STANDARDS BOARD FOR ALTERNATIVE INVESTMENTS

# Responsible Investment and GHG-Emission Accounting in Direct Commodity Investments

SBAI Toolbox

## Executive Summary

Commodities are integral to global economic activity and many investment portfolios. As investors become more focused on understanding the risks and potential impacts of commodities, there is an increasing emphasis on how commodity instruments fit into greenhouse gas (GHG) emission accounting frameworks and their broader sustainability implications. This paper bridges the gap in understanding the responsible investment considerations surrounding commodities, offering a comprehensive overview of key factors that investors should consider.

While we conclude that commodity derivatives should not be included in GHG-emission accounting, investors can still seek meaningful impact by engaging with exchanges and supporting sustainability initiatives within commodity markets.

**Key Takeaways:**

- **Commodities** are crucial to economies and portfolios but **pose challenges, including carbon emissions, resource use, and labour practices**, which are central to responsible investment.
- Gaining **direct exposure through physical assets or derivatives** complicates GHG-emission accounting as these instruments **do not directly affect sustainability outcomes**.
- Including commodity derivatives in GHG-emission accounting frameworks **introduces risks of multi-counting emissions and greenwashing**, making them unsuitable for meaningful reporting of risk or impact.
- **Financial participants enhance market liquidity in futures markets but do not directly influence production or consumption decisions**, making emissions attribution difficult in the context of commodity markets.
- The broad "**facilitation" concept raises challenges in determining where to assign emissions responsibility**, which further complicates inclusion in financed emissions frameworks.
- **Derivative exchanges are advancing sustainability in several ways, including the introduction of responsible sourcing requirements**. Investors can support these efforts through engagement to drive transparency and market improvements.

This memo forms part of a series of SBAI Toolbox guidance helping institutional investors and asset managers increase their understanding of how Responsible Investment can be applied to different alternative investment strategies including equity long/short, macro, credit, systematic, and insurance linked strategies. It is designed to be used in conjunction with the SBAI Policy Framework and Principles for GHG-Emission Accounting in Alternative Strategies.
Please see the SBAI Responsible Investment Toolbox for further information.

## Introduction

Commodities are at the foundation of economic activity, whether it is energy commodities that power electricity generation and transport, raw materials needed in construction and technology, or agricultural commodities feeding populations and livestock.[1] Commodities also play an important role in many investor portfolios, serving as both an inflation hedge (or 'participation') due to their intrinsic value in production, as well as a diversifier due to their exposure to unique factors.[2]

Often associated with high degrees of environmental and social impact, commodities are a major focus area in the context of responsible investment given the ample opportunity for impact and participation in the green transition.

**Some responsible investment considerations in the production, processing, transportation, distribution, and consumption of commodities include:[3]**

- **Environmental impact:** carbon emissions, water usage, deforestation, biodiversity, waste, pollution, and access to natural resources – this is closely linked to the concept of *nature*[4]
- **Social considerations:** food security and nutrition, health and safety, labour practices, human rights, and (indigenous) community impact (including free, prior, and informed consent (FPIC))[5]
- **Governance factors:** adherence to local and international regulations (including sanctions), transparency of company operations, oversight of practices and certifications, and employment of anti-corruption measures

Companies along the commodity value-chain are ultimately the decision-makers in relation to their business practices, operations, and associated responsible investment considerations. Investors with *indirect exposure* to commodities through equity or debt holdings in these companies (such as up/downstream oil and gas companies) may seek to influence corporate decision-making through various mechanisms of impact including engagement, capital allocation, or influence on cost of capital (including derivative or short positions).[6] Investors can leverage a wide range of sector-specific and cross-industry frameworks, standards, and certification bodies to help assess and engage firms' practices.[7]

However, for investors with *direct exposure* to commodities, guidance around the responsible investment considerations, impact mechanisms, and relevance for GHG-emission accounting has been unclear. This paper seeks to address this gap and facilitate better investor and manager dialogue regarding commodities, including the responsible investment considerations and relevance for inclusion in GHG-emission accounting aimed at measuring portfolio contributions to increasing/decreasing emission risk

[1] There are two broad categories of commodities: hard and soft. Hard commodities are sourced from natural resources that must be extracted, such as copper, lithium, oil, etc. Soft commodities are agricultural products such as soybeans, coffee, livestock, etc. Commodities may also be grouped in the following categories: energy, agriculture, industrial/base metals, and precious metals.
[2] See Jensen and Mercer, *Commodities as an Investment* (2011): https://rpc.cfainstitute.org/-/media/documents/book/rf-lit-review/2011/rflr-v6-n2-1-pdf.pdf
[3] The Organisation for Economic Co-operation and Development (OECD) and the Food and Agriculture Organisation of the United Nations (FAO) *Guidance for Responsible Agricultural Supply Chains* provides a strong foundation for understanding the responsible investment considerations across the entire life cycle of commodities. The focus of the guidance is ultimately on risk management, transparency, and accountability which is crucial for investors to align their profiles with responsible investment goals. See Appendix A for further detail.
[4] Nature, as defined by the *Taskforce for Nature-related Financial Disclosures (TNFD)*, is the natural world – with an emphasis on the diversity of living organisms and their interactions with themselves and their environment, access: https://tnfd.global/
[5] *Free, Prior, and Informed Consent (FPIC)* is a specific right granted to indigenous peoples recognised in the *UN Declaration of the Rights of Indigenous Peoples (UNDRIP)*, which aligns with their right to self-determination, see: https://www.ohchr.org/sites/default/files/Documents/Issues/IPeoples/FreePriorandInformedConsent.pdf
[6] See Appendix B for further detail. The SBAI Principles for GHG-Emission Accounting in Alternative Strategies can be accessed here: https://www.sbai.org/resource/principles-for-ghg-emission-accounting-in-alternative-strategies.html
[7] See Appendix C (Sustainability Frameworks and Certifications) for further detail.

