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Addressing the "Winner-Takes-All" Character of Sustainability Taxonomies: Towards a Scorecard Approach

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Abstract: Sustainability classification systems (or "taxonomies"), of which the EU environmental taxonomy is the most important, often result in a binary approach whereby best-in-class economic activities are qualified as sustainable, while all other activities are grouped together into a catch-all category irrespective of their contribution to, or potential for, contributing to, and/or furthering the transition towards a sustainable economy. Such binary approaches are misleading and likely to result in under-investment in both activities crucial for the transition to net zero and innovation with the potential to support and facilitate such a pro-environment transition. Making taxonomies easy to apply, consistent, open to innovation, and comprehensive at the same time is imperative if the world's economies are to achieve net zero, even when this dilutes technical precision in the process. We argue in favor of expanding classification systems to include (information on) transition and potential transition activities and present a scorecard approach to meet that very objective.

Keywords: taxonomies, sustainability, ESG, scorecard approach, net zero, transition

1. Introduction

Sustainability classification systems, often referred to as "taxonomies," are key tools of contemporary sustainable finance regulation that enable the identification of sustainable (or green) activities, without depending on case-by-case decisions with uncertain outcomes.[1]

Taxonomies may be understood as "a set of criteria which can form the basis for an evaluation of whether and to what extent a financial asset can support given sustainability goals" [1]. They are meant to identify "activities, assets, and/or project categories that deliver on key climate, green, social, or sustainable objectives with reference to identified thresholds and/or targets" (International Capital Market Association).[2] Investments funding such activities and projects are thus labeled as "green" or "environmentally sustainable." Due to their level of details and precision, they tend to differ from other policy tools pursuing similar objectives, such as certification systems, self-regulation, and corporate social responsibility [2,3].

Yet, sustainability classification systems, of which the EU environmental taxonomy is the most important example, often result in a binary approach whereby best-in-class economic activities are qualified as sustainable, while all other activities are grouped together into a catch-all category irrespective of their contribution to, or potential impact on, furthering the transition towards a sustainable economy. These taxonomies exhibit what we label herein a "winner-takes-all" character: niche industries that already meet the highest standards are labeled as sustainable, while little or no attention is paid to activities that do not yet meet those standards but show potential to improve, thus generating impact. It follows that such binary taxonomies do not consider adequately: (a) activities crucial to the transition towards net zero, which do not yet meet their requirements; (b) activities that do not have any relevant environmental impact (neither positive nor negative); and (c) truly harmful activities (i.e., those of hard polluters), regardless of whether these can be transformed into sustainable activities or not. As a result, all of these diverse activities are grouped together into one residual category, sending a blurred signal of equivalence to the market (primarily investors) that potentially causes under-investment in both activities crucial for the transition to net zero and innovation with the potential to further such a pro-environment transition.

Making taxonomies easy to apply, consistent, open to innovation, and comprehensive at the same time is imperative if the world's economies are to achieve net zero, even when this dilutes technical precision in the process. On these grounds, this article addresses such a critical issue by introducing the so-called scorecard approach, that is a mechanism through which potentially every economic activity can be scored on the basis of their environmental performance. In this way, classification systems based on a scorecard approach would recognize also (1) activities crucial to the transition towards net zero, which do not yet meet their requirements; (2) activities that do not have any

[1]Renewed sustainable finance strategy and implementation of the action plan on financing sustainable growth. https://finance.ec.europa.eu/publications/renewed-sustainable-finance-strategy-and-implementation-action-plan-financing-sustainable-growth_en#documents

[2]Sustainable inance: High-level definitions by International Capital Market Association. https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Sustainable-Finance-High-Level-Definitions-May-2020-051020.pdf

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relevant environmental impact; and (3) harmful activities, further distinguishing between the ones that can be transformed into sustainable activities and the ones that cannot.

In so doing, this article proceeds as follows. Part 2 provides context on classification systems; Part 3 critically analyses the binary effect of taxonomies; Part 4 introduces, as an alternative legal design of classification systems, the so-called "Scorecard Approach"; and Part 5 concludes.

