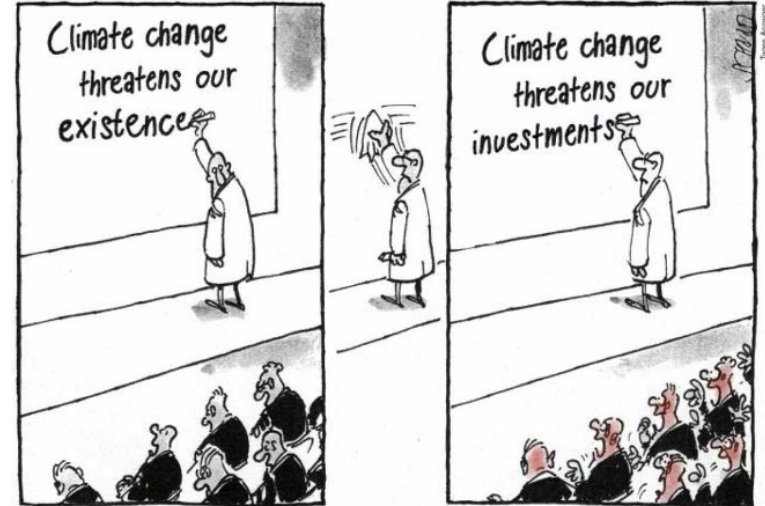
- Professor of Asset Management at the Institute of Wealth & Asset Management at the ZHAW School of Management and Law
- Research focus on GreenTech and AI in asset management and finance
- More than 12 years of professional experience in the financial industry
- PhD in theoretical physics



Many thanks to Dominik Boos for sharing slides

What I want you to take away today....

- The basics of Sustainable Investing
- Nature risk and its link to classical OpR
- How to quantify and rate ESG-related risk
- The Dark Side of Sustainable Investing



The basics of Sustainable Investing



Source: un.org

Why is sustainable investing so hard?



Source: oekotest.de; albert-schweitzer-stiftung.de; tagesschau.de

Why is sustainable investing so hard?



Source: [oekotest.de](https://www.oekotest.de); [albert-schweitzer-stiftung.de](https://www.albert-schweitzer-stiftung.de); [tagesschau.de](https://www.tagesschau.de)

Why is sustainable investing so hard?



Source: oekotest.de; albert-schweitzer-stiftung.de; tagesschau.de

Why is sustainable investing so hard?

- Variety of seals and quality characteristics
- Huge differences in husbandry
- Factory farming allowed even under organic criteria
- Only 4 out of 20 organic eggs recommendable (Ökotest 2019)



Source: oekotest.de; albert-schweitzer-stiftung.de; tagesschau.de

... and why is it so important?

Sustainability is no longer about doing less harm. It's about doing more good.

Jochen Zeitz

What is Sustainable Investing? In any case, it is not new...

- von Carlowitz 1713 «Sylvicultura Oeconomica: oder Haußwirthliche Nachricht und Naturmäßige Anweisung zur Wilden Baum-Zucht»
- first religiously motivated SRI in the 1750s (e.g. Quakers)
- SR-targeted investments by U.S. union pension funds in the 1950s
- rapid growth of SRI- and ESG-compliant investments since 1990

So what IS Sustainable Investing?

The definition goes back to the "Brundtland Report" (1987):

"...development that meets the needs of the present without risking, that future generations will not be able to meet their own needs."

Sustainability in the financial context...

is generally understood as long-term decision making that integrates environmental (E), social (S), and governance (G) (ESG) aspects.

Two important elements: (i) long-term (ii) E - S - G



Report of the World Commission on Environment and Development

Our Common Future



**United Nations
1987**

UN Document: Gathering a Study of Global Agreements has been completed by the WCD Committee on Education of the Conference of WCDs from United Nations and also with the invaluable help of information & communications technology

Sustainable Investing: Terminology

Sustainable investing is an investment discipline that considers **environmental**, **social** and corporate **governance** (ESG) criteria to generate **long-term** competitive **financial returns** and **positive societal impact**. (US|SIF)

ESG is **the** modern label for sustainable investing.

SRI (socially responsible investing) is another label that is somewhat out of fashion. The distinction from ESG is rather blurred. In any case, SRI does not focus only on the "S".

ESG: Dimensions and Subcategories

Environmental	Social	Governance
Climate change and CO2 emissions	Customer satisfaction	Composition and structure of the BoD
Air and water pollution	Daten protection und privacy	Audit
Biodiversity	Equality and diversity	Bribery and corruption
Deforestation	Employee engagement	Remuneration of the Executive Board
Energy efficiency	Social climate	Lobbying
Waste disposal	Human rights	Political donations
Water scarcity	Employee protection	Whistleblower Procedure

Source: CFA (2015) und Krauss, Krüger, and Meyer (2016)

Sustainable Investing: Differentiation and Classification

Traditional investing



Milton Friedman

The [only] social responsibility of companies is to increase their profit.

Sustainable Investing



Profit and sustainability are both goals to strive for.

Philanthropy



Private initiatives to improve the quality of life for the general public (non-profit).

Sustainable Investing in the Financial World

Measuring sustainability at the corporate level starts at two points:

Behavior: HOW sustainable are a company's processes and behaviors?

Resource consumption, human rights (in the supply chain), employee satisfaction, health and safety, etc.

⇒ **ESG**

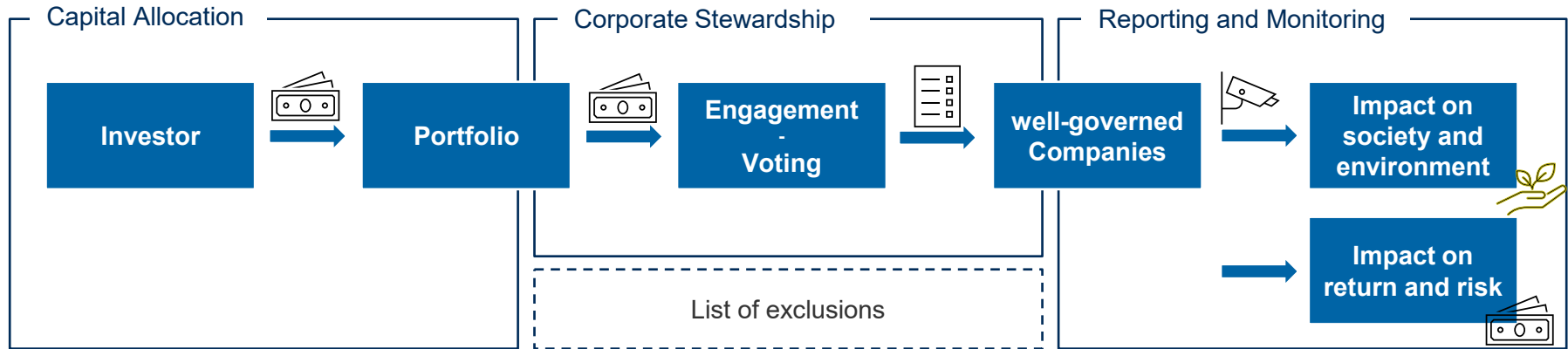
Product: WHAT does a company produce?

