Case Studies:

Holistic Sustainability:

Identifying "Clean" Investments in a Fragmented Disclosure Framework [*] [†]

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"Case Studies" presents a case pertinent to contemporary issues and events in investment management. Insightful and provocative questions are posed at the end of each case to challenge the reader. Each case is an invitation to the critical thinking and pragmatic problem solving that are so fundamental to the practice of investment management.

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Sustainability-focused investments have continued to attract significant capital and, in many cases, have been associated with a valuation premium (i.e., a *greenium*). However, important conceptual and measurement challenges remain. Beyond well-documented concerns around *greenwashing*,[1] widely used sustainability metrics often fail to capture emissions across the full value chain. This omission introduces structural inconsistencies across firms with different organizational forms and can lead to systematic distortions in both firm-level assessments of environmental impact and the allocation of capital across firms.

For instance, consider two firms in the apparel industry: a vertically integrated manufacturer and an asset-light brand such as Nike or Lululemon. By internalizing production and logistics, the firm that owns its textile mills, dyeing facilities, and distribution network is attributed substantially higher operational emissions than its asset-light counterpart, which outsources these activities and thereby shifts emissions into its value chain. In economic terms, both firms rely on fundamentally similar production processes; in accounting terms, however, their attributed emissions may appear markedly different. As a result, sustainability metrics may penalize firms that internalize emissions-intensive activities while favoring those that outsource them.

To assess whether a firm is truly "clean," we must look beyond its own factory walls. The Greenhouse Gas (GHG) Protocol – the world's most widely used carbon accounting standard – categorizes emissions into three distinct scopes.[2] Taken together, these scopes progressively

[1] See Cai, Ye and Seoyoung Kim, 2022, "ESG Greenwashing and Recent SEC Actions," *Journal of Investment Management*.

[2] In 1998, the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) launched GHG Protocol to develop comprehensive, globally standardized frameworks to measure and manage GHG emissions worldwide (see, for instance, Greenhouse Gas Protocol's "Governance process for developing standards and guidance," accessed at https://ghgprotocol.org/sites/default/files/GHG%20Protocol_Governance%20and%20Decision-making%20Process.pdf). The GHG Protocol's standards have been integrated and referenced in major global sustainability reporting frameworks including in disclosure standards developed and adopted by the International Sustainability Standards Board (ISSB) and the International Financial Reporting Standards (IFRS) Foundation and in the European Sustainability Reporting Standards (ESRS) underlying the Corporate Sustainability Reporting Directive (CSRD) regulation. See, for instance, Greenhouse Gas Protocol's "Overview of GHG Protocol Integration

extend the boundary of corporate responsibility – from direct operations (Scope 1), to energy consumption (Scope 2), to the full value chain (Scope 3).

Scope 1 emissions are direct GHG emissions that occur from sources owned or controlled by the firm – for example, fuel combustion in on-site boilers, fuel burned in company vehicles, and natural gas used for on-site heating. These emissions are the most straightforward to measure and also the most visible when consumers, investors, and regulators think of industrial pollution.

Scope 2 extends the lens to include indirect emissions from the generation of purchased electricity, steam, heat, or cooling consumed in the firm's operations. When a company lights its buildings or powers machinery on its factory floor, it is indirectly responsible for the greenhouse gases released at the power plant generating that energy. The carbon intensity of Scope 2 emissions varies significantly by location, as a facility powered by coal-fired electricity generates substantially different emissions than an otherwise identical facility powered by renewable energy sources.

Scope 3 emissions capture "the result of activities from assets not owned or controlled by the reporting organization, but that the organization indirectly affects in its value chain."[3] Unlike Scopes 1 and 2, which capture a firm's direct operational footprint, Scope 3 encompasses both upstream and downstream activities outside the firm's operational boundary. These include emissions from suppliers producing raw materials and components, transportation and distribution, and business travel and employee commuting, as well as emissions generated during the use and

in Mandatory Climate Disclosure Rules (January 2025), accessed at https://ghgprotocol.org/sites/default/files/2025-01/Overview-Integration-Disclosure-Rules-Jan-2025.pdf.