(and impact) over time. The assessment will centre around materiality and potential for impact, which should underwrite any potential attribution of GHG-emissions.

## Gaining Direct Commodity Exposure

Institutional investors can gain direct exposure to commodities through physical commodities or derivatives, such as futures, options, and swaps.

| | |
|---|---|
| **(Spot) Physical Commodities** | • Specialist form of investing which requires additional transport, storage (infrastructure and preservation), security, insurance, quality and certification, and liquidity considerations<br>• Uncommon as it is impractical for most investors due to additional considerations<br>• When done, it is mostly seen with precious metals (e.g., gold, silver) |
| **Commodity Derivatives** | • Originally developed as tools for commodity producers and consumers to enhance price discovery and hedge price risk, but may also be used to gain exposure to commodity prices<br>• Highly liquid, and do not carry the additional considerations of physical commodities regarding storage, etc.<br>• Ongoing convergence and link between these derivatives to the real (spot) market is maintained through their ability to be physically settled, though they are typically cash settled or 'rolled' ahead of expiry to gain continuous economic exposure[8]<br>• Indices may also be built on these instruments<br>• Commodity Trading Advisors (CTAs) are often used to actively manage commodity exposure via derivatives – employing strategies that may be systematic or discretionary – on behalf of investors[9] |

For the purposes of the discussion in this paper, commodity derivatives largely refer to futures and other derivatives based on physical commodity prices.

## Mechanisms for Impact in Direct Commodity Investments

In contrast to indirect exposure to commodities (via equity and debt), it is less clear how investors with direct commodity exposure can have impact on real world outcomes, as there is:[10]

- **No direct investor engagement / stewardship channel:** commodities are agentless products, not decision-making entities which can be engaged, although indirect engagement is possible
- **No provision of capital (cash) or influence on cost of capital:** the trading of commodities is not a financing activity that is linked to underlying companies in the commodity supply chain[11]

[8] Roll returns or roll yield are the profits or losses stemming from rolling expiring contracts into its replacement – and is driven by the relationship between the futures price and the expected spot price. A market is in backwardation if the spot price is above the futures price, while a market can be said to be in contango if the spot price is below the futures price. This difference can be thought of as either the cost of storage or the role of convenience yield.
[9] It should be noted that while CTAs are most associated with trading commodities, their activities extend beyond just managing commodities to include a broader range of financial instruments and asset classes including financial futures, forex, etc.
[10] Refer to Appendix B for Mechanisms for Impact and SBAI Principles for GHG-Emission Accounting
[11] The global derivatives market began to serve two primary purposes for market participants: 1) price transparency to aid in decision-making, and 2) stability in revenues and supply chain through hedging (risk transfer) opportunities. Ultimately, their function is centred around risk transfer, which is very different from equity markets where the primary purpose is capital raising.

Nevertheless, questions have been raised on whether other 'impacts' should be attributed, notably impact on spot prices, and the role of "facilitation" in derivative/hedging markets.

## Price Impact

The question of whether financial participants in commodity derivative/future markets impact commodity spot prices, and/or contribute to excess volatility through speculation has been frequently debated, attracting the focus of regulators and a wide range of academic research.[12] Ultimately, the laws of supply and demand govern all price dynamics – when supply exceeds demand, prices tend to fall, and when demand outstrips supply, prices rise. However, the price impact of speculative trading has been particularly scrutinised due to sensitivities around commodities.

For example, in response heightened volatility in oil markets in 2007/08, the International Organisation of Securities Commissions (IOSCO) launched a Task Force to address these concerns – concluding that evidence reviewed "[did] not support the proposition that the activity of speculators has systematically *driven* commodity market cash (physical) or futures prices up or down on a sustained basis".[13] Further, short-term market impacts (such as speculative trading) are unlikely to outweigh (in the long term) the more significant, long-term economic fundamental factors that influence supply and demand (see Appendix D).[14] In other words, speculators do not *cause* (in a forecasting sense) price movements or long-term volatility (destabilisation) in futures markets.[15] Rather, financial actors reduce volatility, serving as liquidity providers in (commodity) futures markets, enhancing market liquidity, reducing transaction costs, and ultimately improving market efficiency for risk transfer.[16]

Futures markets are central to price discovery, as they reflect (in part) market expectations about future (spot) supply and demand for commodities.[17] These expectations, in turn, indirectly influence spot prices as market participants, including arbitrageurs, use movements in futures markets as signals to adjust their behaviour in the spot market – with future and spot prices ultimately converging near contract expiry to reflect the underlying commodity's true market value.

From a theoretical standpoint, those who support the Efficient Market Hypothesis would argue that prices of both physical (spot) commodities and futures contracts are primarily driven by fundamentals – with futures prices converging with spot as market participants adjust to real supply-demand conditions. On the other hand, Shiller's view of market efficiency acknowledges that speculative flows and market sentiment can influence prices in a lasting way. Shiller's view, applied to commodity markets, is supported by UNCTAD research that concludes commodity prices are not based solely on supply and demand fundamentals and that speculation has an effect.[18]

Nevertheless, the practical conclusion remains the same: **regardless of whether financial trading flows have a significant price impact in commodities, the consequences for sustainability outcomes remain unclear.**

For instance, higher coal prices might encourage increased mining activity, yet at the same time, they could make coal less attractive as an energy source. The result is an uncertain net effect on emissions.