Are the products and services sustainable? Green energy, wastewater, air pollution, access to education, fossil fuels, tobacco, alcohol, etc.

⇒ **SDGs**

Source: Modified from Krüger (2020)

Sustainable Investing... made easy?

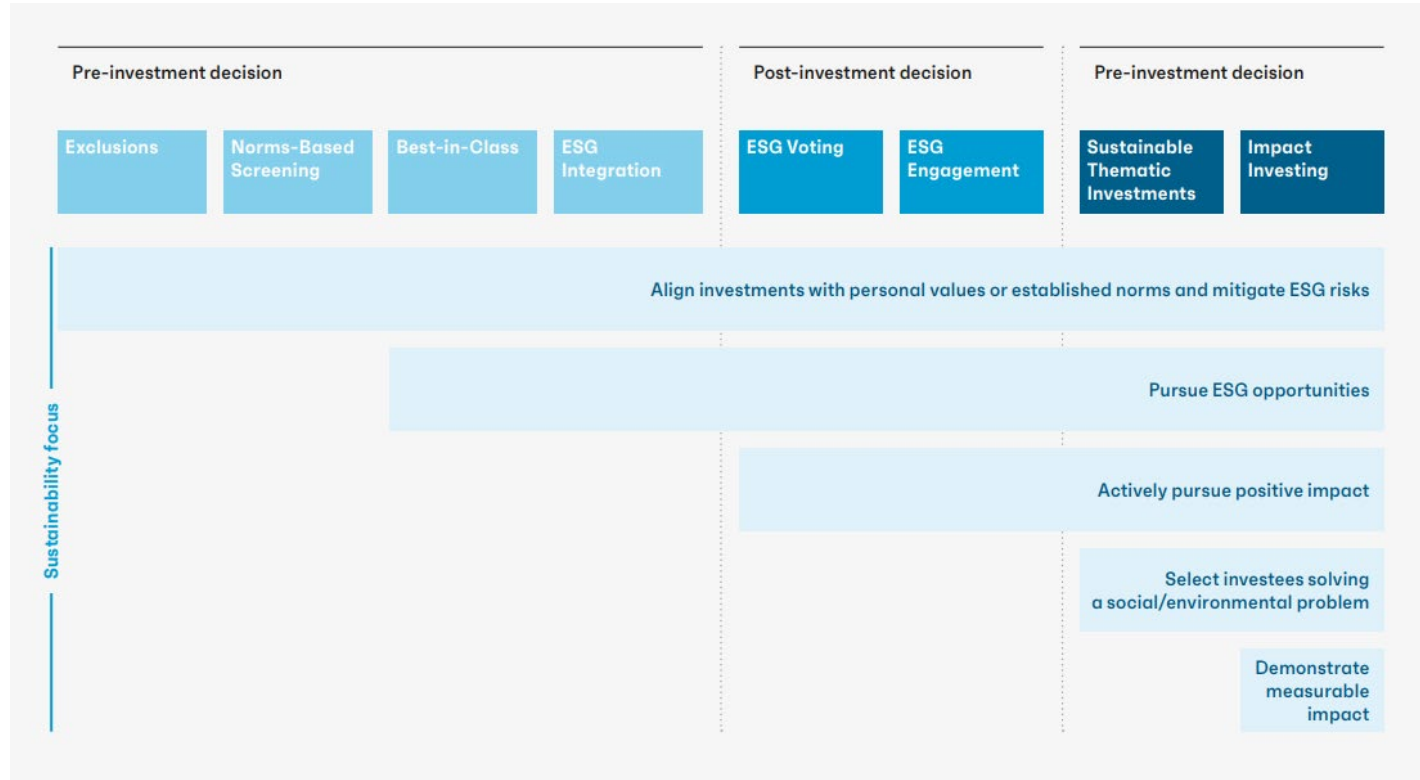


- What are my investment goals?
- In which companies / assets do I invest?
- On the basis of which data do I make decisions?
- Which partners do I work with?

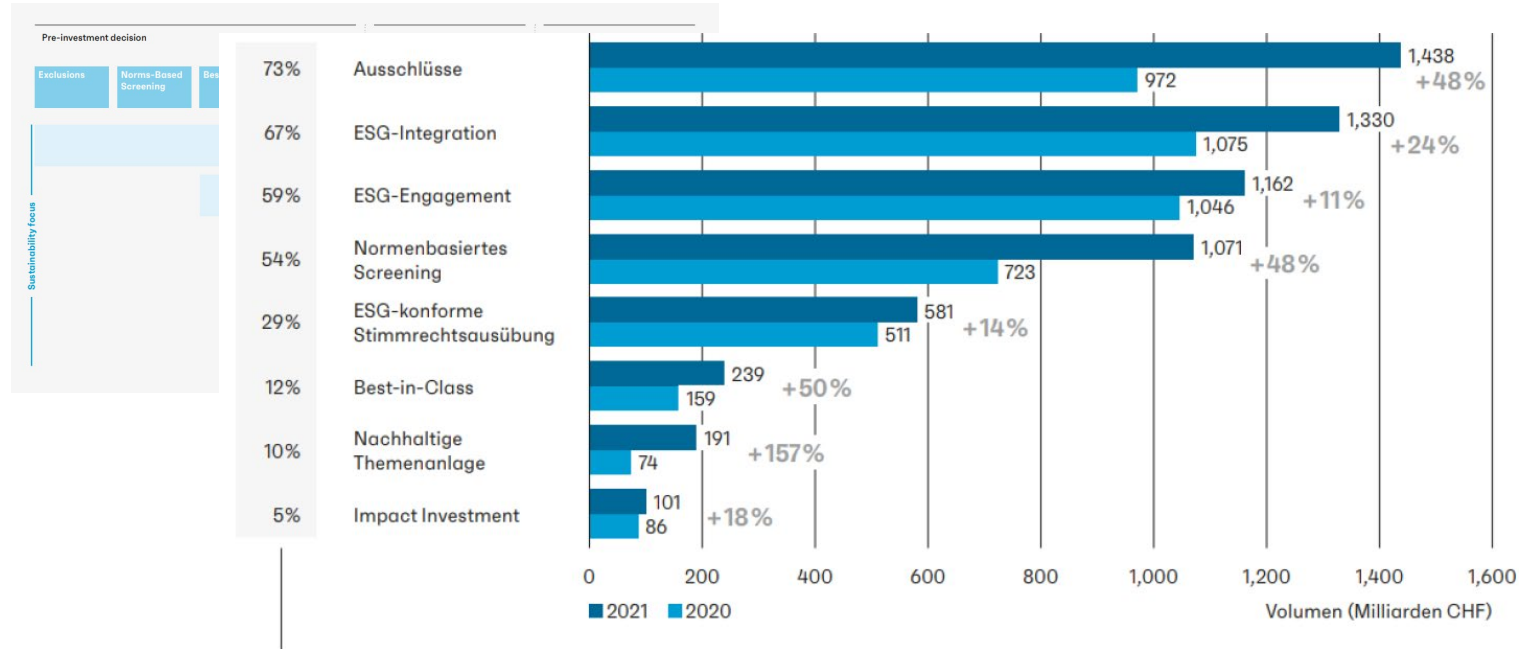
- How do I perceive governance in my investments?
- What principles do I use to vote?
- Do I participate in engagement campaigns?