2. Defining Classification Systems

Taxonomies are relevant as they are able to provide a market signal which could possibly drive behavior. *Rectius*, companies whose activities meet the demanding environmental standards set out in their jurisdiction's taxonomy, can send a credible signal to the market with regard to their commitment toward the environment. This is the so-called signaling argument, which can be particularly valuable since market participants (primarily investors) often do not have easy access to precise information about investee companies' environmental footprint [4,5]. In other words, there exist information asymmetries between companies and investors about the activities and characteristics of the former [6,7]. Taxonomies can contribute to reducing such information asymmetries, which is also in the interest of companies. The latter can thus use taxonomies to send a credible signal of environmental commitment that is hard to mimic by other firms [8,9]. Hence, the introduction of a taxonomy in a given jurisdiction allows to distinguish companies on the basis of the environmental performance of their economic activities against the criteria laid down by the taxonomy itself.

Only activities performing well in environmental terms are able to comply with the taxonomy's requirements; hence, the company performing those activities can reliably signal that it is committed to operate with a view to achieving environmental objectives [10]. This signal is credible by its very nature as compliance with the taxonomy is expensive for firms to achieve. This argument is reinforced by the consideration that in the EU pursuant to the new Corporate Sustainability Reporting Directive (CSRD)[3] and the Commission Delegated Regulation on Disclosures under the Taxonomy,[4] key figures (revenues, OpEx, and CapEx) concerning compliance with the taxonomy's requirements are to be audited by independent professional third parties.

In other domains (e.g., green bonds), the signaling argument gives rise to a number of additional positive implications, that we expect to materialize even in the context of taxonomy's compliance. Particularly, it has been posited that both shareholders [11–13] and stock markets respond positively to companies' engagement toward the environment [14].

Taxonomies encourage investments in longer-term and sustainable activities for three reasons: First, the granting of a green or sustainability-related label by regulators is a powerful marketing tool that may spur investors' interest (signaling argument); second, taxonomies that are part of binding legislation motivate more equal treatment in a finance industry which can be involved in "greenwashing" practices [15,16]. In particular, they restrict room for maneuver opened by broad, originally undefined terms (such as "sustainable" or "green"), and thus boost investor confidence in market-based financing of sustainable activities. Third, from an investor perspective, taxonomies reduce transaction costs. Specifically, financial institutions do not need to build expertise in environmental science nor to scrutinize the environmental footprint of a given activity (for instance, a construction project); they can rely on the taxonomy instead.

From a policy perspective, the establishment of a taxonomy should be based on two main considerations: (i) the role that it is expected to play in the achievement of environmental objectives and (ii) its usability and implementation factors, such as geographical scope, data availability, verification and proportionality [17].

Once developed, a taxonomy might even find broader application, for instance as a precondition for preferential tax treatment, sustainability-oriented public lending and investment programs (such as the European Investment Bank's Green Gateway Programme), risk management, and financial institutions' prudential (i.e., capital) requirements. Illustratively, financial institutions in Malaysia use the taxonomy to classify their portfolio of assets, measure climate-related risks, and report to the central bank for risk management purposes [18].

While taxonomies have taken central stage in sustainable finance regulation [19,20], the scholarship on classifying economic activities on these grounds is still in its infancy [21–24].

Taxonomies can be classified on several grounds, as laid out in Table 1 below.

The aforementioned features may be combined; for instance, an expert group may perform an assessment upon the application of an industry participant interested in a given investment or asset class, resulting in not only the gleaning of information on the investment but also the setting of rule-based criteria for future assessments.

While these taxonomies share the objective of providing legal certainty on what economic activity is sustainable, we explore in this section the main categories to be considered by policymakers.

2.1. Precision of screening criteria

A taxonomy can be set up in such a way as to provide very specific and detailed requirements concerning the environmental performance of economic activities, with the latter having to meet all such requirements in order to be labeled as sustainable. Such requisites might be quantitative (e.g., absolute or relative performance thresholds) or qualitative and process-based [18]. Pertinently, the EU taxonomy's technical screening criteria define the maximum energy or water usage for a large number of activities.

Though offering precision, detailed quantitative thresholds are costly to develop and expensive for end users to abide by. At the same time, the overall impact of such thresholds is uncertain as activities deemed sustainable may still have an effect on the environment, and any subsequent adaptation thereto would require regulatory intervention. While costs might discourage users, the rigidity of the thresholds limits the system's ability to adapt and correct unwanted effects. By contrast, a taxonomy can simply provide some overarching principles, while leaving broader margin for discretion in the definition of the applicable standards.

A mix between these two options would also be possible. Accordingly, while detailed thresholds may be set out for some

[3]Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting.