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[12] Refer to Appendix D on Impact of Financialisation in Commodity Derivative Markets
[13] Task Force on Commodity Futures Markets, IOSCO (Mar 2009): https://www.iosco.org/library/pubdocs/pdf/IOSCOPD285.pdf
[14] These fundamental factors include production costs (such as labour, technology, and the costs associated with resource rights) and capacities, consumer preferences, disease outbreaks (such as those affecting crops and livestock), weather patterns, geopolitical factors (including sanctions), government policies and regulations, distribution costs (such as storage and delivery), and other related factors.
[15] Is Speculation Destabilising?, Brunetti and Buyuksahin (2009), see: https://www.cftc.gov/sites/default/files/idc/groups/public/@swaps/documents/file/plstudy_03_cftc.pdf
[16] Why financial participants matter to the commodity markets, ICE (2022), access: https://www.ice.com/insights/exchanges/why-financial-participants-matter-to-the-commodity-markets
[17] See storage cost, convenience yield, etc.
[18] Price Formation in Financialised Commodity Markets: the Role of Information, UNCTAD (2011), see: https://unctad.org/publication/price-formation-financialized-commodity-markets-role-information

In other words, the challenge lies in understanding how price fluctuations – driven by a multitude of market forces – translate into real world consequences, making it difficult to meaningfully account for these in emission frameworks.

In fact, if GHG-emission associated with commodity derivatives were to be included in GHG-emission accounting frameworks, this would raise a number of methodological questions and could give rise to greenwashing concerns:

- ***How is the process of rolling commodity futures accounted for?*** Does a firm using futures to manage price risk account for the positive GHG-emissions when a position is opened, and negative GHG-emissions when a position is closed (resulting in net-zero emissions associated with future contracts over time)?
- If only the *opening* of the futures position is considered for carbon accounting:
    - ***Would a commodity (e.g., coal) producer who hedges all its sales then report net-zero emissions?***[19] (e.g., positive scope 3 use of sold products netted out by negative emissions of associated hedging activity – see below worked example)
    - ***Would firms rolling their future exposure multiple times need to report the carbon each time?*** This could result in overestimating/multi-counting of the carbon emissions associated with the underlying commodity.

**Example of how accounting for hedging activity would result in greenwashing in financed emission accounting frameworks**

- Coal Producer: hedges price risk of its sales using commodity futures.
- Coal Consumer: hedges price risk of its purchases using commodity futures.

| | **Coal Producer Company Level Emissions ($t CO_2 e$)** | **Coal Consumer (Power Plant) Company Level Emissions ($t CO_2 e$)** |
|---|---|---|
| Scope 1-Abs. Emissions | 0 | 100,000 |
| Scope 2-Abs. Emission | 0 | 0 |
| Scope 3-Abs. Emissions | 100,000 | 0 |
| **Total Company Level Emissions** | **100,000** | **100,000** |
| If Accounting for Futures (Hedges) | -100,000 | +100,000 |
| **Greenwashed Company Emissions** | **0** | **200,000** |

** Simplified example isolates the coal sold/burned[20]

The use of commodity derivatives should not alter the emissions each entity accounts for. Including the emissions associated with commodity derivatives in GHG-emission accounting frameworks would introduce significant methodological challenges, leading to potential inaccuracies in reporting, less meaningful metrics for comparison, and creating opportunities for greenwashing. Therefore, such emissions should not be included in these frameworks.

## 'Facilitation' in Hedging Markets

Debate has also arisen over the role of financial participants in commodity (derivative) markets as 'facilitators' enabling hedgers in these markets to better manage their risks (through greater liquidity, and lower spreads and volatility) and reduce their cost of capital. This has led some to argue for their inclusion in GHG-emission accounting frameworks targeting financed (or endorsed[21]) emissions.

[19] For simplicity of the argument ignoring the emission associated with the mining of the coal, only focussing on the emissions associated with the coal sold.
[20] In this simple example we are assuming scope 3 emissions are entirely scope 3, category 11 (use of products sold) for the coal producer, which translates into an assumed equal value of scope 1 (coal burned directly by the power plant to generate electricity)
[21] See *SBAI Principles on GHG-Emission Accounting in Alternative Strategies*

However, there are concerns with this approach as the scope of 'facilitation' is overly broad. Many economic activities facilitate the operations of commodities producers/consumers, ranging from technical suppliers and banks (processing payments, foreign exchange, etc) to logistics providers – and even including the derivative exchanges themselves (see Appendix E on the Commodity Derivative Ecosystem). If we consider 'facilitation' in such a broad sense, it raises questions about where to draw the line for attributing responsibility for emissions.

Introducing the concept of 'facilitation' would require developing an additional framework that attributes responsibility of any type of facilitator – not just in the context of commodity instruments, but across bond and equity markets, foreign exchange, and more. This would run in parallel to existing GHG-emission frameworks that attribute responsibility for providing financing and/or influencing the cost of capital. For example, in the equity markets, brokers, exchanges, and custodians do not account for the GHG-emissions generated by the transactions that they 'facilitate', as they are not deemed responsible under financed emission frameworks.

Such a framework would be exceedingly complex and difficult to define. For instance, how could one measure the degree of 'facilitation' provided by each participant? This complexity raises questions about comparability and practical implementation for investors, particularly since it could result in multi-counting of emissions.[22]

**In conclusion, direct commodity exposure in emission accounting frameworks is not recommended for financed emission frameworks.[23]**

## External Engagement: Exchange Initiatives

As key market infrastructures, derivative exchanges play an important facilitating role in sustainability goals.[24] The World Federation of Exchanges (WFE), the global industry group for exchanges and CCPs, has outlined five principles for integrating sustainability into commodity derivative markets:[25]

1. Educate participants about sustainability issues
2. Promote availability decision-useful ESG information for investors
3. Engage stakeholders to advance sustainable finance
4. Provide markets and products that support the scaling-up of sustainable finance
5. Establish effective internal governance and policies to support these sustainability efforts

**Other indirect / external engagement channels include:**

*Policymakers* who set the enabling policy framework (this can involve lobby groups), or

*Industry groups* and NGOs which campaign for responsible supply chain management, e.g., Mining 2030, Forest 500

The principles recognise that WFE members are at different stages of market development, each facing varying opportunities and constraints.

