

### The Evolution of Sustainable Investing in Commodities: A Primer on ESG Data of Today

Quarterly Appraisal Process for SA Team

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# EXECUTIVE SUMMARY

2022 was a turbulent year not only in current affairs but in the commodities industry. The early whispers of a commodity supercycle soon dissipated when Covid-19 unmasked deep, underlying unsustainable practices in global supply chains, causing freight prices to soar. Oil prices similarly skyrocketed after Russia invaded Ukraine, creating an energy crisis in Europe, where moral and social panic continues. The Communist Party of China's restructuring of a collapsed Evergrande and implementation of stringent zero-covid policies sent Chinese stock prices crashing. It seems the financial world is on the precipice of collapse, with global inflation pointing to a looming recession.

It is no surprise that ESG investing gained much momentum in 2022, offering investors a (relatively) new, untainted avenue to make lucrative deals – perhaps a silver lining to the chaos? Perhaps not. The EU's anti-deforestation laws, COP27, and other similar initiatives espouse noble ideals of sustainability without recognising the reality of how capital and resources are unequally distributed globally. With natural disasters repeatedly cited to fearmonger 'climate change' without critical analysis<sup>1</sup> and rampant greenwashing, it is becoming more difficult to discern between legitimate projects and fluff. Objective analysis is essential to circumvent these ruses and ensure sound investing, and data is the undeniable foundation for this.

Billionaire Bloomberg has publicly championed the utility of data in ESG investing and celebrated his plans to expand his green energy initiatives into Africa, Asia, and Latin America and "help governments and business[es] work closely together to change policies that favour fossil fuels, identify potential clean energy projects, and make them attractive to investors."<sup>2</sup>

Data itself is a behemoth in its myriad of sets, making it too unspecialised to act as a silver bullet. To create utility, data - especially ESG data pertaining to vulnerable groups - must be fairly operationalised in an actionable manner. In-depth industry knowledge is necessary to ensure relevant data is collected and objectively analysed.

## INTRODUCTION & HISTORY

The relationship between ESG and commodities was limited (almost non-existent), and simplistic, early mindset still firmly planted in "ethical investing" roots

### The Early ESG Investing Mindset

Socially-responsible investing (SRI<sup>3</sup>) evolved to "ethical investing", with its roots in<sup>4</sup>:

- **Priorities:** Early ESG investing was essentially equivalent to ethical and impact investing, prioritising "doing good" over investment returns<sup>5</sup>
- **Strategies:** pronounced ethical bents, ie: negative/exclusionary screening, and a "sin stock" aversion

### Limited Interest in Commodities – Limited, simplistic Relationship

In the formative years of ESG investing, mindset, priorities, and strategies manifested in two general areas:

1. **Commodity Stocks:** Focus on commodities-related stocks (e.g., of commodity producers) as a "target" of negative screening, and with an emphasis on greenhouse gas emissions..
2. **Commodities Proper:** Any form of investing in commodities per se (physical or derivatives) was strictly verboten, not by formal rule but by the prevailing mindset and ethical judgments.

### Commodity Stocks and Negative Screens

As discussed, early ESG investing was dominated by – and thus effectively synonymous with – negative (aka exclusionary) screening.

1. **Negative Screening:** active exclusion based on values, preferences, or objectives
2. **Best-in-Class:** "positive screening" of sorts; the active inclusion of top performers, à la "ESG leaders"
3. **ESG Integration:** systematic incorporation of ESG in the investing process
4. **Thematic ESG:** focus on one specific aspect of ESG such as environmental issues

Exclusionary screens are still popular, but today account for a much smaller percentage of total assets. Most famous (or infamous) are so-called "sin stocks" – stocks of companies engaged in morally-dubious businesses or exploitative of humankind's many vulnerabilities, making them subjective to individual interpretation<sup>6</sup>. Quintessential sin stocks include alcohol, tobacco, gambling, pornography, and weapons.

