Governing for growth: standards, emergent markets, and the lenient zone of qualification for green bonds

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Abstract

This paper seeks to provide a critical perspective on the roles and effects of standards in governing new markets for sustainability. Departing from a narrow, technocratic interpretation of standards as tools to differentiate within existing markets, we examine the work of standards in configuring and enacting a specific type of environmental market -- which we term growth-oriented. Through a case study of one such market, for green bonds, the paper shows how standards have been strategically enrolled to perform three key roles within an overall operative of growth: (a) codifying and solidifying a dominant conception of the product category; (b) protecting green bonds from stigmatizing iterations; and (c) constructing a lenient zone of qualification. Our work advances on the existing literature by offering a more power-sensitive and spatially-explicit conceptualization of environmental standards. It also provides novel theorization of how growth-oriented articulations of the green economy are rendered economic by bringing "just about enough" information, assurance, and promises of green into the market frame. We conclude by reflecting on some of the tensions involved in market-based projects by revealing how the imperative for growth through categorical leniency runs the risk of environmental considerations being subordinated.

environmental governance, finance capital, green bond, marketization, s*tandard*

1. Introduction

The past three decades have witnessed the proliferation of various markets for environmental sustainability -- also referred to as civilizing (Callon 2009) or concerned (Geiger et al. 2014) markets. One economic domain in which such markets have recently come to the fore is finance capital, where hopes have been raised about the prospects for significant capital switching away from “brown” and toward “green” (Castree and Christophers 2015). This purpose of this article is to critically interrogate the role played by environmental standards in constructing and governing these markets.

Our point of departure is to move beyond a largely technocratic reading of standards as tools to differentiate goods in existing markets for sustainability or regulating the qualities of individual products (Baldwin et al. 2012). Instead, through an analysis of the green bond market, we approach standards as power-laden devices which are deployed to enact new growth-oriented markets. Such a perspective foregrounds the strategic performativity of standards and the roles they play in animating, protecting, and expanding a specific kind of environment-themed market. It also brings into focus the techno-politics of market construction (MacKenzie 2009) and how environmental concerns can be enrolled in highly selective, economizing ways in the pursuit of growth.

Green bonds present an interesting case. The financial instrument is a relatively recent creation, distinguishing it from several more well-established sustainability-themed products (e.g., timber, coffee) which have been the mainstay of past research. The market for green bonds has also grown rapidly over the past decade, during which time several

public and private standards have emerged. We explore two key issues: the work performed by these environmental standards (Eden 2009); and the motives for, and ends served by, standardization.

Positioning environmental standards as performative market devices, the paper makes four main contributions. First, it conceptualizes standards as techno-political interventions (MacKenzie 2009), strategically deployed in nascent markets to format new product categories in ways aligned with the agendas of interest groups. Using this lens, we show how green bond standards were tactically configured by industry actors at an early stage to solidify a market-friendly consensus on what constitutes a green bond. The paper thus re-centers power in accounts of marketisation and exposes a previously under-explored dimension of the politics of standardization (Faulconbridge et al. 2018; Loconto and Busch 2010). A second contribution is to advance understanding of how growth-based projects of the green economy are rendered economic. To this end, we emphasize the satisficing role of standards in bringing "just about enough" assurance, information, and promises of environmental gains to render environmental goods sufficiently valuable, distinctive and "legitimately tradable" (Stephan 2012, 626). We moreover add to theoretical knowledge by invoking the concept of stigmatization to better understand how standards are deployed to prevent product iterations which threaten to deconstruct nascent markets.

A third contribution is to provide a more spatially explicit conceptualization of the work of environmental standards in marketisation (Barry 2001). We explore how standards are enrolled to extend (or build-out) markets for new environmental goods within what we term a lenient zone of qualification. Within the context of green bonds, this zone establishes

broad protocols over process, but has permitted a high degree of decentralized regulatory plasticity with regards to the meaning of green. Fourth, the paper sheds fresh light on the agency involved in financialized projects of environmental-economic restructuring by invoking the analytic of the growth machine. This concept has been widely used to explain urban development in terms of the activities of powerful, pro-growth coalitions of business interests and local politicians (Gotham 2000; Molotch 1976). Advancing on existing formulations of actor-networks in environmental governance (e.g., Eden 2009; Overdevest and Zeitlin 2014), we develop this concept to characterize transnational complexes united in a forward-looking, aspirational belief in the importance of market expansion.