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[22] There is substantial risk of investors double, triple (or more) counting of emissions if they own entities along the commodities value chain. This raises the risk of GHG-emission accounting frameworks becoming less meaningful for comparison and decision-making. Scope 3 emissions represent a substantially large proportion of emissions in most cases, and there are substantial data challenges (with both data availability and quality) to reporting scope 3 emissions. As such there are diverging reporting practices among investors with scope 3 not consistently being reported. Regulation such as the US SEC's Climate Disclosure Rules or EU Corporate Sustainability Reporting Directive may not mandate disclosure of scope 3 emissions which heightens these challenges.

[23] It is also important to note that all GHG-emissions related to commodities have already been accounted for through corporate emission frameworks, including scope 3 category 11 ('use of products sold') in the GHG Protocol

[24] Similarly, the *Sustainable Stock Exchanges (SSE)* Initiative, launched by the UN in 2009, encourages stock exchanges to adopt and promote environmental, social, and governance standards. The key goals are to encourage transparency, promote responsible investment, and foster market practices.

[25] The World Federation of Exchanges: Sustainability & Commodity Derivatives White Paper, Tuesday 20 August 2019, access here: https://www.world-exchanges.org/storage/app/media/research/Studies_Reports/wfe-commodity-derivatives-sustainability-final-wpaper-200819.pdf

Many major derivative exchanges have launched initiatives to address these challenges, such as developing new risk mitigation tools, dedicated sustainability derivatives, and enhancing transparency and traceability. Some of these exchanges have also worked to incorporate environmental standards into the products traded on their platforms. These standards and relevant quality attributes apply to the underlying commodities and therefore require close collaboration with market participants (corporates along the value chain) to build consensus. This, in turn, creates a direct link to corporate decision-making on sustainability practices and transparency, serving as a powerful mechanism for real-world impact.

Investment managers can consider these developments as they build their investment strategies and seek to engage with exchanges to express preferences on sustainable derivatives, transparency, traceability, standards, and other attributes on underlying assets.

## CME Group

CME Sustainable Products offer a range of trading products that support sustainable practices through various nature of change / impact. These include contract modifications that focus on greening existing benchmarks (across agriculture and precious metal commodities) based upon existing government and voluntary industry standards. Governance and independent verification of these practices then overseen by relevant external bodies (e.g., London Bullion Market Association, Soy Producers Association, etc). Some example contract modifications seen below:[26]

| Product | Date | Nature of Change |
|---|---|---|
| **Heating Oil** | May 2013 | Transitioned to cleaner-burning ultra-low-sulphur diesel (ULSD) |
| **Gold** | April 2025 | Implemented responsible sourcing requirements |
| **Light Sweet Crude Oil** | January 2019 | Amended to have lower metals and acid content |
| **Palm Oil** | April 2021 | Matched the Bursa Malaysia requirement that palm oil deliveries be Malaysian Sustainable Palm Oil (MSPO)-certified |
| **Silver, Platinum, Palladium** | May 2021 | Implemented responsible sourcing requirements |
| **Live Cattle** | February 2022 | Prohibited the redelivery of cattle within the current delivery period |
| | December 2023 | Required that live cattle be managed according to animal quality and well-being best practices |

Through the CME Group's Sustainable Clearing service, market participants can track and report how their hedging activities are advancing sustainable clearing. Other aspects to their offering include:

- Carbon Offsets: CME Group offers futures and options contracts on carbon offset credits, allowing market participants to trade credits from projects that reduce or remove GHG-emissions.
- Renewable Energy Certificates (RECs): Trading in RECs helps companies and investors support renewable energy production.

## London Metals Exchange (LME)

LME Responsible Sourcing policy, launched in 2019, expanded brand listing criteria to include responsible sourcing requirements.[27] This aims to ensure that LME-listed brands implement the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High Risk Areas ("OECD Guidance") through track A, B, or C, or confirm secondary sourcing through track D.[28] In addition, LME brand producers must maintain ISO 14001 and 45001 certifications, or equivalents.[29] Similar to the London Bullion Market Association (LBMA, the industry association representing the OTC market for precious metals), which introduced responsible sourcing requirements for gold in 2012 ('Responsible Gold Guidance, RGG'[30]), the LME maintains a 'good delivery list reflecting brands that meet LME's responsible sourcing requirements. Key features:

- OECD Guidance Implementation: LME brand producers follow the OECD Guidance as a framework for responsible sourcing for non-3TG metals (Tin, Tantalum, Tungsten, Gold), while the LME process integrates existing industry initiatives to build on established sector practices.
- Recognition of OECD alignment assessed standards via track A compliance: LME brand producers can comply with the OECD Guidance implementation by adopting an industry standard that has undergone the OECD alignment assessment process.[31]
- Digital Reporting: LMEpassport is the LME's credentials register, providing details on assets (smelters/refiners) and metal levels.[32] LME-listed producers may also voluntarily share additional sustainability metrics and certifications that go beyond the LME's requirements.
- Carbon: In addition to the LME responsible sourcing requirements, LME aluminium brand producers are required to submit direct and indirect emissions data to LMEpassport by 15 June 2025 to meet the EU's Carbon Border Adjustment Mechanism (CBAM) requirements.