## NOW: THE INCREASING ROLE OF COMMODITIES

The mainstreaming of ESG is bringing commodities to the fore – driven by a new mindsets, products, commodity-specific regulations, and reporting

### Mainstreaming of ESG as Catalyst

ESG's recent (and ongoing) evolution from obscure investing niche to widespread adoption by (but not exclusively) by investors and issuers. This complex mega-trend involves many interrelated sub-trends of diversity (e.g., investors, asset classes, investing strategies) creating a moderately collective psychological mindset, new and pending ESG-related regulations, reporting and disclosures with new, niche frameworks filling gaps left by the general ESG frameworks (GRI, SASB, etc.), and a slew of new research, ratings, funds that are evolving to meet more diverse investor demands, including the launch of several new bona fide physical commodity ETFs with formal ESG mandates.

### Dearth of Commodity-Specific ESG data

- **Actionable:** data and information that is relevant (aka material), quantifiable, standardised, comparable, timely (in terms of reporting cycles), and so forth.<sup>7</sup>
- **Commodity:** "Commodity-specific" meaning relevant to a particular commodity (or group of commodities), versus generic or universal ESG metrics being applied to commodities. But therein lies opportunity.

Not for the MSCIs of the world, but for a new breed of ESG data provider – i.e., technology-oriented startups, such as Helixtap Technologies<sup>8</sup>, with specific domain expertise (e.g., natural rubber), strong regional presence and familiarity (e.g., in Southeast Asia), and a deep understanding of sustainability and ESG issues (generally, but particularly vis-à-vis investing).

## CURRENT STATE OF COMMODITIES AND ESG

Nearly 40% (around US\$47 trillion) of global investment assets under management are ESG-dedicated assets, and about 50% (by market capitalisation) of the world's listed issuers are subject to mandatory sustainability/ESG reporting.<sup>9</sup>

“There is no transition pathway to a climate-neutral world that does not involve commodities.” – Mercer Asset Management<sup>10</sup>

### ESG Investing in Commodities

Investors are increasingly aware of critical roles that commodities play in sustainable development and many “new economy” industries. Industrial and precious metals are essential to EVs and batteries. Billions of tonnes of metals/minerals are needed for solar panels and wind turbines. Global food security is reliant on agricultural commodities. Sustainable natural rubber can reduce fossil fuel consumption while sequestering carbon dioxide. Commodity derivatives provide intelligence to inform climate policymaking and carbon pricing. Even more “traditional” ESG investors (e.g., pension funds) are now embracing commodities. Harvard found that 25% of global institutional investors include commodities in ESG strategies, up from 8% in 2021. Moreover, hedge funds are a growing ESG segment. ESG AUM is still small (US\$35 billion) but growing at double-digit rates and hedge funds have no qualms whatsoever with commodity investing. Lastly, new commodity ETFs and ETCs are being launched regularly.<sup>11</sup>

The evolving relationship between ESG and commodities works in the opposite direction – commodity investors taking greater interest in ESG. A study found that 47% of commodity investors now incorporate ESG factors, up from 37% in 2021. Several commodity exchanges already have responsible/ESG sourcing rules and recently the U.S. Commodity Futures Trading Commission requested comments from stakeholders regarding commodities, sustainability/ESG, and climate change-related financial risks.<sup>12</sup>

Source: Alppha Research for Helixtap.

## FOREST-RISK COMMODITIES: A FOREMOST ESG PRIORITY

Deforestation is a leading cause of global warming, responsible for 25% of the global GHG emissions. Commodity-driven deforestation represents 5%, or 3 billion MtCO<sub>2</sub>e (metric tonnes of CO<sub>2</sub> equivalent), and indirectly much more via a three-pronged attack:

1. living trees sequester CO<sub>2</sub> and when cut down stored CO<sub>2</sub> is released into the atmosphere,

2. cut trees no longer serve as carbon sinks hence even more atmospheric CO<sub>2</sub>, and
3. new land uses (reasons for cutting trees) are often climatically worse, especially pasture for cattle (cows are quite emissions-intensive, from all ends).

Deforestation is more than mulch and mignon, however, its adverse impacts extend far beyond its catalytic role in global warming to include financially-material physical climate risks, and a myriad of transition risks. Regulatory transition risk is especially poignant in light of numerous new supply-chain deforestation laws that have far-reaching ramifications and represent a growing source of direct supply chain risk, across sectors and around the world. It is no wonder, then, that forest-risk commodities are a foremost commodity-related ESG priority... for issuers and investors.