The paper draws on data collected over 18 months during 2017-18. This includes 51 semi-structured interviews with standard-setters, market participants and observers (e.g., media and NGOs) in Asia, Africa, Europe, Latin America and North America; observations made at six green bond conferences held in Europe; and information collected from trade journals, market commentaries and other grey literature.

2. A brief primer on green bonds

Green bonds are fixed-income debt instruments intended for financing projects with environment-related benefits. To date, the largest share of capital raised from green bonds has been allocated to renewable energy, though they have been used in areas as diverse as energy-efficient buildings and waste management. Bonds are issued by so-called issuers (financial, corporate, or governmental actors) and bought by investors (such as pension

funds and banks) who supply the underlying capital. The sale of newly issued bonds is invariably undertaken by underwriters (largely comprising investment banks). An important feature of green bonds is they have mostly been identically priced to conventional ("plain vanilla") bonds, despite the costs of issuance often being higher, e.g., because of additional reporting obligations. A corollary is that the supply of green bonds has been predicated on issuers gaining additional benefits such as improved reputation and access to a wider pool of investors.

The green bond market has expanded significantly since iterations of the asset class first debuted in 2007, with growth particularly strong from 201 (see Figure 1). The supply of green bonds was originally dominated by a few multilateral development banks (MDBs). Yet the period since 2011 has witnessed a growing number of corporates, municipalities and, most recently, sovereigns issuing green bonds. Accompanying this trend has been geographic diversification. While Europe and North America dominated early (non-MDB) issuance, actors in an expanding number of emerging economies have issued green bonds, with China[1] (in particular) assuming a leading role.

As will be argued below, the comparatively rapid expansion of the green bond market owes much to the agency of a green bond growth machine, whose human constituents are united in a common desire to increase year-on-year issuance and investment. We thus characterize it as a growth-oriented market where the onus is on escalating transactions with the primary objective of expanding market scale.

Figure 1. Growth of the green bond market 2007-2018

<<INSERT FIGURE 1 ABOUT HERE>>

Source: Author based on CBI data.

3. Standards as performative devices

Standards constitute agreed-upon rules or criteria against which people, organizations and products are evaluated. They can take many different forms but, at their core, are regulatory tools which aim to create "uniformities across time and space" (Timmermans and Epstein 2010, 71). To conceptualize the work of environmental standards in constructing markets for new environmental goods, we make use of a body of literature concerned with marketization (Berndt and Boeckler 2011; Callon et al. 2002). From this perspective, markets are conceived as arrangements (or *agencements*) of artefacts, practices, discourses, and socio-technical apparatuses. The value of this literature here is that it foregrounds the performative role of "market devices" -- of which standards are an example -- in enacting new market realities. Market devices help render objects economic, in the sense of being transformed into goods which are the subject of market calculations. Such transformations involve disentanglement, whereby objects are disconnected from the complex web of relations they may have beyond the calculative space. They also involve qualification which

establishes (that is, frames) the set of properties which are attached to a product (Callon et al. 2002, 198).

We are not the first to locate a role for standards as markets devices (e.g., Lovell 2014; Solér et al. 2017). Yet a distinctive feature of this paper is that it explores the role, and effects, of environmental standards for new environment-themed products in nascent markets. Emergent green goods confront several challenges. They are not always readily knowable (Carruthers and Stinchcombe 1999), with many different interpretations, and a lack of consensus, over their essential qualifying features (Chimenti 2020). Nascent environmental markets are also potentially fragile endeavors whose fortunes depend on reconciling both economic and environmental imperatives (Finch et al. 2017; Reijonen and Tryggestad 2012). New environment-themed goods must additionally overcome the exigencies of geography if markets are to enroll new territories into their network (Eden 2009; Kama 2014).

Previous work provides some answers to how environmental standards overcome these challenges, suggesting they help markets function by stabilizing the qualities of goods (Çalışkan and Callon 2010). Yet it has had far less to say about *whose* qualifying criteria get stabilized. New markets resemble "on-going experiments" (Callon 2009, 537) in which multiple actors bring different interests, assumptions, expectations and visions. A useful perspective on how these rival actors compete to format markets in their image comes from a parallel literature on market categories -- understood as classificatory systems that provide "the cognitive and normative interface among parties enabling market exchanges" (Durand and Khaire 2017, 88). According to this work, different categorical interpretations (or prototypes) of new goods may exist during the nascent stages of category creation.