- How do I create transparency?
- Am I achieving my financial goals?
- Am I achieving my sustainability goals?
- Am I making a difference in the real world?

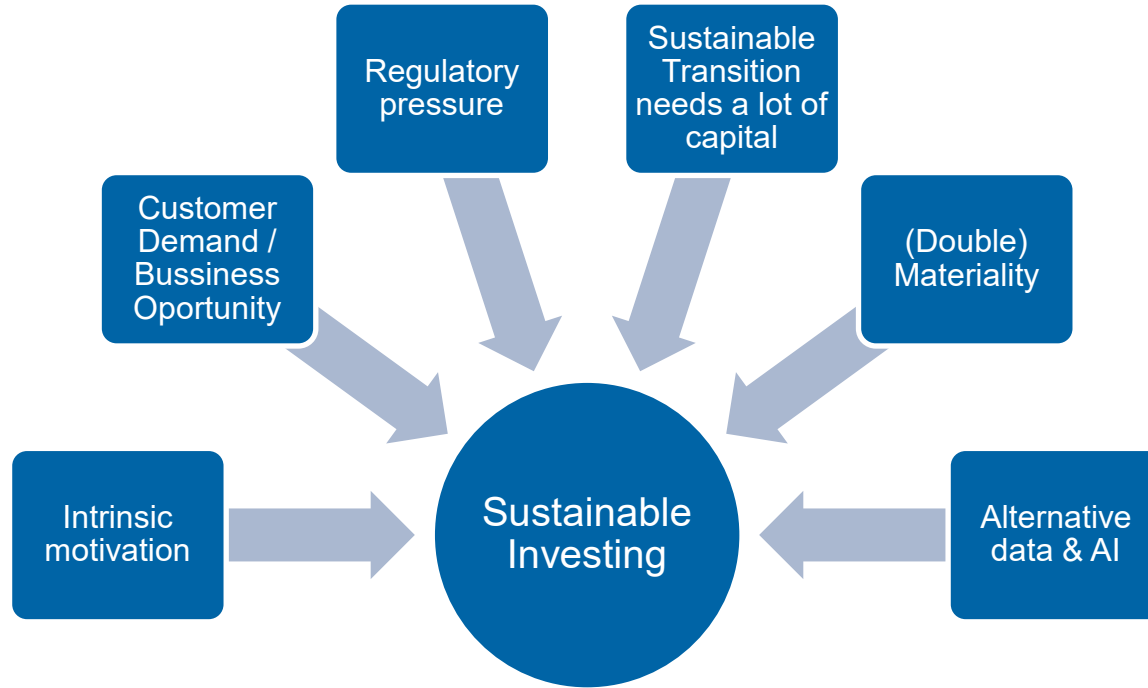
Sustainable Investment: Different Investment Approaches



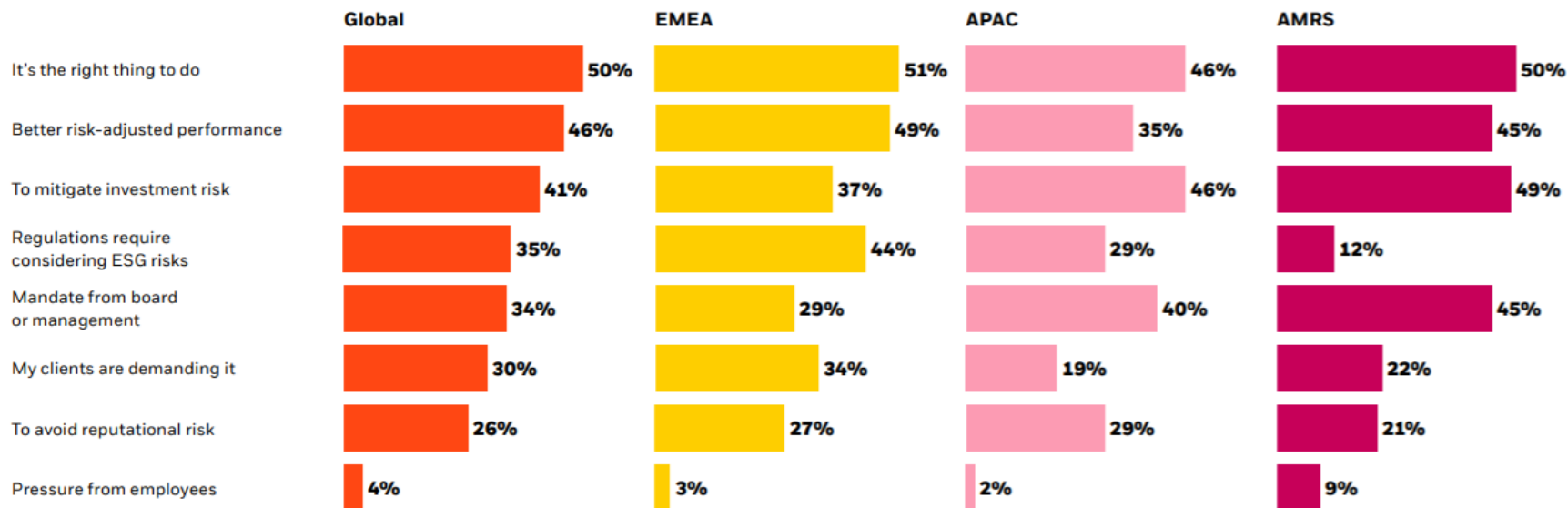
Sustainable Investment: Different Investment Approaches



Why Sustainable Investing: Many Reasons...