[4]Commission Delegated Regulation (EU) 2021/2178 of 6 July 2021 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by specifying the content and presentation of information to be disclosed by undertakings subject to Articles 19a or 29a of Directive 2013/34/EU concerning environmentally sustainable economic activities and specifying the methodology to comply with that disclosure obligation.

Table 1
Classification features of sustainability taxonomies

Features	Factor 1	Factor 2	Factor 3
Precision of criteria	Rule-based	Principle-based	Mix
Time of assessment	Ex ante classification	Ex post classification	N/A
Scope	All-inclusive	Industry-specific	Environmental impact-focused
Subject matter	Environmental-only	Social-only	Environmental + social
Legal character	Binding	Voluntary	"Comply or explain"
Development and implementation	Legislation and/or regulation	Expert group	Industry
Information	Binary (sustainable: yes or no)	Transition-focused	Scorecard approach

key matters, a certain degree of discretion concerning secondary elements may be assigned to users by clarifying that the general principles are still paramount [25].

2.2. Time of the assessment

Taxonomies can be set up as *ex ante* systems, whereby the criteria and/or thresholds for assessing economic activities are provided in advance through detailed provisions embedded in legislation and/or regulation [25]. For instance, the main principles of the EU environmental taxonomy have been codified in EU legislation, while the implementing details (called "technical screening criteria") have been included in delegated legislative acts (i.e., sub-level legislation). The EU environmental taxonomy is often regarded as both innovative and demanding: to be deemed sustainable under EU law, economic activities need not only to provide a substantial contribution to one (of six) environmental objective(s) but must also avoid doing significant harm to any of the other five environmental objectives and comply with minimum social safeguards resulting from international frameworks on labor standards and human rights [26]. The EU environmental taxonomy shall serve as a role model for other jurisdictions, reflecting the "Brussels Effect" [21]. So far, examples to have followed suit include the UK's green taxonomy, Bangladesh's sustainable finance taxonomy, as well as the taxonomies of Singapore and South Africa [18].

A pre-defined classification potentially results in a high(er) level of transparency and increased legal certainty. On the other hand, including in advance every economic activity performed in a given country would be excessively costly and would require enormous scientific expertise in many sectors, even though many activities impact on the environment only to a minor extent. Due to these practical difficulties, *ex ante* taxonomies may end up being limited in scope and focus on those activities which are responsible for the highest levels of pollution, such as oil and gas.

To save costs, taxonomies could be set up as *ex post* systems, whereby a decision on the sustainability of a given activity is taken by a review board or an authority upon request of interested stakeholders or investors interested in "green" portfolios. Following this approach, legal certainty is provided case-by-case and against a set of requirements that will be gradually developed further with each decision taken. The main drawback of an *ex post* classification is the low(er) level of transparency, from an *ex ante* perspective, at least initially, and thus a higher risk exists from both the investee firms' and the investors' perspective. An *ex post* system could potentially work in close supervisory relationships, as is the case between a central bank and commercial banks; use cases here include those concerning the institution-specific additional risk cushion (as found in Pillars II and III under the Basel Framework) and those regarding refinancing operations with an environmental footprint.

2.3. Scope

A taxonomy could in theory aim to serve as an all-inclusive classification system encompassing every economic activity in a given country, if not the world. Obviously, such all-inclusive classification would require unrealistic levels of regulatory capital and scientific expertise. Even where enormous resources are invested, they may still be insufficient, and thus, an omni-comprehensive taxonomy carries the risk of misallocation of capital resulting from a lack of regulatory resources, expertise and data on sustainability, as well as clouding future developments with uncertainty [27].

An alternative is a partial taxonomy focused on certain industries (such as heavily polluting oil and gas activities) or on specific impact factors of high importance (such as greenhouse gas (GHG) emissions). Initially, regulators could also take a limited and focused approach and then expand the taxonomy's perimeter over time as successes are recorded and ambition grows.

2.4. Subject matter

As for the subject(s) they cover, taxonomies can deal either with environmental matters only, with social matters only, or with both environmental and social matters. While most taxonomies so far have focused exclusively on environmental matters, the discussion regarding social taxonomies is gaining momentum as greater consideration is afforded to the interrelationships between environmental and social objectives.[5] In particular, the case has been made that making advances on social objectives is a precondition for long-term progress on environmental objectives because social cohesion facilitates long-termism among economic actors [28].

Since taxonomies can help to channel investments towards some specific economic activities, a taxonomy with a broader scope is better placed to attract greater financial resources. In particular, social progress may be financed in this way which represents a crucial precondition for sustainable development in some regions of the world [29]. Environmental and social taxonomies, thus covering both dimensions of sustainability, could also be developed.