However, with a view to aligning interests and definitions, producers and intermediaries intervene so their particular interpretation becomes the "dominant category" (Suarez et al. 2015). Such insights open-up a more strategic perspective on performativity, wherein market devices are pre-emptively enrolled to enact certain models of reality. Moreover, they help expose the political character of marketisation, and raise questions about why certain actors are successful in translating their conception of goods into market settings (Cardwell 2015).

Another under-theorized and -developed issue addressed by the present paper is the role of standards in enacting robust environmental markets which reconcile, or at least manage, tensions between economic and environmental values[2] (Bain et al. 2013; Finch et al. 2017). While lenient qualifying criteria can lower production costs, and elicit more participants, they may well raise questions about goods' environmental credentials. For Callon (1998), such issues of concern give rise to so-called "overflows" which refer to negative reactions to the reality performed by framing (Higgins and Richards 2019). Past work has predominantly addressed the issue of overflows by emphasizing the role of standards in "black boxing" (Latour 1999), i.e., sealing-off goods from entanglements in controversial issues outside the market frame (Eden 2009; Loconto and Busch 2010). This paper goes further by invoking the concept of legitimacy which remains under-explored within the literature on marketization (Bowen 2019). We therefore suggest a role for standards in addressing environmental concerns by rendering environmental goods "sufficiently legitimate" whilst also addressing economic concerns by providing flexibility over the meaning of green. The concept of stigmatization is also deployed to better characterize the role of standards in mitigating against overflows. Inspiration for doing so comes from work which argues that negative

evaluations of the appropriateness of market categories can lead to stigmatization (i.e., discrediting), both of other products which are part of the category and the actors associated them (Barlow et al. 2018; Durand and Vergne 2015).

An important question unaddressed by the above literatures is how qualifying criteria for new environment-themed product categories spatialize. To conceptualize these dynamics, we turn to work on policy mobilities, which emphasizes the movement and domestic translation of knowledge, templates, and practice (Stone 2017). We also turn to Barry's notion of the technological zone, defined as "a space within which differences between technical practices, procedures and forms have been reduced, or common standards have been established" (Barry 2006, pg.239). The concept offers a way to connect environmental standards, the changing geographic boundaries of categorical recognition, and market growth. Of specific relevance here are zones of qualification, "which come into being when objects and practices are assessed according to common standards and criteria" (Barry, 2006, 239). Viewed from this perspective, standards can be interpreted as *spatial* market devices, facilitating the circulation of objects by removing blockages created by difference, incompatibility, and non-calculability. We introduce the concept of a lenient zone of qualification to capture how standards negotiate the tensions between international conformity and domestic imperatives (Akhter and Ormerod 2015; Barry 2001; Kama 2014). Defined as a space wherein there is standardization over the essential criteria required for goods to be exchanged as part of a coherent product category, lenient zones also embody considerable flexibility, allowing for different interpretations over other qualities which might unsettle market transactions.

Drawing from these ideas, we identify, conceptualize and describe three roles performed by standards: (a) codifying and solidifying; (b) preventing categorical stigma; and (c) constructing a zone of qualification. Before doing so, the paper explores the complex of actors involved in standardization, characterized as comprising a growth machine. The growth machine concept is particularly useful in the present context by foregrounding how boosterist projects arise not from the agency of single entrepreneurs, but an "amalgam" of private and public actors (Jonas and Wilson 1999, 6). The concept also highlights how "the desire for growth provides the key operative motivation toward consensus" (Molotch 1976, 310) among actors who otherwise can have different interests.

4. The green bond growth machine

Three key actors have been directly involved in developing and administering standards for green bonds: (a) the Climate Bonds Initiative (CBI), a London-based ENGO, focused exclusively on mobilizing bond markets to address climate change; (b) market actors, led by a set of European and North American underwriting banks which authored the Green Bond Principles (GBPs), together with the International Capital Markets Association (ICMA), which serves as the standard's secretariat; and (c) governmental actors, which can be broadly divided into domestic financial/corporate regulators[3], and two regional (supranational) bodies (Table 1).

Table 1. Standard-setting actors

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Source: Author

Coalescing around these standard-setting organizations is a set of predominantly market actors which have promoted, supported, and legitimated standards. They include several MDBs which were at the forefront of early issuance. They also include what Kaminker (2015, 1) describes as, "[A]n ecosystem of verifiers and assurance providers ... to examine process and environmental integrity", largely in relation to one or more standard.