... of many different colors - and (almost) all are important!



Source: BlackRock Global Client Sustainable Investing Survey. July – September 2020

One of them: Regulatory Pressure

EU Commission «Action Plan»

- *Sustainability Taxonomy*: Classification system / list of environmentally sustainable activities
⇒ promotes sustainable investment to implement the European Green Deal.
- *Disclosure requirements*: Non-financial information must also be disclosed. This applies to large companies with more than 500 employees and to institutional investors and asset managers.
- *EU Green Bond Standard 2019*: Improve the efficiency, transparency, comparability and credibility of green bonds.
- *Mandatory disclosure of ESG risks* (in particular **physical** and **transformation risks** for large listed banks operating in the EU): Article 449a of EU Capital Requirements Regulation.
- *Queries on ESG preferences*: Financial products (MiFID II) and insurance (IDD).

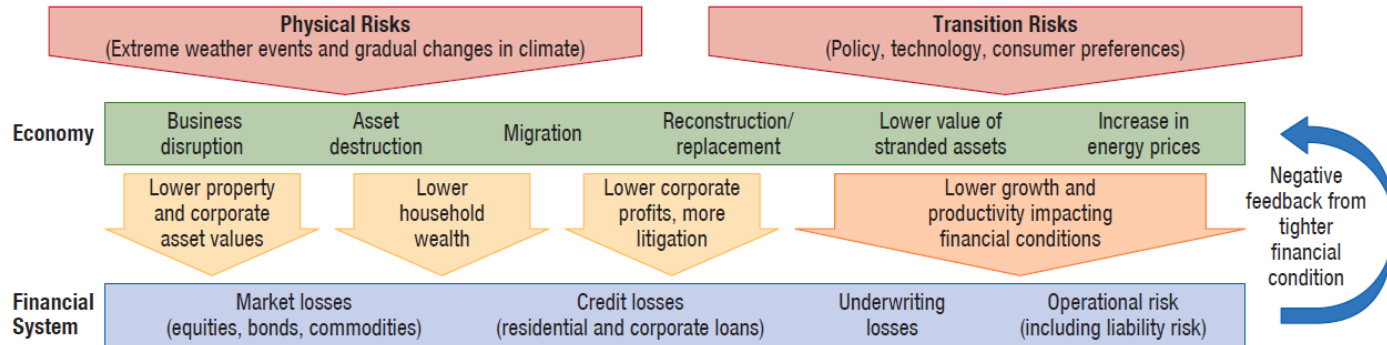
Source: https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en

Nature risk and its link to classical OpR

Figure 6.2. Financial Stability Risks from Climate Change

Extreme weather events, gradual changes in climate, and disruptions associated with the transition to a low carbon economy can affect asset prices and financial stability.

1. Physical and Transition Risks from Climate Change (adapted from NGFS)

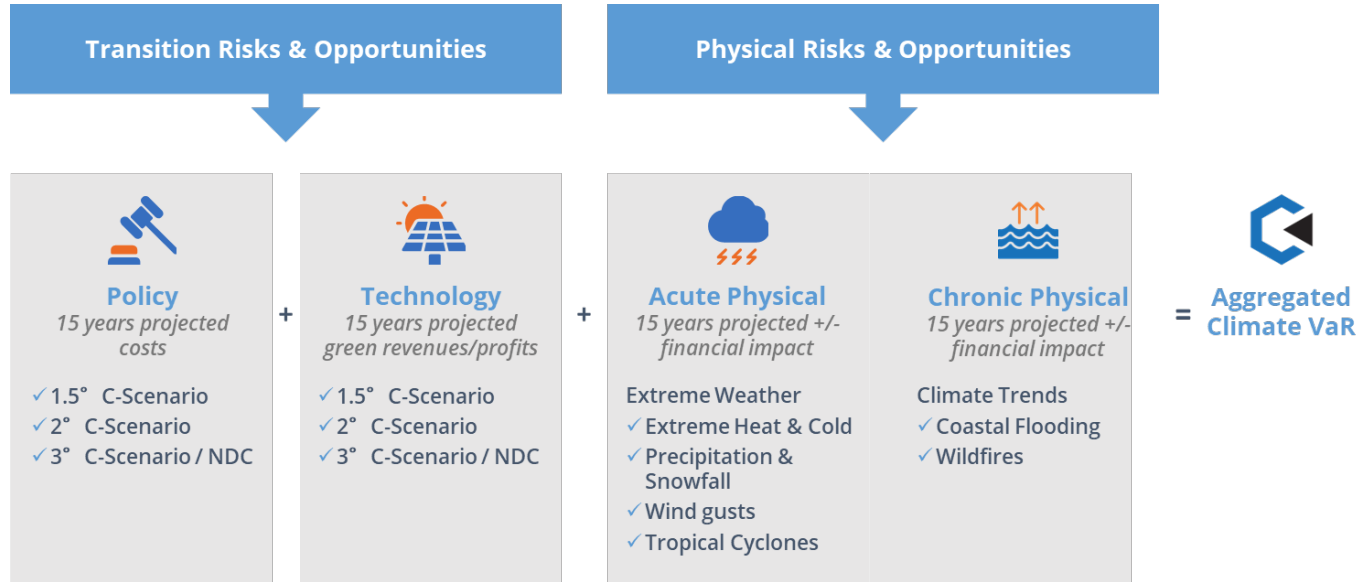


Physical Risks vs. Transition Risks

Climate change features among top-priority ESG issues. Two channels can be distinguished:

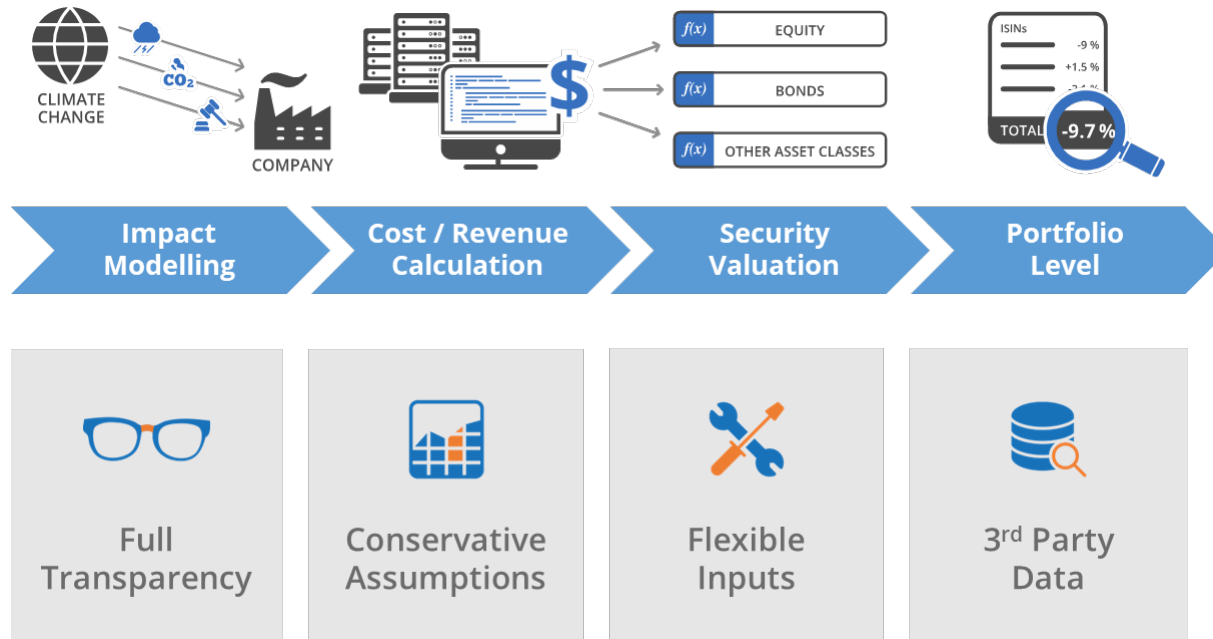
- ***Physical risks*** that arise from asset damage from catastrophic weather-related events and climate trends
- ***Transition risks*** that arise from changes in the price of assets and economic disruption because of evolving climate policy (taxes) and technology (e.g. car engine) during the adjustment to a lower-carbon economy

Introduction to Climate Risk: What is climate-change related risk?



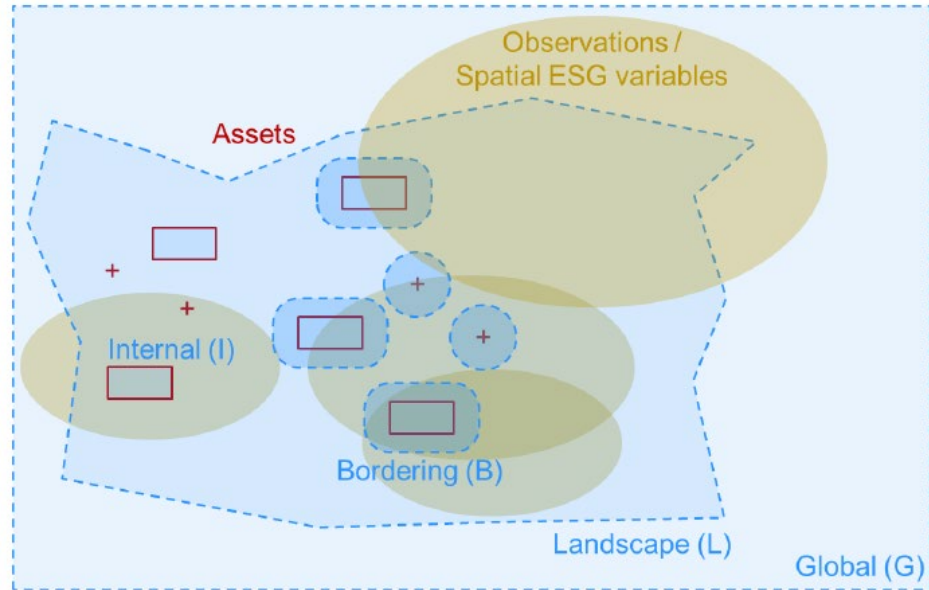
Source: CARBON DELTA (now MSCI CARBON DELTA), Innosuisse Innoscheck project 32873.1 INNO-SBM

Introduction to Climate Risk: How to model climate-change related risk



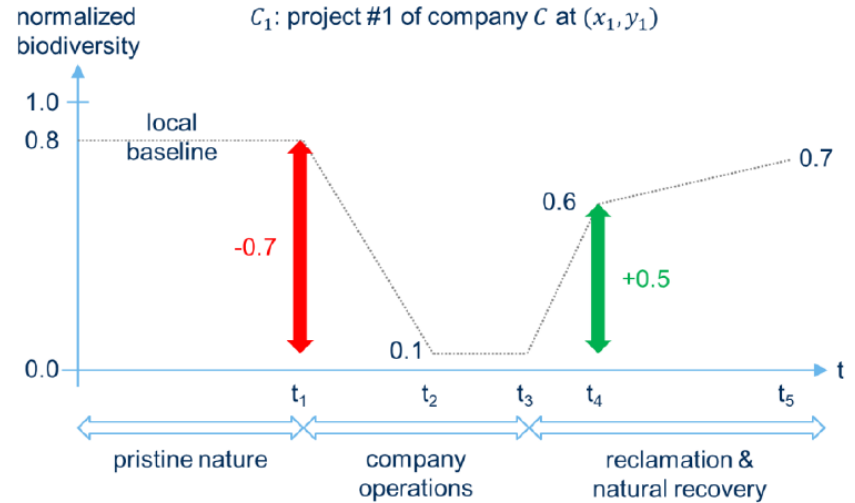
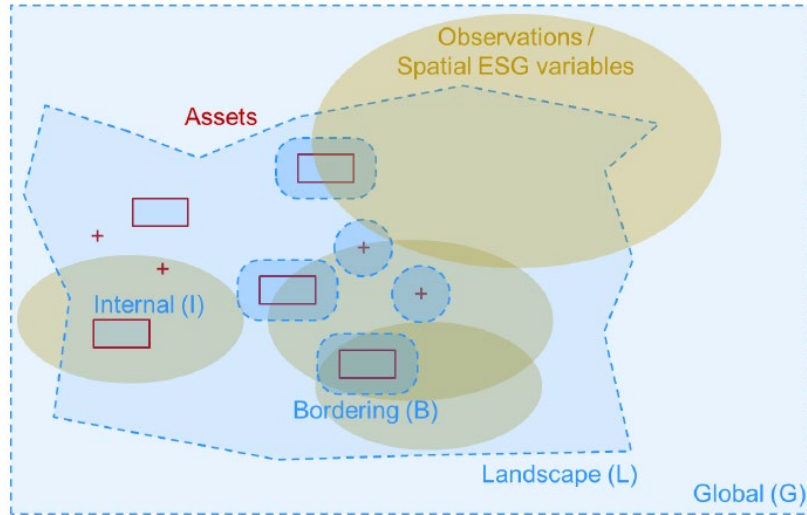
Source: CARBON DELTA (now MSCI CARBON DELTA), Innosuisse Innoscheck project 32873.1 INNO-SBM