Due to the significant costs of large-scope taxonomies, most regulators start small and expand their scope over time. For instance, the EU environmental taxonomy focused first on six environmental objectives (which meant postponing work on social objectives) and then narrowed the perimeter down to two environmental objectives referred to as "climate objectives," namely climate change mitigation and climate change adaptation. Accordingly, in line with the EU's strategic policy, the European

[5]Final report on social taxonomy 2022. https://commission.europa.eu/system/files/2022-03/280222-sustainable-finance-platform-finance-report-social-taxonomy.pdf

Commission has prioritized climate change and devised the corresponding detailed technical screening criteria first. Yet the Commission's agenda foresaw expansion of the framework into four other environmental objectives (water and marine resources; transition to a circular economy; pollution prevention and control; and biodiversity and ecosystems) as well as social objectives. The technical screening criteria regarding the remaining four environmental objectives have been included in a Commission Delegated Act which was adopted in June 2023.[6]

2.5. Legal character

Taxonomies can have binding or non-binding effect. Where enforcement is desired, the classification must of course be binding. Moreover, a binding taxonomy could act as an effective tool to combat greenwashing practices [30].

However, a non-binding taxonomy may also have a positive impact on the standardization and streamlining of terminology with respect to determining which investments are "sustainable," "green," or "environmentally friendly," while avoiding undesirable formalism.

A mix of binding and non-binding features is also an option. For instance, issuers may opt-in to the EU Green Bond Standard; if they do so, however, they must comply with all rules set for EU green bonds. An alternative to the opt-in binding effect is known as "comply or explain" where issuers may deviate from the taxonomy, but must disclose and explain their deviation [31,32]. "Comply or explain" thus contributes to a better understanding of the limits and practical acceptance of taxonomies.

2.6. Development and implementation

As to the development and implementation of taxonomies, the first option would be to rely upon rules embedded in a given piece of legislation and/or regulation.

An alternative would be to assign the role of developing and implementing the taxonomy to an expert group.

Also, industry-driven initiatives could be possible.

3. Issue: The Binary Effect of Taxonomies

3.1. Binary *vs* transition-focused taxonomies

Taxonomies can be binary or transition-focused. Binary taxonomies identify only activities with the strongest environmental performance, while all the other activities with weak(er), or relatively weak performance, end up in the "non-compliant" category.

On the contrary, taxonomies that are transition-focused provide information also on economic activities that do not show a high level of environmental performance but do have the potential to do so, thereby playing a key role in furthering the transition to net zero. Due to investments into improving the environmental performance, for example by way of a transition plan, such activities might become best-in-class. We dub these activities "transition activities."

EU and EU-style taxonomies adopt a binary approach that focuses on best-in-class activities, whereby only activities that further one environmental objective without doing significant harm to the other five, and that meet the minimum social safeguards, qualify as sustainable. Notwithstanding the former, EU law asks large issuers to disclose revenues, operating expenditures (OpEx), and capital expenditures (CapEx) concerning sustainable activities. If an issuer discloses a share of higher CapEx than OpEx for sustainable activities, the European Commission understands this as a signal for transition on the assumption that a revision of the business model is under way as a result of additional capital expenditures [33].

Against this background, it is surprising that the EU's very own expert body argues that the inclusion of transition activities and data on activities with the potential to upgrade their environmental performance is crucial to making the transition to net zero [34]. We take this apparent tension between EU legislation currently in force and the expert group's opinion[7] as our motive for taking a closer look at binary taxonomy approaches in the next section.

3.2. Upsides of binary approaches

Binary approaches have obvious advantages with regard to regulatory costs.

Agreeing on and legislating for only best-in-class activities is less expensive than also agreeing on details and quantitative thresholds for many additional (at least four more) categories of economic activity on various environmental objectives. For that reason, best-in-class taxonomies can be more granular and may provide greater legal certainty within their limited scope.

A binary approach also faces less political resistance as heavy polluters may argue that they have the potential to enhance their performance and would improve them in the future, or, as is the case for the oil and gas sector, that they are crucial with regard to the transition to net zero. Heavy polluters cannot opt for such a stalling strategy where taxonomies provide reliable information on transition strategies and investments.

Finally, binary approaches certainly create simple signals which can be heuristically understood by everyone.