Additionally, voluntary reporting utilising IAI Aluminium Carbon Footprint Methodology will also be accepted to provide a variety of emissions data.[33]

### EEX Group

The European Energy Exchange (EEX) has been actively involved in promoting sustainability across its products and services, including:

- Carbon Allowances: EEX facilitates the trading of carbon allowances through provision of the primary infrastructure under the EU Emission Trading System (EU ETS) and New Zealand ETS, as well as the North American carbon markets.
- Sustainable Trading Products: EEX Group supports the trading of renewable energy certificates (RECs),Guarantees of Origin (GOs), and power purchase agreements (PPA)[34], and enables nascent markets in renewable products like biogas and green hydrogen.

### ICE Futures

ICE Futures ESG Initiatives have sought to support environmental challenges primarily through the creation of new risk mitigation and investment tools:

- Carbon Credit Markets: ICE operates carbon credit markets, enabling the trading of allowances that help companies comply with carbon emissions regulations.
- Renewable Energy Transition: ICE offers futures and options on a variety of Renewable Indentification Numbers (RINs) recognised under the Renewable Fuel Standard (US) as a tool for managing price volatility, as well as Renewable Energy Certificates (RECs).
- Sustainable Bond Market: ICE supports the trading of green bonds, social bonds, and sustainability-linked bonds, which are used to finance projects with climate-positive impacts.

ICE Commodity Traceability (ICoT) service also seeks to support the coffee and cocoa industries in meeting the requirements of incoming regulation relating to the EUDR.[35]

## Conclusion

This paper bridges the gap in understanding the responsible investment considerations in financial commodities, with a particular focus on the challenge of GHG-emission accounting.

Financial participants in commodity derivative markets sit outside of direct decision-making and direct influence on cost of capital of the decision-making entities (corporates) in the commodities value chain.

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[26] CME Group *Sustainable Products Overview*, access here: https://www.cmegroup.com/company/corporate-citizenship/files/esg-factsheet.pdf

[27] An LME brand is a brand of metal that a producer has registered on the LME as a deliverable against the relevant metals contract. To have an LME brand, an applicant must go through an application process and meet requirements on quality, shape, weight, and responsible sourcing. As of August 2024, there were more than 360 brands listed on the LME from more than 55 countries, see: https://www.lme.com/-/media/Files/About/Responsibility/Responsible-sourcing/Policy-documents/LME-Policy-on-Responsible-Sourcing-of-LME-Listed-Brands--2023.pdf

[28] OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (3rd edition), access: https://www.oecd.org/en/publications/oecd-due-diligence-guidance-for-responsible-supply-chains-of-minerals-from-conflict-affected-and-high-risk-areas_9789264252479-en.html

[29] LME responsible sourcing, access here: https://www.lme.com/en/Education/Online-resources/LME-insight/LME-Responsible-Sourcing

[30] The Responsible Gold Guidance (RGG) is based on the OECD Due Diligence Guidance as well as Swiss and US KYC, Anti-Money Laundering and Combatting Terrorist Financing regulations. This was expanded to silver in 2018 ('Responsible Silver Guidance, RSG'). Access guidance documents here: https://www.lbma.org.uk/responsible-sourcing/guidance-documents

[31] See OECD Alignment Assessment Methodology: https://mneguidelines.oecd.org/OECD-Due-Diligence-Alignment-Assessment-Methodology.pdf

[32] Sustainability, LME, access here: https://www.lme.com/Sustainability-and-Physical-Markets/Sustainability

[33] *LME CBAM emissions reporting*, see: https://www.lme.com/Sustainability-and-Physical-Markets/Sustainability/LME-CBAM-emissions-reporting

[34] *Renewable Energy Hedging*, EEX Group, access here: https://www.eex.com/en/markets/power/renewable-energy-hedging

[35] ICE (June 2023), access: https://ir.theice.com/press/news-details/2023/ICE-Benchmark-Administration-Plans-to-Launch-ICE-Commodity-Traceability-Service-to-Help-Cocoa-and-Coffee-Industries-Comply-with-EU-Deforestation-Regulation/default.aspx

Furthermore, the concept of market facilitation is overbroad, applying to many economic activities along the commodities value chain, and does not reconcile with a financed emissions framework.

Therefore, **the SBAI does not recommend including commodity derivatives in portfolio GHG-emission calculations**, as their inclusion is not meaningful for comparison.

However, financial participants in commodity derivative markets are not entirely without influence and may seek to engage with derivative exchanges, who are well positioned to be catalysts for transparency, traceability, and sustainability. Meaningful change requires multi-stakeholder efforts and engagement to build consensus around what is possible, raise standards over time, and ensure that necessary trading products and systems are in place to support sustainability goals. Investors should be aware of challenges with this, such as lack of consensus on standards among brands traded, and insufficient demand to establish clear benchmarks.