[3] See the U.S. Environmental Protection Agency (EPA) Center for Corporate Climate Leadership's "Scope 3 Inventory Guidance," accessed at https://19january2021snapshot.epa.gov/climateleadership/scope-3-inventory-guidance_.html.

disposal of the firm's products by customers. In essence, one firm's Scope 3 emissions correspond to the Scope 1 and Scope 2 emissions of other firms within its value chain.

While Scope 1 and Scope 2 emissions can be estimated with relative precision using utility data, fuel purchases, and engineering models, Scope 3 emissions present a far more complex challenge in carbon accounting due to the cascading nature of emissions across a firm's entire value chain. The estimated scale of this challenge is substantial: upstream emissions alone average 11.4 times a firm's combined Scope 1 and Scope 2 emissions.[4] Because Scope 3 spans activities from raw material extraction to product use and eventual disposal, accurately capturing these emissions would require a level of visibility across global value chains that does not currently exist. In other words, the emissions that comprise the vast majority of a firm's true carbon footprint are also those measured least reliably.

Given these challenges, regulators across jurisdictions have responded in different ways. In the European Union, the Corporate Sustainability Reporting Directive (CSRD) requires firms to disclose Scope 1, Scope 2, and, where material, Scope 3 emissions, extending reporting requirements to value chain activities – though in practice, such disclosures often rely on model-driven estimates given limited data availability.[5] In contrast, the U.S. Securities and Exchange Commission's 2024 climate disclosure rule limits required emissions disclosure to Scope 1 and Scope 2, subject to materiality and applicability, and does not mandate Scope 3 disclosure, reflecting concerns about the feasibility and reliability of value chain emissions measurement. The

[4] See Carbon Disclosure Project, CDP Global Supply Chain Report 2020, "Transparency to Transformation: A Chain Reaction" (February 2021), accessed at https://www.assets.signify.com/is/content/Signify/Assets/signify/global/20210211-cdp-supply-chain-report-transparency-to-transformation.pdf.

[5] See European Commission, December 22, 2023, "Commission Delegated Regulation (EU) 2023/2772 of 31 July 2023 supplementing Directive 2013/34/EU of the European Parliament and the Council as regards sustainability reporting standards," Official Journal of the European Union, accessed at https://climate-laws.org/documents/regulation-eu-2023-2772_6af6.

rule was subsequently stayed pending litigation and the Commission voted to end its defense of the rules in March 2025, leaving no binding federal emissions disclosure requirement in the United States.[6] At the state level, however, California's Climate Corporate Data Accountability Act (SB-253) goes further, requiring large firms doing business in California to report all three scopes of emissions, with initial Scope 1 and Scope 2 disclosures due by 2026 and Scope 3 disclosure to be phased in beginning in 2027, despite ongoing measurement challenges.[7]

In the absence of consistent company reporting, data providers – such as S&P Global's Trucost Environmental Data – generate Scope 3 estimates by combining disclosed information with modeled estimates to fill reporting gaps.[8] While this approach enables broader coverage and comparability across firms, it smooths over firm-specific differences by relying on proprietary environmental profiling methods when inputs are incomplete or outdated. As a result, Trucost's Scope 3 estimates are best understood as structured approximations rather than direct measurements, reflecting the inherent complexity of emissions across the value chain.

