Why is measuring a company's carbon footprint harder than measuring its profit?

Measuring profit is standardized:

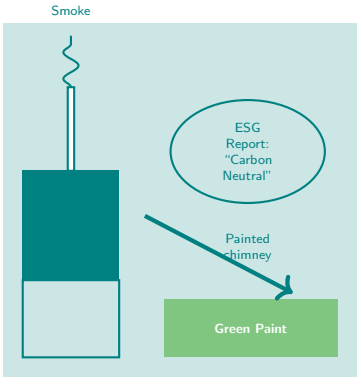
- Financial accounting has global frameworks
- Revenues and expenses are recorded in ledgers
- Auditors verify the numbers
- The boundary is clear: what the company owns

Measuring carbon is messy:

- Emissions come from factories, energy, suppliers, customers, logistics, and product use
- No universal ledger for carbon
- Most data is estimated, not measured
- The boundary is fuzzy: where do you stop counting?

The scope problem:

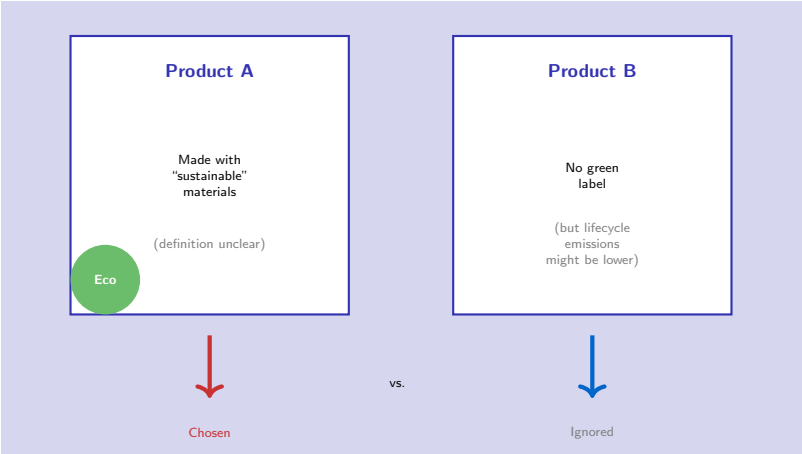
- Direct emissions are easy, supplier emissions are hard, product use emissions are guesswork
- One company's direct is another's indirect
- Financial statements converge; carbon reports diverge



A company paints the factory green while emissions continue — carbon accounting is easier to manipulate than financial accounting.

Carbon footprints depend on where you draw the boundary. Financial statements have bright lines; carbon reports rely on estimates and assumptions that vary across frameworks.

Have you ever chosen a “green” product and wondered if it was actually better for the environment?



Green labels are easy to print but hard to verify. Without standardized metrics and independent auditing, consumers cannot distinguish genuine impact from marketing.

What are the main frameworks for integrating climate risk into financial decisions?

TCFD (Task Force on Climate-related Financial Disclosures):

- Four pillars: Governance, Strategy, Risk Management, Metrics and Targets
- Scenario analysis is central
- Adopted by thousands of companies globally

ISSB (International Sustainability Standards Board):

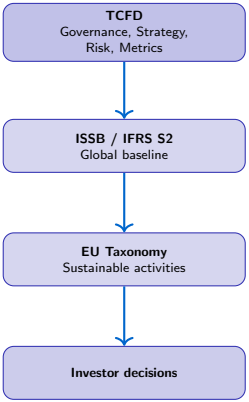
- Global baseline for sustainability reporting
- Builds on TCFD, adds mandatory Scope emissions disclosure
- Designed for investor-grade decision-making

EU Taxonomy and SFDR:

- Defines which activities are environmentally sustainable
- Classifies investment funds by environmental ambition
- Do No Significant Harm principle

Carbon markets:

- Compliance markets put a price on emissions
- Voluntary markets suffer from quality issues
- Cap-and-trade creates direct financial incentive



How does a climate risk scenario analysis translate physical and transition risks into financial impact?