3.3. Drawbacks of binary approaches

At the same time, taking a binary approach may have several drawbacks.

3.3.1. Misleading signals

Firstly, a limited scope could impair the taxonomy's function and ability to deliver on its goals: all economic activities that are not best-in-class are grouped together in a residual and catch-all category of activities, which would potentially be perceived on the market as non-sustainable. This category includes several activities with lower – yet different from each other – environmental performances. However, sending out a signal of being non-sustainable could be misleading, since some activities that are close to being best-in-class, or at least have the potential to become best-in-class, are presented in the same category as activities with no environmental impact (such as accounting and

[6]Commission Delegated Regulation (EU) 2023/2486 of 27.6.2023 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council.

[7]According to the European Commission, the binary effect will be mitigated by two factors. First, the EU plans to adopt technical screening criteria for transitional activities as activities for which there is no technologically and economically feasible low-carbon alternative. Important examples of transitional activities are included in the EU's Complementary Delegated Act concerning natural gas and nuclear energy relative to climate change mitigation. Second, the EU Commission understands the issuers' disclosure on the ratio of revenues, capex, and opex as the issuers' commitment to transition to net zero. For these reasons, the Platform for Sustainable Finance (2022a) argues that the EU taxonomy is not binary in its effects. *But* see our counter-argument in 4.2.

legal services, childcare, travel services, health services, and education, which together make up one-third of the EU economy) and clearly polluting activities (e.g., those based on fossil fuels). Misleading signals in turn affect the separating equilibrium by reducing the usefulness of the information disclosed, thereby leading to market inefficiency [35].

Accordingly, in the framework currently in place in the EU (as well as in jurisdictions with similar taxonomies) fossil fuel-based power generation would be placed in the same category as construction of new buildings which complies with almost all of the very demanding criteria of the Commission Delegated Act concerning energy performance, air-tightness, thermal integrity, and life-cycle global warming potential, or complies with all said requirements but fails to adhere to the "do not significant harm" (DNSH) principle in relation to sustainable use of water (e.g., the installed showers have a water flow of 9 liters per minute, which is above the EU threshold of 8 liters per minute).[8] The outcome is clearly disproportionate: three economic activities that are ontologically different as to their environmental performance are grouped together, and thus potentially perceived as equally non-sustainable.

3.3.2. Underfunding of transition activities

To unpack the misleading signal, investors need to spend significant resources. The transaction costs involved in doing so make investments in transition activities more expensive than would be desirable, which may result in potential underfunding of transition activities.

With such a scenario in mind, a binary approach with its inherent "winner-takes-all" character does not provide the necessary incentives for businesses to improve their environmental performance gradually in a so-called race to the top [36,37], which is imperative if the transition to net zero is actually to happen.[9]

To date, most green finance investments have been allocated to economic activities which are already low-carbon, while substantially fewer investments have been made in transition and enabling activities in carbon-intensive industries such as oil and gas, mining, and heavy industry [1]. It is in those sectors, however, where most progress can be made as transition activities have become indispensable, irrespective of their impact on environmental factors. In fact, according to the Platform on Sustainable Finance, "many sectors of the economy … must transition to more sustainable models even if they cannot reach the green performance level defined by [best-in-class] taxonomy criteria" [34].

3.3.3. Expanding the "green asset" bubble

Thirdly, in the EU, currently only a tiny percentage of economic activities meet the criteria for making a substantial contribution to an environmental objective and the criteria determining adherence to the DNSH principle with regard to any other environmental objective, both of which are required to qualify as environmentally sustainable.

With many investment opportunities thus left aside due to not qualifying as sustainable, financial regulation potentially inflates the value of those financial instruments issued by the few businesses which do already comply with the taxonomy criteria due to the increasing market appetite for sustainable investments.

3.3.4. Lack of support for impact investors

Fourthly, as things stand, best-in-class taxonomies do not act as meaningful tools for impact investment. To clarify, impact investment has two main components: (1) investor impact and (2) investee company impact. While investor impact is typically understood as the change that the investor causes in its investee company's activities (e.g., through an increase in green power production resulting from activism and engagement), investee company impact refers to the change that such a company has made in the world (for instance, through the environmental benefit arising from a GHG emissions reduction) [38].

The EU taxonomy only identifies environmentally sustainable activities, thereby failing to consider the role of (impact) investors in causing a beneficial environment-related change in their investee companies. In other words, impact investors investing in companies making a negative environmental impact (e.g., heavy polluters) with the goal of making them improve are currently excluded from the taxonomy's disclosure effects.