Forest-risk commodities – ordered by global deforestation impact (worst to least-worst) in millions of hectares deforested – are cattle (land-use), palm oil, soy, cocoa, rubber, coffee, pulp/paper, and timber. Cattle, palm oil, and soy account for 90% of total deforestation. Cattle is the worst (63%). Others (rubber, cocoa, etc.) just 3% each according to the World Resources Institute.<sup>13</sup>

### Companies: Reporting and Regulations

Commodity-related ESG factors have always been relevant to commodity producers and, to a lesser extent, commodity-intensive consumers (e.g., tire manufacturers vis-à-vis natural rubber). That still holds, but the relevance of commodity-related ESG factors now extends further, to include companies in practically every sector and industry. This is, first and foremost, attributable to investor pressure, but also to recent trends of sustainability/ESG reporting and new and pending regulations related to forest-risk commodities.

### General Sustainability/ESG Reporting Trends

More companies are publishing sustainability reports – 96% of the world's largest companies, and 80% of the 100 largest per country (5,200 companies in 52 countries).<sup>14</sup> Today, about 31,500 listed issuers (total market capitalisation of US\$44.1 trillion) are subject to mandatory reporting requirements – 60% of issuers and 40% of market cap.<sup>15</sup> These statistics attest to breadth (more issuers reporting), but an equally important trend pertains to depth of – disclosures going deeper into corporate value chains, and bringing commodities into the light. Two of innumerable causal factors are:

- **Materiality Assessments:** More companies are conducting (and disclosing) materiality assessments of climate-related risks. Those assessments require deeper dives into corporate value chains. Dig deep enough, and every corporate value chain will eventually strike at least one forest-risk commodity, and most likely multiple
- **Emissions Accounting:** For a variety of reasons,<sup>16</sup> deep dives often focus on Scope 3 emissions (aka supply chain emissions). As above, tracing Scope 3 emissions far enough will ultimately lead to commodities regardless of company. In short, a side effect of Scope 3 accounting is that commodities are brought into the light.

## Forest-Risk Commodity-Related Regulations

Commodity producers have been subject to local regulations for years, but there is a new class of forest-risk commodity-related regulations, with far-reaching ramifications. Specifically, supply-chain deforestation regulations that can translate into direct risks for downstream entities (e.g., tire manufacturers), the main subjects of these regulations, and indirect risks for upstream entities (e.g., smallholder rubber producers) vis-à-vis “trickle-up” repercussions. Strict due diligence requirements – and healthy fear of penalties – are driving issuers to improve commodity-related disclosures.

- **U.K. Environment Act 2021:** Passed 9 November 2021, it includes so-called “forest-risk laws” which: 1) prohibit use (primarily but not necessarily by U.K.-domiciled companies) of all commodities linked to illegal deforestation, 2) requires companies abide by “relevant local laws” regarding legal land ownership and other issues, and 3) mandates due diligence for “critical” forest-risk commodities (beef, cocoa, coffee, maize, palm oil, rubber, soy) in company supply chains. Monetary fines and/or other economic sanctions are imposed for violations of the Act.<sup>17</sup>
- **EU Deforestation Regulation:** Proposed in November 2021, the proposal was criticised for excluding rubber<sup>18</sup> from its “relevant commodities,” and the financial services sector from its purview. In September 2022, the European Parliament approved modifications to add: 1) banks, investors, and insurance companies to its purview, and 2) additional commodities such as rubber, livestock (pigs, sheep, goats, poultry), maize, and paper. The proposal must pass in the EU’s tripartite legislative process, and then by member states.<sup>19</sup>
- **U.S. FOREST Act of 2021:** U.S. Senate Bill 2950, was introduced by Senate Democrats in October 2021. S.2950 regulates countries by prohibiting the exportation into the U.S. of forest-risk commodities (palm oil, soy, rubber, pulp, cocoa, beef) linked to illegal deforestation and imposing fines and/or non-financial penalties on contributing trade partners. S.2950 has bi-partisan support, as evidenced by companion legislation introduced by House Republicans.<sup>20</sup>