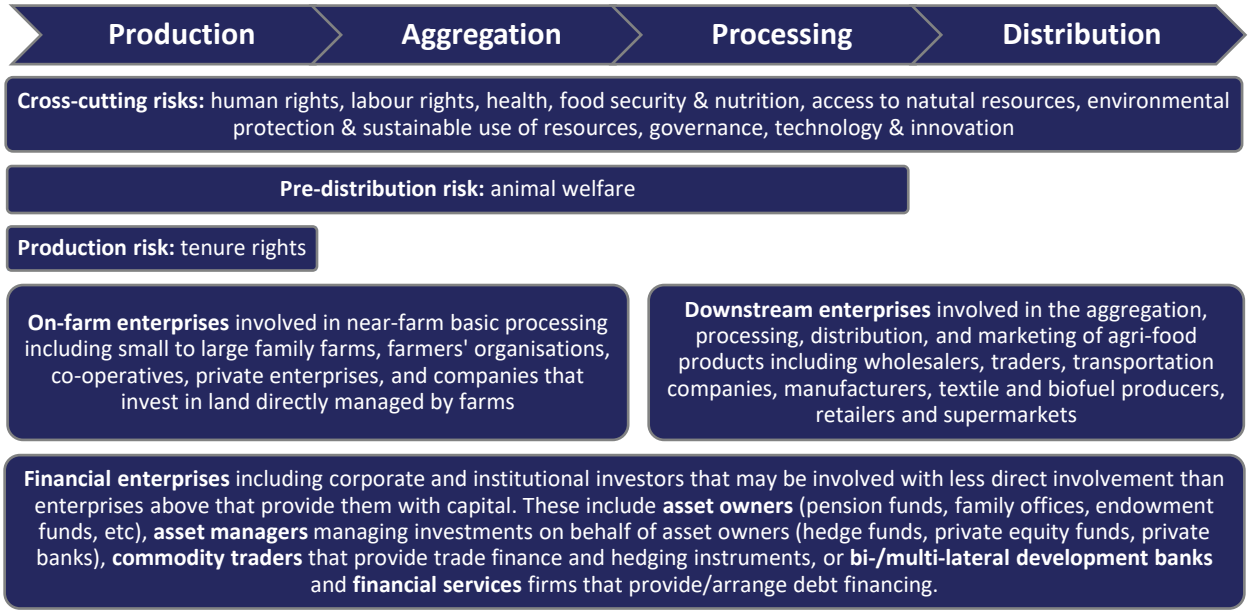
## Appendix A: OECD-FAO Guidance for Responsible Agricultural Supply Chains

The Organisation for Economic Co-operation and Development (OECD) and the Food and Agriculture Organisation of the United Nations (FAO) *Guidance for Responsible Agricultural Supply Chains* has been developed to help enterprises observe standards for responsible business conduct along agricultural supply chains.[36] Though the guidance focuses on agriculture, it provides a strong foundation to understand responsible investment considerations across all commodities broadly. It includes:

- A model enterprise policy outlining the standards that enterprises should observe to build responsible agricultural supply chains
- A framework for risk-based due diligence describing the steps that enterprises should follow to identify, assess, mitigate and account for how they address the adverse impacts of their activities:
    1) Establish strong company management systems
    2) Identify, assess, and prioritise risks in supply chains
    3) Design and implement a strategy to respond to risks
    4) Verify supply chain due diligence
    5) Report and supply chain due diligence
- A description of the major risks faced by enterprises and the measures to mitigate these risks
- Guidance for engaging with indigenous peoples

The guidance aligns with OECD's *Due Diligence Guidance for Responsible Business Conduct*, which provides practical support on the implementation of OECD *Guidelines for Multinational Enterprises* by providing plain language explanation of its due diligence recommendations.[37] Depending on where along the supply chain, stakeholders can focus on different risk considerations and scope of involvement.

**Various stages of agricultural supply chains and risks and enterprises involved[38]**




[36] OECD-FAO *Guidance for Responsible Agricultural Supply Chains,* access here: https://mneguidelines.oecd.org/oecd-fao-guidance.pdf
[37] OECD *Due Diligence Guidance for Responsible Business Conduct*, access here: https://mneguidelines.oecd.org/OECD-Due-Diligence-Guidance-for-Responsible-Business-Conduct.pdf
[38] Recreated from OECD-FAO *Guidance for Responsible Agricultural Supply Chains* (pg. 20)

## Appendix B: Mechanisms for Impact and SBAI Principles for GHG-Emission Accounting

When making any investment decision, investors have three channels for impact available by which they can implement responsible investment strategies, including:

- **Investor engagement / stewardship** including engagement with company's executives either one-on-one or through collaborative initiatives, filing motions and/or using voting rights to influence decision-making, taking on board roles, supplier monitoring / negotiation, etc.
- **Providing new capital (cash)** via primary markets
- **Influencing cost of capital** in primary and secondary markets (including derivative and short positions in underlying companies)

The above lenses should be used to assess and measure potential for outcomes in any investment decision. Investors gaining indirect exposure to commodities through equity or debt investment in companies along the commodity value-chain can seek to have impact through any of the above channels.

As discussed in the SBAI Principles for GHG-Emission Accounting, impact through trading derivative and short positions of underlying companies is made through the cost of capital channel, and thus derivative and short positions must be accounted for in GHG-Emission Accounting to ensure accurate measurement and avoid greenwashing of the risks associated with those underlying companies.

This is because when you trade a derivative instrument you are taking the opposite side of your broker, who, failing to find an investor to take the mirror of your contract, will hedge their exposure by trading in the underlying – so there is no difference in cost of capital influence in secondary markets. The same spot market impact occurs when shorting an underlying. The prices of each are tightly linked through arbitrage pricing.

## Appendix C: Sustainability Frameworks and Certifications

A number of frameworks and certifications have sought to promote sustainability in supply chains.

One example of a mandatory framework is the *Malaysian Sustainable Palm Oil (MSPO)* certification scheme in Malaysia, which established strict guidelines for palm oil plantations, independent and organised smallholdings, and palm oil processing facilities to be certified against by 2025.