A taxonomy should incentivize improvements to reach its thresholds in line with the goal of transitioning to net zero. Moreover, it should facilitate the environmental improvement of any economic activity, except for those economic activities which, by their very nature, cannot avoid harming the environment and where their environmental impact cannot be reduced.

Hence, we find the best-in-class taxonomies to be sub-optimal, which prompts us to look for better solutions, as outlined in the next section.

4. Solution: "Scorecard Approach"

While most taxonomies are tailored towards best-in-class activities as this article has shown, some go beyond that to seek out more transition activities. For instance, the Singapore taxonomy relies on a traffic light system to address transition matters. Meanwhile, South Africa has developed a brown taxonomy, highlighting environmentally harmful activities [18]. In a similar vein, the UK announced that it will consider setting sustainability criteria for both transition-based and best-in-class activities and investments [39].

Furthermore, the EU is seeking to support the transition to net zero by expanding its taxonomy framework through the adoption of best-in-class criteria for the "transition to a circular economy" in the Environmental Delegated Act[10] and a transition-related recommendation drawing on revenues, operating and capital expenditures [33].

It is obvious that policymakers pay close attention to how taxonomies can best inform market participants in their decisions as to whether allocate capital to transition activities or not. We argue in this section that the best way to avoid the effects of binary taxonomies is by providing more information to market participants on all ESG criteria as well as on transition, courtesy of what we call a "scorecard approach." Besides best-in-class criteria, the envisioned scorecard encompasses criteria for activities with lower and very low ESG performance, as well as data on transition-focused strategies.

Table 2 below shows scores which could be assigned according to our scorecard approach, based on an example focusing on electricity generation.

[8]Commission Delegated Regulation (EU) 2021/2139 of 4 June 2021 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council.

[9]European Union: Transition finance report 2021. https://finance.ec.europa.eu/document/download/c5e91dc2-7a28-4a30-aae9-9fd667195d28_en

[10]Questions and answers: Taxonomy climate delegated act and amendments to delegated acts on fiduciary duties, investment and insurance advice. https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_1805

Table 2
Scorecard example for electricity generation from renewable non-fossil gaseous and liquid fuels

Quantitative thresholds: Life-cycle GHG emissions	Main factor qualification	Contribution to climate change mitigation	DNSH	MLSS	Transition strategy	Score	Investment label	Impact on climate change
<100 g CO 2 e/kWh	Best-in-class	Substantial contribution	+	+	n.a.	9	EU Environmentally sustainable	n.a.
			–	+	Y	8A	Environmentally sustainable	
					N	8B		
			+	–	Y	7A		
					N	7B		
			–	–	Y	6A		
					N	6B		
100 to 120 g CO 2 e/kWh	Environmentally beneficial	Positive contribution	+	+	Y	5A	Environmentally beneficial	medium low*
					N	5B		n.a.
			–	+	Y	4A		medium low or n.a.
					N	4B		n.a.
			+	–	Y	3A		medium low or n.a.
					N	3B		n.a.
			–	–	Y	2A		medium low or n.a.
					N	2B		n.a.
n.a.	Environmentally neutral	Zero contribution	n.a.	n.a.	1	1	Environmentally neutral	n.a.
> 120 g CO 2 e/kWh	Environmentally harmful	Harmful impact	n.a	n.a	Y	0A	Environmentally harmful	High
					N	0B		n.a.

4.1. Introducing the "scorecard approach"

Under the scorecard approach, economic activities are scored based on a more granular system of environmental thresholds, compared to the aforementioned technical screening criteria. Based on the example of the EU environmental taxonomy, by assigning scores to information providers, which are usually the issuers of a financial product, it could be possible to distinguish between (the already existing concept of) substantial contribution to an environmental objective, and the new concepts of contribution to an environmental objective and harmful impact on an environmental objective. Furthermore, for neutral activities such as education and legal services, their neutrality can be displayed by assigning a separate score, indicating that no impact has either been claimed or achieved.

In our scorecard system, the EU's technical screening criteria for determining the extent to which an economic activity contributes to (or negatively affects) an environmental objective provide the basis for the scores, which are broken down as follows.

- "Environmentally harmful" activities: score of 0.
- "Environmentally neutral" activities: score of 1.
- "Environmentally beneficial" activities that make contribution to an environmental objective, albeit not a substantial contribution: scores between 2 and 5.
- "Best-in-class" activities that make a substantial contribution to an environmental objective: scores between 6 and 9.