Source: Alppha Research for Helixtap. The above are recent forest-risk commodity-related regulations, but there are others. For example, the U.S. statute “19 U.S.C. 1307” pertains to forced labour in forestry and agriculture, and in 2020 was used by U.S. Customs to ban palm oil imports from Sime Darby Plantations over allegations of forced labour in Malaysia.<sup>21</sup>

## FOREST-RISK COMMODITY FRAMEWORKS AND STANDARDS

SG data needs to be relevant, informed, standardised, and timely. Despite a vibrant ecosystem of third-party ESG data providers, investors are still heavily-reliant on primary-source, company-reported data. Sustainability/ESG reporting frameworks and standards play a pivotal role in facilitating disclosure and availability of relevant and standardised sustainability and ESG data and information. Relevant frameworks:

- **General (Universal Frameworks):** General frameworks/standards (e.g., GRI, SASB, TCFD) address forest-risk commodities indirectly via: 1) highly relevant universal standards, 2) industry-specific standards/guidance re: commodity-related issuers, and 3) climate-centric guidance on related issues.

1. **Forest-Risk (Multi-Commodities):** Frameworks even more relevant to forest-risk commodities, including: 1) exclusively issues-centric frameworks (e.g., deforestation), 2) commodity-centric frameworks that view forest-risk commodities as a multi-commodity group (often excluding rubber).
2. **Forest-Risk (Commodity Specific):** Several commodity-specific (e.g., natural rubber, palm oil) frameworks, whilst not reporting frameworks in a traditional sense, are notable because: 1) they are detailed and informed by commodity-specific expertise, and 2) serve as blueprints for future commodity-specific reporting frameworks

\*“Frameworks” and “standards” have different formalities but are incorrectly used interchangeably in discourse, resulting in inconsistent and incomparable ESG data.

## Universal Reporting Frameworks/Standards

None of the universal frameworks and standards<sup>22</sup> address commodities directly, but all broach commodities indirectly.

Many GRI standards are related to forest-risk commodities. Others (e.g., SASB, TCFD) have industry-specific standards or guidance for commodity-related companies. Climate and nature frameworks (i.e., TCFD, TNFD) address commodity-related issues.

- **GRI - General (Standards):** GRI<sup>23</sup> standards are universal but many are relevant to issuers across forest-risk commodity value chains. Moreover, GRI standards are: 1) detailed and data-oriented, and 2) widely-adopted.
- **SASB - General/Industry (Standards):** SASB’s<sup>24</sup> 77 industry-specific standards cover all the major commodity-related industries, including forest-risk. SASB is not widely adopted outside of the U.S., which is unfortunate because SASB takes a purely financial stance on materiality putting it amongst the most investor-centric of “general” ESG reporting frameworks.
- **TCFD - Climate/Industry (Framework):** TCFD<sup>25</sup> is a climate-focused framework. Industry-specific, but not all industries. Highly investing-relevant because: 1) it’s based on a financial view of materiality, 2) it results in tangible ESG data, and 3) rapid global adoption means more data and comparability across regions, sectors, and issuers.
- **TNFD - Nature-Based (Framework):** TNFD<sup>26</sup> was created to be the TCFD-equivalent for nature-based reporting. Still in “beta testing,” but notable for its financial view of materiality that focuses on nature-related issues, making it much more relevant to forest-risk commodity-related investing.

Source: Alppha Research for Helixtap. Most GRI and SASB standards are several years old but are undergoing substantive updates, and updated standards will likely be more commodity-relevant. Climate Disclosures Standards Board (CDSB)<sup>27</sup> was not included above because it is more of a guidance framework and thus less likely to result in more/better ESG data.

## Forest-Risk Frameworks (Multi-Commodity)

This a growing cadre of initiatives fall into two categories of centrality: 1) commodity-related issues (deforestation, biodiversity, etc.) 2) multi-commodity group approach.

Whilst not reporting frameworks in the traditional sense, they include important reporting-related information (e.g., commodity-specific key performance indicators) and/or generate new and relevant ESG data.