Introduction to Nature Risk: What about biodiversity?



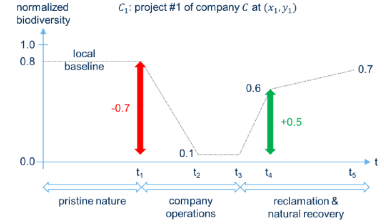
Source: [dx.doi.org/10.2139/ssrn.4784271](https://doi.org/10.2139/ssrn.4784271)

Introduction to Nature Risk: What about biodiversity?



Source: dx.doi.org/10.2139/ssrn.4784271

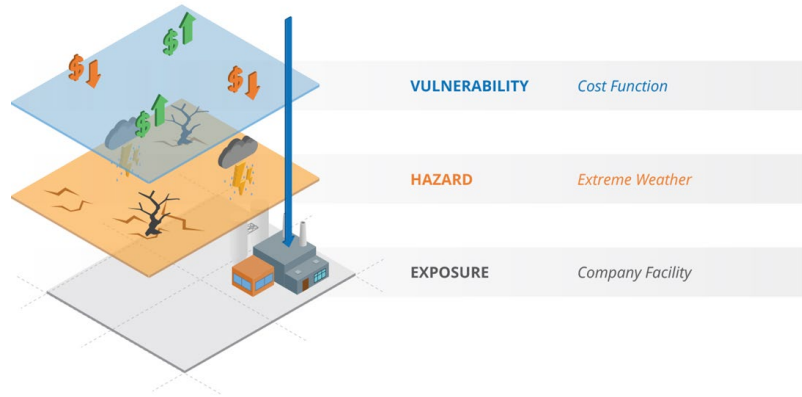
The diagram illustrates the nested scale of landscape metrics. It shows four nested levels: Assets (red rectangles), Internal (I) (green ovals), Bordering (B) (blue ovals), and Landscape (L) (dashed blue line). Observations/Spatial ESG variables (yellow ovals) are shown at the top. The Global (G) scale is indicated by a dashed blue line at the bottom.



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Nature Risk: Physical Risks, OpR & Reinsurance

$$\text{EXPECTED COST} = \text{VULNERABILITY} \times \text{HAZARD} \times \text{EXPOSURE}$$



Things to note...

- Follows classical (Op)Risk approach
- Examples for Nature Risk: extreme weather events, deforestation, biodiversity loss, degrading water quality, ...
- For, e.g., wildfires or weather events: Classical business of reinsurance companies
- These risks are actively traded: Catastrophe (CAT) bonds, insurance-linked security (ILS)

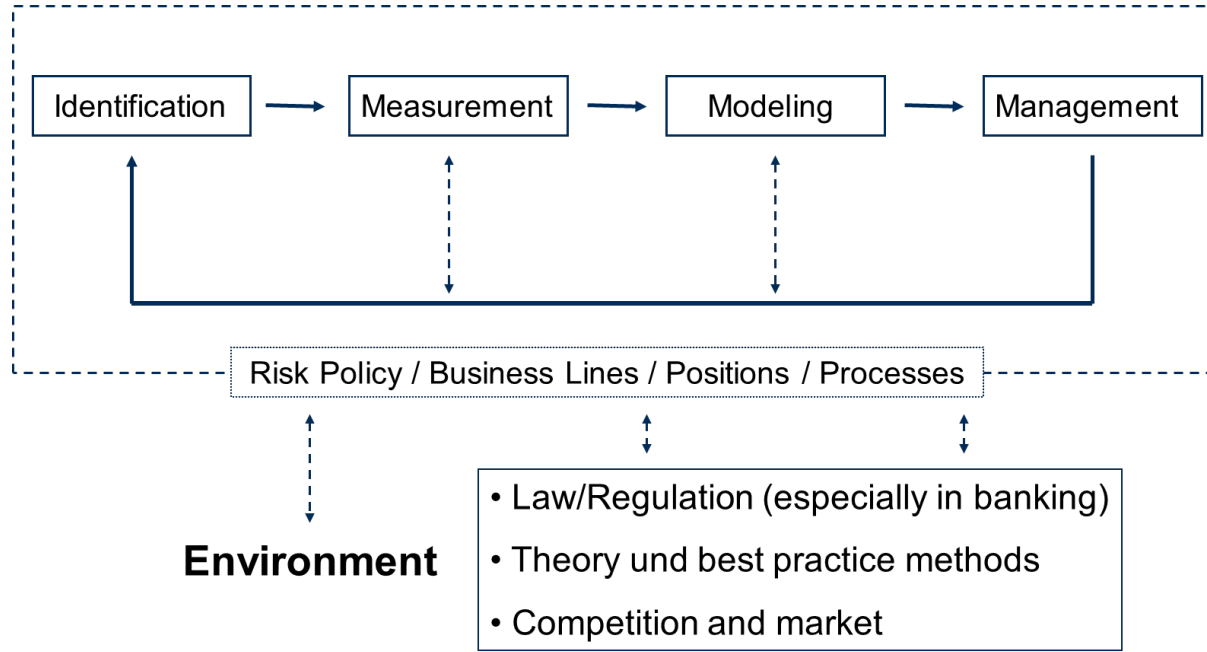
Source: CARBON DELTA (now MSCI CARBON DELTA), Innosuisse Innoscheck project 32873.1 INNO-SBM

Nature Risk & OpR: How to measure and manage

Risk is defined as the (unexpected) deviation of a position's value from its expected value.