In addition to the broad ranges of factors that feed into the labeling of a particular investment, the scores also provide information as to why a given activity falls short of being best-in-class: failing the "do no significant harm" (DNSH) test reduces the score by one point (resulting in scores of 8 or 4 respectively), while failing the "minimum legal and social safeguard" (MLSS) test reduces the score by two points (resulting in scores of 7 or 3, respectively), and failing both the DNSH and MLSS tests would reduce the score by three points and result in a score of 6 or 2, respectively.

Also, the given score could indicate whether the information provided is static or whether the issuer has adopted a transition strategy that should push the current level of environmental performance towards best-in-class. This information is important for impact investors seeking to make a change through their investments. In our example, "A" signals the existence of a transition strategy. For instance, 8A signals that an activity scores very high for its contribution to one environmental objective, yet fails the DNSH test (i.e., it impacts significantly on a different environmental objective). However, the issuer seeks to change this impact and has adopted a formal strategy (including an investment plan) aiming to pass the DNSH test in the foreseeable future, as further disclosed in the plan. Accordingly, static investments (which receives a score of B) are separated from dynamic investments (scoring at A).

Depending on the reason(s) why an activity fails to obtain best-in-class status, a transition plan may accommodate some but not all of the issues. For instance, an activity scoring 7 (i.e., making a substantial contribution, yet failing the MLSS test) may seek to bring its supply chain in line with the OECD Guidelines for Multinational Enterprises as well as the labor standards of the International Labour Organization (ILO), to upgrade its score to 9. The quality and feasibility of the transition strategy itself, however, must be assessed by impact investors.

Our scorecard sheds significant light on beneficial (though not substantial) contribution to environmental objectives (score between 2 and 5), including as to whether they pass the DNSH and MLSS tests. This information is, so far, entirely missing under the EU taxonomy framework, yet it provides the strongest signal of potential for change: if an issuer can upscale its contribution, it would score much higher (perhaps even 9, if it passes the DNSH and MLSS tests). Through the proposed scorecard approach, such medium-level contribution to an environmental objective is recognized in the legal framework. In turn, investments funding such activities would be given a label which could attract investors (signaling argument). This label is expected to provide an incentive to further their environmental contribution on the grounds that several activities cannot meet high thresholds overnight, yet their significant improvement might represent a relevant contribution to the transition to net zero and thus deserves investments.

In Table 2, we set out the scores for electricity generation from renewable non-fossil gaseous and liquid fuels, where life-cycle GHG emissions are just above the threshold of 100 g CO2 e/kWh, but below 150 g CO2 e/kWh. Even where the demanding criteria set by the EU taxonomy are not met, such an activity could still perform better than many others in the field (such as burning coal) and pass both the DNSH and MLSS tests. This comparatively good performance could be recognized in our scoring system and ensure that investing in this technology is incentivized through better access to finance.

The clear identification of environmentally harmful activities would help channel investments toward those businesses where investments would finance a transition strategy and thus contribute toward the transition to net zero, while proportionally reducing investments in detrimental activities where the negative impact cannot or will not be reduced. Where there is potential for improvement, financing the transition (i.e., providing funds to stop the activity as it is currently performed by way of substituting it with a less harmful approach) may help the environment much more than financing best-in-class activities only and driving up the prices in this asset class even further.

In a similar vein, the creation of an additional category of activities which are environmentally neutral would clarify that while they do not provide any meaningful contribution to the achievement of environmental objectives, they do not harm such objectives either. Such activities would primarily be in the service sector, for instance legal services, accounting and tax-related services, childcare, and education. This clarification would allow these activities to be properly distinguished from environmentally harmful activities, which would mark an important step toward access to finance for environmentally neutral activities; after all, investments into education and child care, for instance, are a precondition for any innovation.

Our scoring system is designed to demonstrate how scores can make investors' choices more rational and thus effective through reduced transaction costs. Obviously, the score itself may be modified or supplemented by additional information. For instance, we could envision additional symbols for other economic objectives being considered (such as I to VI to reflect the EU taxonomy's six objectives). We could also foresee the use of numbers indicating issuers' estimate on how many years it will take them to bring an activity in line with the next best activity. Hence, a score of 0A3 would signal that a currently harmful activity shall be environmentally beneficial in three years, while 5A2 would signal that the issuer plans to provide a substantial contribution in two years from now (if properly funded). Finally, additional numbers could signal interdependencies with other economic activities; where one activity is undergoing change, another may subsequently be able to follow.