- **CDP Forests** - Commodity Focus (General): Backed by 500 investors (US\$100 trillion assets)<sup>28</sup> and requests annual disclosures from 1,500 issuers involved in forest-risk commodities. Based on the TCFD's financial materiality, and deforestation KPIs from AFi.
- **Forests and Finance** - Commodity Focus (Finance): A purely assessment-based framework<sup>29</sup> that focuses on forest-risk finance, limiting final scores/rankings to banks and investors. But raw data used to assess financiers includes over 300 producers, traders, and manufacturers in every forest-risk commodity.
- **Afi** - Related Issues (Deforestation): Afi<sup>30</sup> along with its namesake Accountability, is a human rights and deforestation framework for agricultural and forest-risk supply chains. Afi serves as a "white label" framework – as the basis of other frameworks (e.g., GPSNR) and internally by companies (e.g., Cargill, McDonald's, Musim Mas).

Source: Alppha Research for Helixtap. Forest-risk commodities: CDP Forests (beef, cocoa, coffee, palm oil, rubber, soy, and timber; only beef, palm oil, soy, and timber are scored), Forests and Finance (beef, palm oil, pulp, rubber, soy, and timber). The Roundtable on Sustainable Palm Oil (RSPO)<sup>31</sup> is a prime example of an ecocertification as a source of ESG and related geospatial data.

## NATURAL RUBBER FRAMEWORKS AND INITIATIVES

Closely linked to palm oil plantations, natural rubber accounts for more than five million hectares of deforestation in the recent years.<sup>32</sup>

- **GPSNR** - Reporting Framework: The Global Platform for Sustainable Natural Rubber<sup>33</sup> is a multi-stakeholder natural rubber association promoting sustainability in rubber supply chains. Historically a guidance framework, new reporting requirements could crown GPSNR as preeminent reporting framework, and at the least produce data – rubber-specific, ESG-related data.
- **Fair Rubber** - Reporting Standards: set by the Fair Rubber Association (FRA)<sup>34</sup> have just one specific purpose – i.e., applying "fair trade" principles to products derived from natural rubber. FRA's standards are limited to social issues but provide informed perspectives on ESG metrics and materiality relevant and specific to natural rubber.
- **SNR-i** - Reporting-Related: Sustainability is the central mission for the Sustainable Natural Rubber Initiative<sup>35</sup> natural rubber supply chains. Though not a full-fledged reporting framework, it contributes valuable intellect – e.g., its KPIs and industry dialogues.
- **Other** - Eco-Certifications: Schemes can be quasi-reporting frameworks as data for certification are often public, including the Fair Rubber Standards, the Forest Stewardship Council (FSC)<sup>36</sup>, Programme for Endorsement of Forest Certification<sup>37</sup>, and the Global Organic Latex Standard (GOLS).<sup>38</sup>

Source: Alppha Research for Helixtap. SNR-i is part of the International Rubber Study Group (IRSG). Natural rubber initiatives/frameworks excluded from the table due to their more limited scope (region or industry) include: Regenerative Rubber Initiative, PROJECT TREE, CCCMC<sup>39</sup> Guidance for Sustainable Natural Rubber, and Tire Industry Project.<sup>40</sup>

ESG investing has shifted from reductive exclusionary screening of "sin stocks" to modern research on commodities, particularly in sustainability factors in forest-risk commodities.

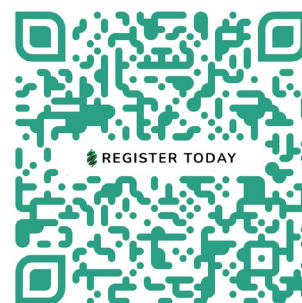
However, climate change concerns continue to grow as newer, more stringent, deforestation regulations were passed in 2021 in the US, EU, and UK. ESG reporting has hence become fundamental for legal due diligence. However, reducing sustainability goals to legislative requirements disregards the myriad of layers intrinsically present in forest-risk commodity supply chains, which often start with millions of farmers at the upstream level. Despite legal reporting obligations, there are still tremendous data gaps in supply chain data for many agricultural commodities

Additionally, these sustainability frameworks are premised on the assumption that companies will voluntarily self-disclose their practices in a truthful, objective, and timely manner. As ESG declarations are made retroactively using past data, current supply chain risks remain unreported in real-time, making it impossible for investors and financial institutions to price risk accurately in their workflows dependent on daily market movements.