The *European Union Deforestation Regulation (EUDR)*, which enters into force in 2025/26, is another example of a legally enforced framework aimed at minimising the EU's contribution to global deforestation and ensuring that certain commodities and products sold in the EU are 'deforestation-free'.[39] This regulation is supported by a Deforestation Due Diligence Registry to streamline the creation of due diligence statements within supply chains.[40] The EUDR has been supported by the Investor Policy Dialogue on Deforestation (IPDD).[41]

There are also a substantial number of voluntary frameworks. Some notable examples include:

| Voluntary Frameworks | Summary |
|---|---|
| Organisation for Economic Co-operation and Development (OECD) and the Food and Agriculture Organisation of the United Nations (FAO) *Guidance for Responsible Agricultural Supply Chains*[42] | Provides comprehensive guidelines for managing risks in agricultural supply chains, addressing issues like labour rights, deforestation, and resource use |
| *Equator Principles* | Primarily focused on project finance in large-scale infrastructure, which can overlap with commodities (e.g., mining projects, oil/gas exploration), but is not exclusive to commodities |
| *UN Global Compact* | Broad principles on human rights, labour, environment, and anti-corruption applicable to companies in commodity supply chains that wish to align with universal sustainability goals |
| *International Sustainability Standards Board (ISSB)* | Unified sustainability disclosure standards relevant to commodity producers to provide standardised, reliable sustainability disclosures to investors |
| *Responsible Minerals Initiative (RMI)* | Risk management and responsible sourcing framework for minerals critical for mining and metals commodities, ensuring compliance with due diligence standards on human rights and environmental risks |
| *United Nations Forum on Sustainability Standards (UNFSS)* | Focuses on sustainability standards in global trade, indirectly relevant to commodities by supporting supply chain sustainability |

[39] EU Deforestation Regulation (Regulation (EU) 2023/1115), see: https://trade.ec.europa.eu/access-to-markets/en/news/application-eudr-regulation-deforestation-free-products-delayed-until-december-2025
[40] The Deforestation Due Diligence Registry, access here: https://green-business.ec.europa.eu/deforestation-regulation-implementation/deforestation-due-diligence-registry_en
[41] Article: Institutional investors back EU deforestation regulation (13 Nov 2024) access here: https://www.ipe.com/news/institutional-investors-back-eu-deforestation-regulation/10076808.article
[42] See Appendix A for further detail on the *OECD-FAO Guidance for Responsible Agricultural Supply Chains*, or access full guidance here: https://mneguidelines.oecd.org/oecd-fao-guidance.pdf

Investors may also consider how companies interact, if at all, with recognised voluntary certification bodies which institute various standards to ensure compliance with specified criteria which are then verified by independent audits. There are a substantial number of certification bodies, with some overlap in this space. Investors and managers should due diligence these standards and their governance. Some notable certifications are listed below:

| **Certification – Agriculture** | **Summary** |
|---|---|
| *Fair Trade* | Ensures fair wages, ethical working conditions, and sustainable farming practices in a range of agricultural commodities including coffee, tea, cocoa, sugar, bananas, and cotton |
| *Rainforest Alliance* | Combines social, environmental, and economic standards for sustainable farming and forestry in a range of commodities including coffee, tea, cocoa, bananas, and palm oil |
| *Roundtable on Sustainable Palm Oil (RSPO)* | Promotes sustainable palm oil production, addressing deforestation and social issues |
| *UTZ Certification* | Ensures sustainable agricultural practices and fair treatment of farmers in coffee, tea, and cocoa markets |
| **Certification – Forestry** | **Summary** |
| *Forest Stewardship Council (FSC)* | Ensures responsible forest management, works to prevent deforestation, and promotes biodiversity in timber and paper products |
| *Programme for the Endorsement of Forest Certification (PEFC)* | Promotes sustainable forest management and timber supply chains in timber and wood products |
| **Certification – Fisheries and Seafood** | **Summary** |
| *Marine Stewardship Council (MSC)* | Ensures sustainable fishing practices, preventing overfishing, and ecosystem damage in wild-caught seafood |
| *Aquaculture Stewardship Council (ASC)* | Promotes responsible fish farming practices in farmed seafood |
| **Certification – Mining and Metals** | **Summary** |
| *Copper Mark* | Promotes responsible production of copper with attention to environmental and social issues |
| *Responsible Jewellery Council (RJC)* | Promotes ethical practices in the production of jewellery including gold, diamonds, and platinum |
| *Aluminium Stewardship Initiative (ASI)* | Promotes sustainability and responsibility in aluminium products |
| **Certification – Textiles and Apparel** | **Summary** |
| *Worldwide Responsible Accredited Production (WRAP)* | Ensures ethical and sustainable practices in apparel and textile manufacturing |
| *Global Organic Textile Standard* | Certifies organic fibres and ensures sustainable textile production |

## Appendix D: Impact of Financialisation in Commodity Derivative Markets

The rapid growth in trade volumes and financialisation of the global commodity futures market has raised concerns around the impact of financial participants (speculators and arbitrageurs) in these markets. This has prompted exploration by academics and regulators, including the International Organisation of Securities Commissions (IOSCO). Specifically, questions have been raised around whether these new 'investor' classes have contributed to volatility surges in underlying commodity markets.

This perception often results in speculators facing blame when commodity prices spike. These narratives are particularly sensitive around food commodities, including staples such as wheat or rice ("grain hoarding"). Recently, speculators have faced blame for record price increases in cocoa futures caused by drought.[43] While these narratives are compelling, the evidence supporting them is limited and mixed, with any effects being limited to the short-term. The long-term drivers of commodity price movements are shifts in market fundamentals that affect supply and demand – factors such as changing economic conditions, production capacities, geopolitical factors including conflicts and sanctions, weather, etc.