Step one: Define scenarios

- Orderly transition (policy ramps early, warming limited)
- Delayed action (late policy, abrupt disruption)
- Hot-house world (minimal policy, high physical risk)

Step two: Map climate variables to business impact

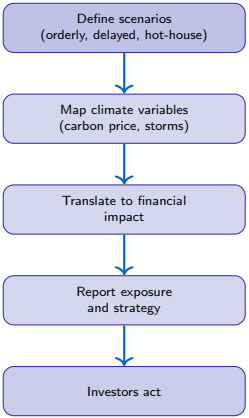
- Physical risk: flood damage, heat stress, supply disruption
- Transition risk: carbon price, energy costs, stranded assets
- Liability risk: lawsuits, fines, disclosure penalties

Step three: Quantify financial exposure

- Asset valuations decline
- Operating costs rise
- Credit defaults increase
- Insurance becomes unaffordable

Step four: Report to stakeholders

- Disclose exposure under each scenario
- Explain resilience strategy
- Set targets and transition plans



How do traditional financial risk and climate risk assessment architectures differ?

Traditional financial risk:

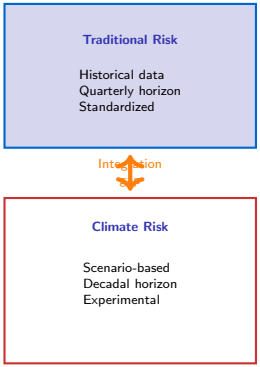
- Backward-looking: uses historical data
- Short time horizon: quarterly, annual
- Well-defined categories: credit, market, operational
- Data is abundant and standardized
- Models are validated, regulated, audited

Climate risk:

- Forward-looking: models future scenarios
- Long time horizon: decades
- Categories are interconnected: physical triggers transition
- Data is sparse, estimated, or non-existent
- Models are experimental, unvalidated, contested

Integration challenge:

- Climate risk must fit into existing risk frameworks
- Regulators now mandate climate stress tests
- Banks lack historical precedent for tail events
- No agreed methodology for pricing long-term uncertainty



What happens when ESG ratings diverge so much that the label becomes meaningless?

The ESG rating problem:

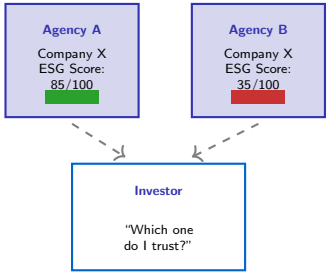
- Different providers use different definitions
- Same company gets high score from one agency, low from another
- Correlation between major ESG raters is only 0.50 (vs 0.99 for credit ratings)

Why this happens:

- Different scope: some focus on impact on society, others on financial materiality
- Different weights: carbon might be 40 percent at one agency, 10 percent at another
- Different data: self-reported, estimated, or scraped
- Different industries: what matters for oil does not matter for software

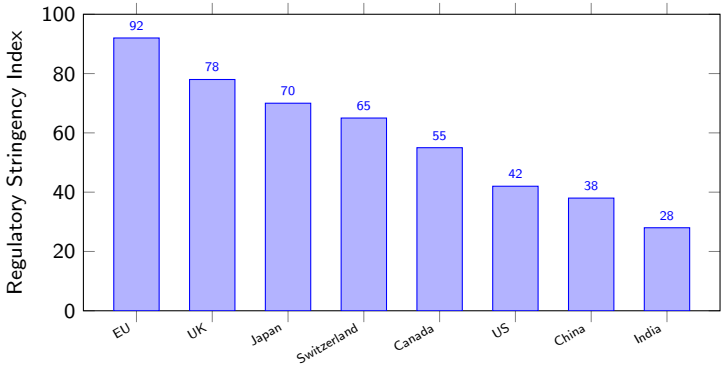
Consequences:

- Investors cannot rely on a single score
- ESG investing means different things to different funds
- Room for greenwashing expands
- Trust in the ESG label erodes



ESG scores lack the standardization that makes credit ratings comparable. When two agencies give opposite assessments, the investor is left to guess.