Various motives explain actors' involvement in standardization. Environmental ambitions have underpinned the CBI's intervention, with standards pursued to accelerate flows of capital for climate action (Oliver and Kidney 2011). One motive for architects of the GBPs was capital accumulation, in that "…certain investment banks realized that this [standards-creation] was a way for them to have a very strong position in the market…to get more of the green bond business", including by being "seen as a green bond specialist" (pers. comm.). Amongst other reasons, emerging economy governments have pursued standardization to foster domestic issuance, with the ambition of attracting foreign capital and developing local debt capital markets.

While the underlying motives may have varied, interests have nevertheless converged around market growth. For this reason, we characterize the amalgam of actors involved in developing and supporting standards as a growth machine. It is a growth machine in the sense of being underpinned by a shared ideology amongst its constituent members, namely, that increasing the scale of the green bond market is inherently "good." A larger volume of

green bond issuance is positive because it (re-)allocates capital to the valence issue of sustainability. An accompanying narrative -- or "ideological prop" (Molotch 1976, 320) -- centered on co-benefits has buttressed this logic: issuance and investment in green bonds fosters green organizational learning.

Symptomatic of these shared beliefs is how the scale of issuance has become a central evaluative metric amongst market participants and commenters alike. At various industry conferences the author attended, market growth and scale featured prominently, often to narrate the apparent success of the market and a rallying point for more issuance. Indeed, along with financial capital, the green bond market has been invested with the hopes of corporate participants, public policymakers, and even certain NGOs about the potential for financial markets to contribute to climate goals (Tripathy 2017). Stuttering issuance threatens this aspirational, forward-focusing vision and, with it, the projected imaginary of an enlightened, market-driven solution to climate change. The green bond market is, in short, "too important to fail."

Another reason for characterizing this complex as a machine, one which closely references thinking about market agencements, is that its activities have productive effects (Callon and Muniesa 2005). The growth machine operates to increase the supply and demand for green bonds. Standards have been viewed as essential infrastructure for realizing these ambitions. For example, commenting on the first iteration of the CBS in 2011, the Chair of the CBI remarked, "[T]his product allows for a new fixed income asset class to emerge and grow - one that will be focused on recognizing the investments needed to deliver a Low Carbon Economy by 2050 and on limiting the risk of dangerous climate change" (CBI 2011b). The

GBPs were similarly purposefully "designed to foster growth" (Hay 2014a), with one architect noting that, "In co-authoring these principles we attempt to help standardize the product and we hope to catalyze investment into environmentally sustainable projects" (BoAML et al. 2014). Without standards, it was believed that uncertainty about what qualifies a bond as a green bond, together with concerns over greenwashing, would hamper market growth. The growth machine is also characterized by a non-trivial degree of interaction, its members cooperating with the intention to "get things done" (Molotch 1976, 316). For example: the Brazilian Federation of Banks (FEBRABAN) collaborated with the Brazilian Business Council for Sustainable Development (CEBES) to develop Green Bond Guidelines to accelerate domestic issuance and investment. As discussed below, the growth machine has also mobilized transnationally.

While suggesting a well-functioning, unified machine co-operating around standardization, internal tensions, disagreements, and cleavages have nevertheless emerged amongst its members. Several respondents spoke about antagonism which historically existed between certain members of the Executive Committee of the GBPs and the CBI. Yet an important feature of the growth machine is how its constituents have sought to resolve their differences, rhetorically and materially, so they do not unsettle the collective ambition of market growth. Hence, ICMA and the CBI have largely "buried the hatchet" (pers. comm.), with the leadership of the organizations keen to impress the compatibility between their respective (and potentially competing standards) standards. As one observer noted: "…they knew that the market couldn't have that split…they understood they needed to have some harmony otherwise it was going to frighten newcomers in the market." In practice, this has

involved a degree of compromise, with members of the machine demonstrating considerable pragmatism to realize the shared goal of market growth.

5. Performing growth

5.1 Codifying and solidifying

The origins of the green bond category can be traced to two MDBs: the European Investment Bank (EIB) and the World Bank, whose inaugural environment-themed bonds were issued in 2007 and 2008, respectively. Together, these institutions played a central role in "singularization" (Callon et al. 2002, 194), delineating two qualities that would go onto become core, distinguishable attributes of the new product category: (1) dedicated ring-fencing and allocation of proceeds to environment-related investments; and (2) reporting over use-of-proceeds.