Some academic literature on the topic below:

| | |
|---|---|
| The Simple Economics of Commodity Price Speculation, Knittel, Pindyck (2016) | Finds that speculation was not the explanation for sharp changes in oil prices since 2004 through analysis of inventories and future-spot spreads. In the given sample, finds that speculation decreased prices on average or left them unchanged, reducing peak prices by c.5%. |
| Fattouh, Kilian, Mahadeva (2013) | "existing evidence is not supportive of an important role of financial speculators in driving the spot price of oil after 2003" |
| Kilian and Murphy (2014) | Note a connection between speculative activity and inventory changes – no evidence that speculation increased prices |
| Hamilton (2009) | Examines possible causes of oil price changes and concludes that speculation may have played some limited role in 2007-08 |
| Smith (2009) | Does not find evidence that speculation increased prices between 2004-08… noting inventories were drawn down during this time and there is no evidence that non-OPEC producers reduced output |
| Alquist, Gervais (2013) | Use Granger causality tests to argue that financial speculation had little to no impact on prices |
| Irwin, Sanders, Merrin (2009) | Four main points are explored. First, the arguments of bubble proponents are conceptually flawed and reflect fundamental and basic misunderstandings of how commodity futures markets actually work. Second, a number of facts about the situation in commodity markets are inconsistent with the existence of a substantial bubble in commodity prices. Third, available statistical evidence does not indicate that positions for any group in commodity futures markets, including long-only index funds, consistently lead futures price changes. Fourth, there is a historical pattern of attacks on speculation during periods of extreme market volatility. |
| Gilbert (2010) | Gilbert uses data on index fund positions in the U.S. agricultural futures markets as a proxy for total index-related futures positions in all markets. Granger causality tests using this proxy measure suggest that index investors may amplify fundamentally driven price movements. |

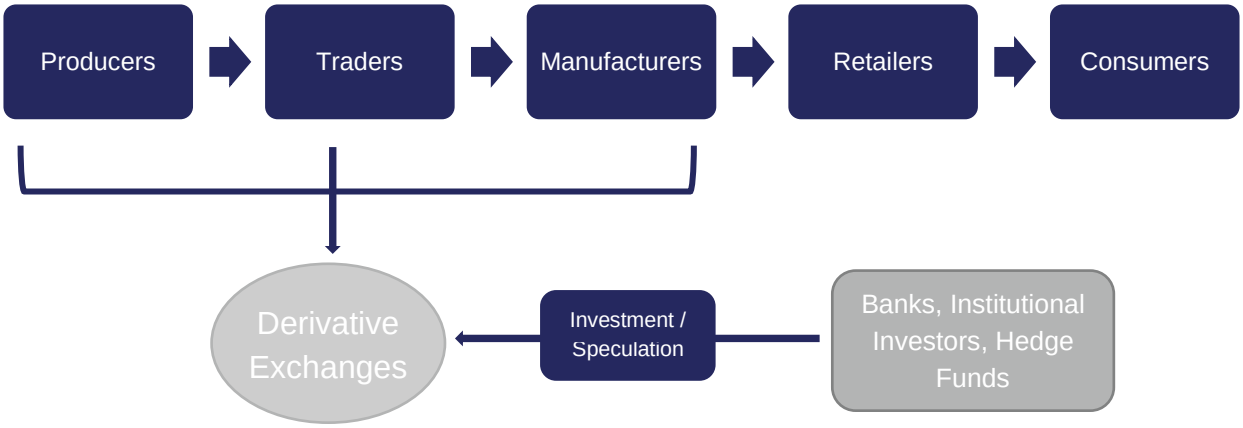
[43] *Hedge fund stampede into cocoa futures fuels record price jump* (Feb 2024), access here: https://www.ft.com/content/563227fe-edfb-40bd-bea9-dc2822ba4f27

| | |
|---|---|
| Irwin and Sanders (2011) | Irwin and Sanders test whether the growth in index funds has increased price volatility in agricultural and energy markets. To do so, they conduct a Granger causality test between measures of traders positions and speculation against volatility of returns. They find no evidence to suggest that index funds caused a price bubble in agricultural commodity markets. |
| Bohl, Putz and Sulewski (2021) | Bohl et al. conduct a fixed-effects panel regression across 20 commodity markets. This model finds no evidence of a significant relationship between speculative activity and the degree of informational efficiency, after controlling for volatility and liquidity. |
| Alquist and Gervais (2013) | Alquist and Gervais find that financial firms' positions did not cause oil price fluctuations during 2007/8. They use the Working T-index to examine the importance of financial firms in driving oil price volatility and find no empirical evidence to suggest a strong relationship between the position of speculators and price changes. |
| Buyuksahin and Harris (2011) | Buyuksahin and Harris test the correlation between the Working T-index and daily price changes in the crude oil market. They report a near zero correlation between the two series. |
| Brunetti, Buyuksahin and Harris (2011) | Brunetti et al. consider specific categories of traders and test whether positions taken by each cause changes in volatility in oil prices. They conclude that the results are consistent with speculators providing liquidity and responding to market conditions, rather than the opposite. |

## Appendix E: Commodity Derivative Ecosystem

Derivative exchanges sit at the centre of a broader ecosystem of risk transfer. In addition to investors, speculators, and hedgers, there are several other participants that are required for commodity markets to function:[44]


Any product needs to be supported by relevant stakeholders in the ecosystem beyond just the exchange. This includes the end-users who ultimately use this market to hedge price risk associated with their production or use of these commodities. Banks, institutional investors, and hedge funds sit adjacent to the commodity supply chain, as participants in this exchange ecosystem.




[44] See figures 2.2 and 2.3 in *How derivatives exchanges can promote sustainable development: An action menu*, Sustainable Stock Exchanges and World Federation of Exchanges, here: https://sseinitiative.org/sites/sseinitiative/files/documents/sse-wfe-derivatives-exchanges-guidance.pdf