A combination of industry expertise in commodities and data analytics is crucial in collecting, processing, and analysing ESG data to create comprehensive sustainability reports. This skillset is pertinent in sectors with long supply chains, such as natural rubber where downstream buyers are so far removed from the 6 million rubber farmers upstream.

The current reporting frameworks in natural rubber are premised on either generalist guidance or product-focused, such as the tyre industry where much headway has been made. However, the complexities of the global natural rubber supply chain remain uncharted, as unsustainable practices remain uncategorised (and neglected) under the industry's reporting premises and frameworks.

Helixtap Technologies, the commodities data specialists who pioneered AI-driven price and market intelligence for the rubber industry, fills this gap through combining deep market knowledge of commodities and technological methods for the global market. Helixtap offers ESG investors the comprehensive, in-depth, data-driven analyses that standardised sustainability frameworks are inherently unable to measure. Connect with Helixtap today - register for free or email us at [marketing@helixtap.com](mailto:marketing@helixtap.com)



## REFERENCES

- <sup>1</sup> <https://asia.nikkei.com/Opinion/Climate-change-not-only-reason-for-Pakistan-s-flooding-toll>
- <sup>2</sup> <https://www.bloomberg.com/opinion/articles/2022-11-09/michael-bloomberg-at-cop27-data-can-unleash-massive-new-green-investment?leadSource=uverify%20wall>
- <sup>3</sup> Early on, the SRI abbreviation stood for "Socially-Responsible Investing" but has been re-branded as "Sustainable and Responsible Investing" to better reflect today's diverse SRI/ESG strategies.
- <sup>4</sup> Although an environmental-mindedness certainly existed in the early days of ESG investing, it would be several more years before environmental concerns took center stage in a definitive way.
- <sup>5</sup> By no means does that suggest their willingness to take losses as "charitable donations," but rather an acceptance of sub-par returns for investments that have some other "greater-good" value.
- <sup>6</sup> For example, regarding weapons, distinctions are often made between manufacturers of small arms (e.g., for sport and personal defense) and more destructive military-grade weapons.<sup>3</sup> This is essentially the same "ESG data problem" that has plagued ESG data in general – i.e., lack of relevance, standardisation, comparability, and consistent/timely reporting.
- <sup>7</sup> This is essentially the same "ESG data problem" that has plagued ESG data in general – i.e., lack of relevance, standardisation, comparability, and consistent/timely reporting.
- <sup>8</sup> See Helixtap Technologies (<https://helixtap.com/>)
- <sup>9</sup> See Bloomberg, ESG by the Numbers (<https://www.bloomberg.com/news/articles/2022-02-03/esg-by-the-numbers-sustainable-investing-set-records-in-2021>) and The Effects of Mandatory ESG Disclosure Around the World ([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3832745](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3832745))
- <sup>10</sup> See Mercer, Responsible Investment in Commodities (<https://www.mercer.com/our-thinking/wealth/responsible-investment-in-commodities.html>)
- <sup>11</sup> See Harvard Law School Forum on Corporate Governance, ESG Global Study 2022 (<https://corp.gov.law.harvard.edu/2022/06/17/esg-global-study-2022>) and US SIF 2020 Sustainable and Impact Investing Trends, Alternative Investment Highlights ([https://www.ussif.org/files/Trends2020\\_Trends\\_Onepager\\_Alternatives.pdf](https://www.ussif.org/files/Trends2020_Trends_Onepager_Alternatives.pdf))