Where is climate-related financial regulation moving fastest?



Index combines: mandatory TCFD disclosure, carbon pricing, green taxonomy adoption, financed emissions requirements, climate stress testing. EU leads with comprehensive frameworks (SFDR, CSRD, EU Taxonomy). US regulation remains contested and fragmented.

Europe regulates fastest. Asia adopts selectively. US regulation faces political resistance.

Who profits from green finance and who bears the cost of greenwashing?

Who profits from genuine green finance:

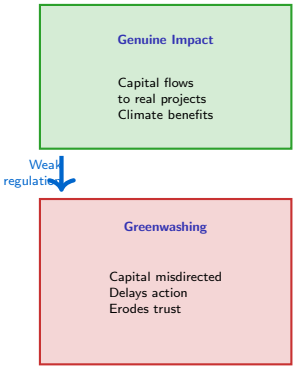
- Renewable energy developers get cheaper capital
- Green bond issuers access ESG investor pools
- RegTech vendors sell climate disclosure software
- Asset managers charge fees on ESG funds
- Governments use green bonds to fund infrastructure

Who profits from greenwashing:

- Marketing consultants who rebrand conventional products
- ESG rating agencies selling conflicting scores
- Offset providers selling low-quality credits
- Financial institutions claiming green credentials without change

Who bears the cost:

- Retail investors misled into high-fee funds
- Taxpayers funding ineffective climate projects
- Genuinely sustainable firms crowded out by fakes
- Society when misdirected capital delays decarbonization



Green finance redistributes capital toward sustainability, but greenwashing captures the label without delivering impact. The cost falls on those who trusted the

Three questions to evaluate whether a green financial product is genuinely impactful

Question one: Can the environmental claim be independently verified with data?

- Is there third-party certification?
- Are emissions measured or estimated?
- Is the methodology public and replicable?

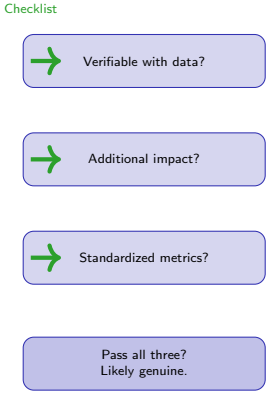
Question two: Is the product structured so that the environmental benefit is additional?

- Would the project happen anyway without this financing?
- Does the instrument create new environmental impact or rebadge existing activity?
- Are targets ambitious or already being met?

Question three: Are the ESG metrics standardized and comparable?

- Does it follow TCFD, ISSB, or EU Taxonomy?
- Can you compare this product to peers on the same basis?
- Is scope clearly defined (Scope 1, 2, 3)?

Red flags: vague language, no third-party review, cherry-picked metrics, offset-only claims, targets with no accountability.



Genuine green finance passes all three tests: verifiable data, additional impact, and standardized metrics. Fail any one and greenwashing risk rises sharply.

Your Challenge

Scenario: You are evaluating a green bond issued by a utility company. The proceeds are earmarked for renewable energy projects. The bond carries a slight premium (greenium) over conventional bonds.

Your task:

1. Apply the three questions from slide 9 to this bond.
2. Determine whether it is: (a) genuinely impactful, (b) well-intentioned but weak, or (c) greenwashing.
3. Justify your classification with reference to the integrity test.

Information provided:

- The utility has a second-party opinion from a recognized verifier.
- Proceeds fund solar and wind projects replacing coal plants.
- The company reports Scope 1 and 2 emissions but not Scope 3.
- Targets align with a two-degree scenario but not one-point-five degrees.
- The methodology follows TCFD but predates ISSB standards.

Reflection questions:

- Does partial Scope 3 disclosure matter if the company is a utility with low indirect emissions?
- Is a two-degree target acceptable or does it fall short?
- What additional information would strengthen your confidence?

This exercise demonstrates that green finance evaluation requires both technical knowledge (Scope definitions, scenario alignment) and judgment about materiality and ambition.

Green finance decisions are rarely black-and-white. Apply the framework, weigh the evidence, and explain your reasoning.