- ⇒ The (unexpected) loss (i.e. the unexpected deviation of a price from its expected level) is the risk faced by individuals, banks, companies...
- ⇒ To measure risk means to measure the potential change in the (present/market) **value** of a position.

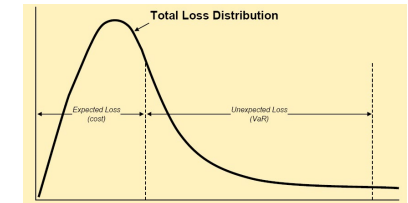
Nature Risk & OpR: How to measure and manage



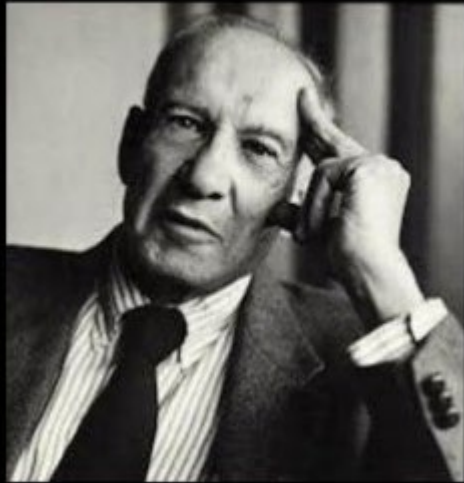
Ways to measure:

- Scenarios
- Sensitivities
- ...

- Value-at-Risk



How to quantify and rate ESG-related risk



**“If you can’t
measure it,
you can’t
manage it”**

Peter Drucker

But what makes Sustainable Investing so difficult? Measurability is lacking (in parts)...

- No exhaustive list and quite a bit subjectivity.
- ESG aspects are often inter-linked, and many aspects link the three dimensions
- E, S, and G are often analyzed together, but the dimensions differ significantly (construct with myriad dimensions)
- Difficult to determine an exact monetary value: e.g., what is the cost of staff turnover? What is the cost of biodiversity loss?
- Not all ESG aspects are new: e.g., reputational risks or regulatory developments have long been considered, physical risks are well-known in the context of OpR

... or there is “too much” measurement!



Source: FTSE Russell, MSCI, Sustainalytics / Morningstar, FinScience, Refinitiv / Thomson Reuters, Trucost + SAM ESG / S&P Global, Vigeo Eiris / Moody's, FitchRatings

The result: So much confusion...

Aggregate Confusion: The Divergence of ESG Ratings

64 Pages • Posted: 20 Aug 2019 • Last revised: 18 May 2020

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Date Written: May 17, 2020

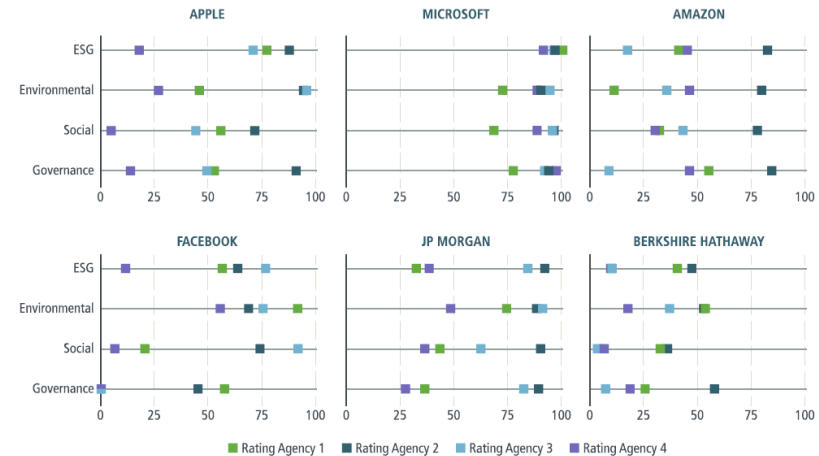
Abstract

This paper investigates the divergence of environmental, social, and governance (ESG) ratings. Based on data from six prominent rating agencies - namely, KLD (MSCI Stats), Sustainalytics, Vigeo Eiris (Moody's), RobecoSAM (SP Global), Asset4 (Refinitiv), and MSCI IVA- we decompose the divergence into three sources: different scope of categories, different measurement of categories, and different weights of categories. We find that scope and measurement divergence are the main drivers, while weights divergence is less important. In addition, we detect a rater effect where a rater's overall view of a firm influences the assessment of specific categories.

Keywords: Corporate Social Responsibility, Corporate Sustainability, ESG Rating Agencies, ESG Rating Disagreement