- <sup>12</sup> See Index Industry Association 2022 ESG Survey Report (<https://www.indexindustry.org/wp-content/uploads/IIA-report-FINAL-7-27.pdf>), London Bullion Market Association (LBMA) Responsible Sourcing (<https://www.lbma.org.uk/responsible-sourcing/>), U.S. CFTC Request for Information on Climate-Related Financial Risks (<https://www.cftc.gov/PressRoom/PressReleases/8541-22>)
- <sup>13</sup> See WRI, Global Forest Review ([https://research.wri.org/gfr/forest-extent-indicators/deforestation-agriculture?utm\\_medium=blog&utm\\_source=insights&utm\\_campaign=globalfores-review](https://research.wri.org/gfr/forest-extent-indicators/deforestation-agriculture?utm_medium=blog&utm_source=insights&utm_campaign=globalfores-review))
- <sup>14</sup> See KPMG Survey of Sustainability Reporting (<https://assets.kpmg/content/dam/kpmg/xx/pdf/2020/11/the-lime-has-come.pdf>)
- <sup>15</sup> These are approximations. Company percentage (re: number of listings) is slightly overstated for 2022. If a country or exchange has an ESG reporting requirement, all issuers (by country domicile or exchange) are included in calculations. However, some have phase-in periods (e.g., small-cap issuers), which are not reflected. This has no discernable affect market cap percentage, overstates 2022 listing percentage by less than 2%, and will be moot in a year or so once phased-in. Other nuances are in fact reflected (e.g., top 1,000 listed companies for India's BRSR reporting).
- <sup>16</sup> Mainly voluntary assessments, but increasingly reporting requirements. See SEC Proposes Rules to Enhance and Climate-Related Disclosures (<https://www.sec.gov/news/press-release/2022-46>)
- <sup>17</sup> See U.K. Environment Act 2021 (<https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>)
- <sup>18</sup> See Proposal for Regulation on Deforestation-Free Products ([https://environment.ec.europa.eu/publications/proposal-regulation-deforestation-free-products\\_en](https://environment.ec.europa.eu/publications/proposal-regulation-deforestation-free-products_en))
- <sup>19</sup> See U.S. Senate Bill 2950, FOREST Act of 2021 (<https://www.congress.gov/bill/117th-congress/senate-bill/2950/>)
- <sup>20</sup> See U.S. House Resolution 5508, FOREST Act of 2021 (<https://www.congress.gov/bill/117th-congress/house-bill/5508>)
- <sup>21</sup> See statute 19 U.S.C. 1307 (<https://www.govinfo.gov/app/details/USCODE-2011-title19/USCODE-2011-title19-chap4-subtitleI-part1-sec1307>) and CBP Issues Withhold Release Order on Palm Oil Produced by Forced Labor in Malaysia (<https://www.cbp.gov/newsroom/national-media-release/cbp-issues-withhold-release-order-palm-oil-produced-forced-labor>)
- <sup>22</sup> GRI was formerly known as the Global Reporting Initiative but now goes by GRI (initials only). CDP was formerly known as the Carbon Disclosure Project but now goes by CDP. In June 2021, SASB (Sustainability Accounting Standards Board) and IIRC (International Integrated Reporting Council) merged to create the Value Reporting Foundation (VRF). In June 2022, VRF consolidated into IFRS (International Financial Reporting Standards Foundation). SASB standards are part of IFRS's International Sustainability Standards Board (ISSB) and SASB the organisation no longer exists as it did.
- <sup>23</sup> GRI (<https://www.globalreporting.org/>) standards (<https://www.globalreporting.org/standards/>) particularly relevant to companies in forest-risk commodity value chains include: Procurement Practices (204), Anti-Corruption (205), Materials (301), Water and Effluents (303), Biodiversity (304), Emissions (305), Environmental Compliance (307), Supplier Environmental Assessment (308), Child Labor (408), Forced or Compulsory Labor (409), Rights of Indigenous Peoples (411), Human Rights Assessment (412), and Local Communities (413), among others.