All in all, a scorecard system has the potential to display a wide array of performance bandwidth, enables controls on the side of impact-oriented investors, and also carries the potential for change in a way best-in-class taxonomies are unable to provide.

4.2. Advantages

Considering the additional categories of environmental performance and the provision of more information on transition could encourage market-based competition for sustainability. In particular, impact investors will seek out financial products where issuers promise change – and may scrutinize the management's performance based on the changes to take place between the time of the promise and the estimated time of delivery. Issuers are encouraged in this way to respond to investors' demands. This stands in stark contrast to the currently prevalent practice where performance is measured only abstractly against a benchmark set by regulators that does not consider the truly harmful (or "brown") activities.

The proposed scoring system enables measurement of the degree of planned contribution to environmental objectives made by any given economic activity. This in turn would allow for the building of a more granular measurement system whereby, over time, every economic activity could be precisely rated for its contribution to environmental objectives, based on the issuer's own assessment. Accordingly, this would overcome the "winner-takes-all" features of the EU and EU-like environmental taxonomies, with the result being a scoring system that recognizes the positive impact of change, irrespective of current environmental performance.

We foresee a number of positive side effects. For instance, financial institutions could improve their risk management policies based on better identification of transition risks. On top of that, public support programs could be tailored to focus on financing the transition of the largest polluters, while environmental policies (through prohibitions and stricter standards) could focus on harmful activities where issuers do not signal any potential to change (i.e., where issuers do not disclose transition strategies).

At the same time, our scorecard approach avoids the main downside of a reporting-based transition system, like the EU's focus on revenues, operating expenditures (OpEx), and capital expenditures (CapEx) on sustainable activities: revenues, OpEx, and CapEx reporting merely provides information on what has been done in the past reporting period. Transition finance, however, is about allocating capital to future transition projects that deserve financing – these future projects will not show in figures relating to the past.

4.3. Challenges

We admit that the scorecard approach comes with a number of challenges. In order for the scores to be sufficiently granular, more detailed and lengthier level 2 legislation might be required. Not only do we need criteria to define the best-in-class, but the (sometimes thin) dividing line between (mere) contribution (with scores between 2 and 5) and harmful activities (with a score of 0) must also be defined. In fact, in light of the experience with the EU taxonomy, which even years after its coming into force is still only being implemented gradually, any extension of the classification system might encounter resistance from market participants that suffer from high compliance costs imposed on them by earlier steps taken to define the "best-in-class."

Furthermore, clearly identifying environmentally harmful activities and singling them out for even more progressive steps in environmental law could lead to the drying up of sources of financing for these activities. This could give rise to a significant surge of stranded assets in the portfolio of financial institutions or their counterparties, putting financial stability at risk. Any move toward a transition-focused sustainability classification system must thus be handled with great care.

5. Conclusion

Our article has contributed to scholarship in three main ways.

First, we have laid out the most viable options for designing a sustainability classification system.

Second, we have revealed the risks associated with taxonomies that exhibit "winner-takes-all" characteristics, which may be good for the "winner" but bad for the environment. Resulting from the binary type of information provided, such taxonomies potentially lead to underfunding of transition where financing is needed the most.

Third, with our scorecard approach we have provided an alternative classification system and shown how the scoring methodology could build on the information provided in the (rather binary) EU environmental taxonomy.

While we acknowledge the challenges that come with any extended taxonomy, including economic activities falling slightly short of the best-in-class is essential if the taxonomy is to function smoothly and deliver on its goals. After all, a taxonomy should assist in funding the transition of the economy towards net zero. Further research on how to best develop extended taxonomies would be important both from the legal/regulatory perspective and from the technical/scientific perspective.

Ethical Statement

This study does not contain any studies with human or animal subjects performed by any of the authors.

Conflicts of Interest

Dirk Andreas Zetzsche is an editorial board member for Green and Low-Carbon Economy and was not involved in the editorial review or the decision to publish this article. The authors declare that they have no conflicts of interest to this work.

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

Author Contribution Statement

Dirk Andreas Zetzsche: Conceptualization, Methodology, Validation, Investigation, Writing – original draft, Writing – review & editing, Visualization, Supervision, Project administration. **Marco Bodellini:** Methodology, Investigation, Writing – original draft, Writing – review & editing, Visualization.

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