This reliance on modeled data further amplifies the tension between measurement completeness and reliability in sustainability assessments. Firms with more sophisticated measurement systems and greater transparency in Scope 3 disclosure may appear artificially more emissions-intensive than competitors that have not invested in tracking their supply chain emissions. The current state of Scope 3 accounting thus risks penalizing firms that invest in

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[6] See U.S. Securities and Exchange Commission Fact Sheet, March 6, 2024, "The Enhancement and Standardization of Climate-Related Disclosures: Final Rules," accessed at https://www.sec.gov/files/33-11275-fact-sheet.pdf. The rules were subsequently stayed pending litigation in the Eighth Circuit (*Iowa v. SEC*, No. 24-1522). On March 27, 2025, the SEC voted to withdraw its defense of the rules entirely; see SEC Press Release No. 2025-58, "SEC Votes to End Defense of Climate Disclosure Rules," March 27, 2025, accessed at https://www.sec.gov/newsroom/press-releases/2025-58.

[7] See California Senate Bill No. 253, October 9, 2023, "Climate Corporate Data Accountability Act," accessed at https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202320240SB253, as amended by California Senate Bill No. 219, September 27, 2024, accessed at https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202320240SB219.

[8] See S&P Global, November 2025, "Trucost Environmental Data: Methodology," accessed at https://portal.s1.spglobal.com/survey/documents/SPG_S1_Trucost_Environmental_Data_Methodology.pdf.

measurement and transparency: the more rigorously a firm measures and discloses its carbon footprint, the worse it may appear to investors and stakeholders seeking "clean" firms.

These measurement and comparability issues extend to the investment landscape as well. Some funds – such as the THEAM Quant Europe Climate Carbon Offset Plan, managed by BNP Paribas Asset Management – focus on equity investments based on operational emissions (Scopes 1 and 2) and energy-transition objectives, often paired with carbon offsets.[9] In contrast, other funds – such as the Invesco Energy Transition Fund – adopt a broader, model-driven approach by incorporating Scope 3 emissions, in addition to Scope 1 and Scope 2 emissions, when evaluating their investment holdings.[10]

Thus, sustainability-focused investors seeking "clean" investments face a layered problem. First, there is a question of intent: should capital be allocated to firms that are already *clean*, or to firms with the potential to become *cleaner*?[11] For the latter, how should investors evaluate outcomes when transformation efforts fail, despite credible intent? And even for investors who prioritize already clean firms, questions arise as to whether these firms have been mislabeled due to greenwashing or incomplete measurement.

Fundamentally, what qualifies as a clean investment depends as much on measurement boundaries and disclosure practices as on underlying environmental performance.

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[9] See BNP Paribas Press Release, April 1, 2019, "BNP Paribas Asset Management launches the THEAM Quant Europe Climate Carbon Offset Plan, the first UCITS fund established under French law* with carbon offset mechanism," accessed at https://group.bnpparibas/en/press-release/bnp-paribas-asset-management-launches-theam-quant-europe-climate-carbon-offset-plan-ucits-fund-established-french-law-carbon-offset-mechanism.

[10] Invesco, December 2025, "Invesco Energy Transition Enablement Fund: Sustainability-related disclosures," accessed at https://www.invesco.com/content/dam/invesco/emea/en/product-documents/gpr/fund/sustainability-full-disclosure/invesco-energy-transition-enablement-fund_sustainability-full-disclosure_en.pdf.

[11] See Cai, Ye and Seoyoung Kim, 2025, "The ESG Conundrum," *Journal of Investment Management*. See also Cai, Ye and Seoyoung Kim, 2022, "Passive Versus Active Investing: How a Small Hedge Fund Converts an Oil Giant," *Journal of Investment Management*.

Questions:

- What does it actually mean for a firm to be "clean"?
- How do differences in organizational structure affect the comparability of sustainability metrics across firms? How can regulators and investors avoid penalizing firms that internalize more emissions-generating activities and/or disclose more complete emissions data?
- Should sustainability-motivated investors focus on firms that are already clean or on firms with potential to improve?
- Should identifying clean firms prioritize Scope 1 and Scope 2 emissions due to reliability, or include Scope 3 despite measurement challenges?
- To what extent should firms be held responsible for emissions arising from how their products are used by customers?

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