- <sup>24</sup> SASB's (<https://www.sasb.org/>) standards (<https://www.sasb.org/standards/>) particularly relevant to issuers in forest-risk commodity value chains are as follows. Food & Beverage: Agricultural Products (FB-AG); Meat, Poultry & Dairy (FB-MP); Processed Foods (FB-PF). Renewable Resources: Biofuels (RR-BI); Forestry Management (RR-FM); Pulp & Paper Products (RR-PP). Transportation: Auto Parts (TR-AP). Consumer Goods: Apparel, Accessories & Footwear (CG-AA); Building Products & Furnishings (CG-BF); and Household & Personal Products (CG-HP).
- <sup>25</sup> See TCFD (<https://www.fsb-tcdf.org/>) and TCFD Report Database ([https://www.tcfddhub.org/reports/?\\_sft\\_type\\_of\\_report=climate-tcdf-report&\\_sfm\\_year\\_published=2022](https://www.tcfddhub.org/reports/?_sft_type_of_report=climate-tcdf-report&_sfm_year_published=2022))
- <sup>26</sup> See Taskforce on Nature-Related Financial Disclosures (<https://framework.tnf.global/introducing-the-tnfd-framework/>)
- <sup>27</sup> See Climate Disclosures Standards Board (<https://www.cdscb.net/>)
- <sup>28</sup> See CDP Forests (<https://www.cdp.net/en/forests>)
- <sup>29</sup> See Forests and Finance (<https://forest500.org/>)
- <sup>30</sup> See Accountability Framework (<https://accountability-framework.org/>)
- <sup>31</sup> See RSPO (<https://rspo.org/>), RSPO Certification (<https://rspo.org/certification>), and RSPO Standards (<https://rspo.org/standards>)
- <sup>32</sup> <https://www.spott.org/news/sustainability-reporting-worlds-biggest-tyre-brands/#:~:text=70%25%20of%20the%20world's%20natural,of%20deforestation%20in%20recent%20years>
- <sup>33</sup> See GPSNR (<https://sustainablenaturalrubber.org/>)
- <sup>34</sup> See FRA (<https://fairrubber.org/>) and FRA Fair Rubber Standards (<https://fairrubber.org/wp-content/uploads/2021/06/00-Fair-Rubber-Standards-VS-3.2.pdf>)
- <sup>35</sup> See IRSG (<https://www.rubberstudy.org/>), SNR-i (<https://www.rubberstudy.org/snr-i/>), and SNR-I Performance Indicators ([https://www.rubberstudy.org/themes/irsg/assets/documents/snri/SNR-i\\_KPI\\_document\\_June\\_EN\\_for\\_Ref.pdf](https://www.rubberstudy.org/themes/irsg/assets/documents/snri/SNR-i_KPI_document_June_EN_for_Ref.pdf))
- <sup>36</sup> See FSCC (<https://fsc.org/en/>), FSC Natural Rubber (<https://fsc.org/en/businesses/natural-rubber/>), FSC-Certified Natural Rubber (<https://ic.fsc.org/file-download/fsc-certified-natural-rubberdeforestation-free-socially-responsible.a-2963.pdf>)
- <sup>37</sup> See PEFC (<https://www.pefc.org/>), PEFC Natural Rubber (<https://rubber.pefc.org/>), and PEFC Certifications for Rubber Growers (<https://rubber.pefc.org/get-certified/certification-for-rubbergrowers>), Rubber Chain of Custody (<https://rubber.pefc.org/get-certified/chain-of-custody-certification>), and Recycled Rubber (<https://rubber.pefc.org/get-certified/recycled-certification>)
- <sup>38</sup> See Control Union Certifications (<https://certifications.controlunion.com/en>) and Global Organic Latex Standard (<https://certifications.controlunion.com/en/certification-programs/certificationprograms/gols-global-organic-latex-standard>)
- <sup>39</sup> See CCCMC, China Chamber of Commerce of Metals, Minerals & Chemicals Importers & Exporters (<http://en.cccmc.org.cn/>)
- <sup>40</sup> See Regenerative Rubber Initiative (<https://www.regenerativerubber.org/>), PROJECT TREE (<https://project-tree-natural-rubber.com/>), the Tire Industry Project (<https://www.wbcds.org/Sector-Projects/Tire-Industry-Project>), Guidance for Sustainable Natural Rubber ([https://www.globalwitness.org/documents/19244/CCCMC\\_Guidance\\_for\\_sustainable\\_natural\\_rubber\\_2017\\_EN.pdf](https://www.globalwitness.org/documents/19244/CCCMC_Guidance_for_sustainable_natural_rubber_2017_EN.pdf))