Source: doi.org/10.1093/rof/rfac033

EXHIBIT 3: DIVERGENCE IN ESG RATINGS ACROSS LARGE, GLOBAL COMPANIES



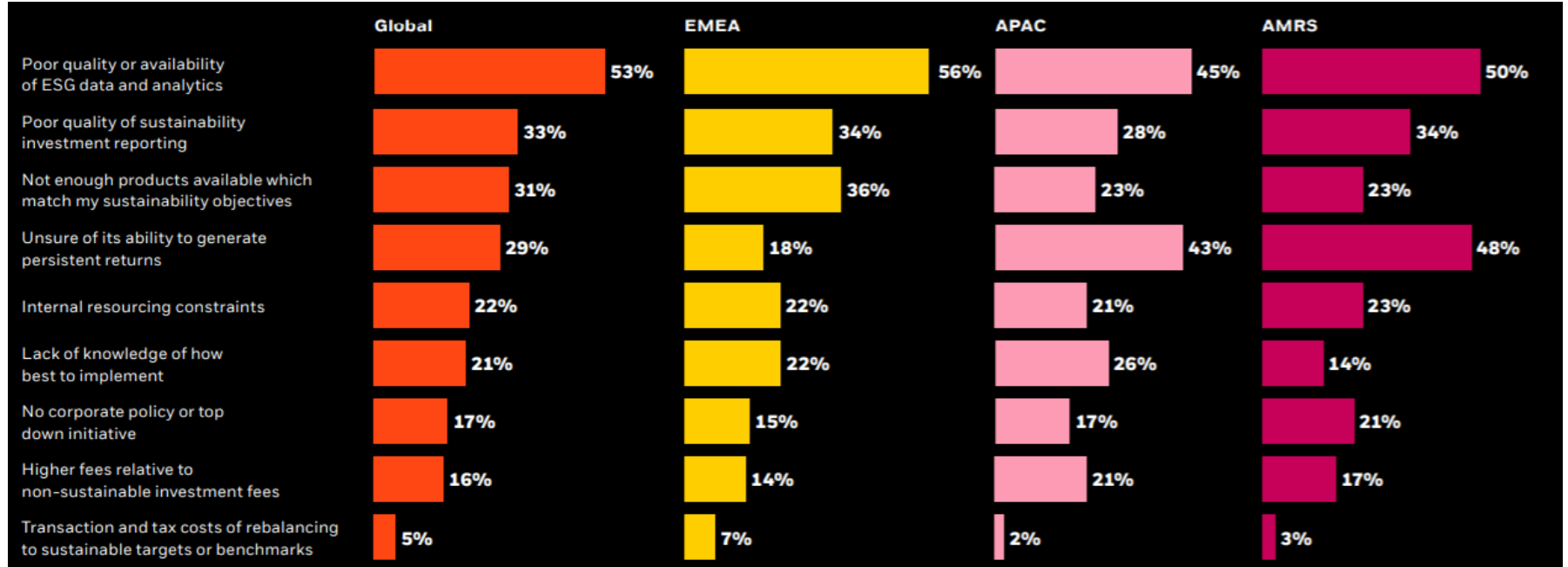
Source: MSCI, Sustainalytics, Robeco and Refinitiv. Ratings as of February 2019. Rating Agency 1 represents MSCI ESG ratings; Rating Agency 2 represents Thomson Reuters ESG ratings; Rating Agency 3 represents Sustainalytics ESG ratings; Rating Agency 4 represents Robeco ESG ratings.

... and increasing! Remember: Data is NOT information!

- “The **differences in the imputation methods used by ESG researchers and analysts** to deal with **vast ‘data gaps’** that span ranges of companies and time periods for different ESG metrics can cause large ‘disagreements’ among the providers, with different gap- filling approaches leading to big discrepancies.
- The disagreements among ESG data providers are not only large, but actually **increase with the quantity of publicly available information**. Citing a recent study showing that companies that provide more ESG disclosure tend to have more variation in their ESG ratings, the authors interpret this finding as clear evidence of the need for ‘a clearer understanding of what different ESG metrics might tell us and how they might best be institutionalized for assessing corporate performance.’

Source: Kotsantonis, Sakis, and George Serafeim. "Four Things No One Will Tell You About ESG Data." Journal of Applied Corporate Finance 31, no. 2 (Spring 2019): 50–58

So what are Challenges in Sustainable Investing?



Source: BlackRock Global Client Sustainable Investing Survey. July – September 2020

The Dark Side of Sustainable Investing



Greenwashing...

STORY #NachhaltigerFinanzplatz

ACHTUNG GREENWASHING! ETIKETTENSCHWINDEL DES SCHWEIZER FINANZPLATZES

by Greenpeace Schweiz • 21. Juni 2021



Source: tagesanzeiger.ch

Greenwashing is when firms engage in green rhetoric and symbolically green actions, which does not align with their substantive actions on environmental issues.

(Nils Smeuninx and Aerts, 2020)

Why Sustainable Investing fundamentally doesn't and cannot work!



Zwischen Klimaschützern und Trump-Freunden

5+ Blackrock in der Klemme

Larry Fink, Chef des weltgrößten Vermögensverwalters Blackrock, setzt auf mehr Nachhaltigkeit bei seinen Investments – und steht im Kreuzfeuer. Republikaner werfen ihm »wokeness« vor, Klimaschützer zweifeln an seinen Versprechen.

Von Tim Bartz und Ines Zöttl

23.12.2022, 09.20 Uhr • aus DER SPIEGEL 52/2022

The financial industry always does the same runs for profit. It has, it always will. It so has a value for because that's pension fund money sed. The industry p it, because the industry has the legal duty of a fiduciary.

Tariq Fancy

Source: tagesanzeiger.ch, Die Selbstgerechten / Sahra Wagenknecht, spiegel.de

Conclusio

Let's sum it all up on one slide...

- ✓ Precise and powerful allocation of large amounts of capital is needed to facilitate the transition towards a sustainable, CO2-neutral and green economy (and society)
 - ⇒ **ESG & SRI, Sustainable Finance & Sustainable Investing**
- ✓ ESG has many dimensions, most of which are difficult to quantify
- ✓ Nature Risks are, in principle, well-known from the classical OpR context, but even more difficult to measure and manage
- ✓ Sustainable Finance faced many challenges; i.a., ambiguous definitions, non-standard regulation, little and/or bad data, active and passive Greenwashing, ...
- ✓ In the end, as everything in finance, ESG and Sustainable Investing is a business.

Thank you for your attention – questions?



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Further literature & some links 1/2

- The Devil is in the Details: The Divergence in ESG Data and Implications for Responsible Investing, LaBella et al., Sep. 2019, QS Investors
- Aggregate Confusion: The Divergence of ESG Ratings, Berg et al., May 2022, Review of Finance, <https://doi.org/10.1093/rof/rfac033>
- Financing the Low Carbon Economy, SSF, 11/2020
- The ESG - Innovation Disconnect: Evidence from Green Patenting, Cohen et al., Oct 2020, NBER, <https://www.nber.org/papers/w27990>
- Kotsantonis, Sakis, and George Serafeim. "Four Things No One Will Tell You About ESG Data." Journal of Applied Corporate Finance 31, no. 2 (Spring 2019): 50–58
- Die Selbstgerechten, Sahra Wagenknecht, campus Verlag

Further literature & some links 2/2

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- https://ec.europa.eu/info/files/192020-sustainable-finance-teg-benchmarks-handbook_en
- <https://www.sif.admin.ch/sif/de/home/dokumentation/fokus/green-fintech-action-plan.html>
- <https://www.tagesanzeiger.ch/nachhaltige-anlageprodukte-sind-schaedlich-186789369524>
- <https://www.spiegel.de/wissenschaft/natur/klimawandel-das-sind-die-gefaehrlichsten-kipppunkte-des-klimas-a-ce62231c-6520-4166-9267-8d5b3045f432>
- <https://www.spiegel.de/wirtschaft/blackrock-wird-zerrieben-zwischen-klimaschuetzern-und-donald-trump-freunden-a-a6ee380b-ee54-42d6-b8a7-d3d76bddb8e8>
- <https://www.youtube.com/watch?v=6p8zAbFKpW0>