Yet, whilst laying the cognitive foundations, the development of a market for green bonds was hampered by a lack of industry actor understanding of the product (Monk and Perkins 2020). It is against this backdrop that standards were developed to animate market transactions by codifying a set of categorical features and expectations into a schema comprehensible to others. The objective of codification -- particularly in the case of the Green Bond Principles (GBPs) -- was to educate potential issuers and investors about the nature of the product. Moreover, codification sought to establish a set of qualifying criteria against which, and through which, iterations of the product could be identified and evaluated. For the NGO- and industry-led standards, the Climate Bonds Standard (CBS) and

GBPs, these criteria drew on the prototypical features established by MDBs. As a result, both feature procedures for project selection, allocation, and management of proceeds, and reporting and transparency. Yet, beyond these commonalities, the content of the standards has varied, reflecting contrasting beliefs about the requirements for animating the growth of market exchange.

The approach of the NGO standard-setter, the CBI, was guided by a "logic of environmental integrity." According to this morally-informed logic, making environmentally-themed bonds investible depended on removing ambiguities about the qualifying criteria for "green", and providing investors "an easy way to assess the integrity of environmental claims for green bonds" (CBI 2011a). It also involved fostering confidence in the category by institutionalizing attachments to expert knowledge (Tripathy 2017), and promoting trust through a system of "robust & independent assurance" (CBI 2018). The following statement by the CBI announcing its intention to develop a standard in 2010 exemplifies this thinking:

> *[A] broadly-supported and credible, standards-based labeling scheme is needed to support a wide universe of tradable green debt. It will help investors to identify genuinely effective climate change mitigation and adaptation investments.* (CBI 2010)

It is within this context that the CBS explicitly codifies, and draws boundaries around, the meaning of green through a science-based taxonomy of "eligible projects and assets" aligned with a maximum of 2 degrees warming. It is also within this context that the standard requires third-party certification.

Conversely, the design of the GBPs was based on a "logic of investor sovereignty", predicated on disclosure and consumer choice. Beyond outlining a set of broad, indicative categories of eligible projects (e.g., "clean transportation"), the Principles did not seek to rule on what qualifies as green. Instead, this decision was delegated to individual investors, with the green dimension of the bond made knowable through a procedural requirement for issuers to report on use-of-proceeds. Theoretically, this information would help make green bonds calculable: investors could evaluate and even compare the assets being financed. In practice, this is calculability "lite" (more like "qualculation" (Cochoy 2008)), in that issuers are not compelled by the GBPs to neatly transform environmental qualities into quantities (e.g., tons of CO_2 mitigated). Yet, as observed in other contexts (Lovell 2014), a completely quantified, accurate and commensurable metrological regime is not always necessary to make markets function. Moreover, as highlighted by Christophers (2018, 15), the dominant dimension of calculability used by investors to evaluate green bonds is the same as regular bonds; "…it's still that question of [financial] risk and return", as one interviewee put it. What mattered is that investors would have *sufficient* information to make their own judgements for environment-related product qualification. External reviews, commissioned by a large majority of issuers, have assisted investor decision-making.

A further impulse for standardization, which strongly resonates with the idea of strategic performativity, was more techno-political in nature (MacKenzie 2009). Standards were developed with the ambition of framing and solidifying a model for the new product category aligned with the interests of the standard-setter. Viewed this way, the CBS was not only an early strategic intervention conceived to accelerate the scaling-up of the category,

but to shape its very nature. The NGO standard attempted to construct a variant of green bonds, Climate Bonds, as a stringent product category (i.e., with clearly defined boundaries around specific eligible projects). A key aspiration was to prevent the market developing at scale around a lenient, potentially specious interpretation of green. Indeed, the CBS was created at a time when several different environmentally-themed bonds were being proposed (Caldecott 2011), giving rise to concerns around variants with questionable contributions to sustainability.

Conversely, the architects of the GBPs sought to enact a more lenient, market-friendly cognitive framing. The Principles were not a significant departure from existing practice: "essentially the Green Bond Principles codified what we were doing already" (pers. comm.). Yet, aware that the growth of transactions depended on eliciting the participation of a broad range of issuers and investors, the GBPs were a "conscious effort" (pers. comm.) to ensure green bonds would be *fixed* as a lenient product category. They also sought to ensure that no other party would undermine this largely procedural framing of the category. As one respondent closely associated with the Principles noted, "if you don't regulate yourself…people regulate you." A more stringent framing of the category would be counter to the goals of market growth. It would moreover not be in the interests of underwriting banks who favored "loose" standards "because they want to be able to get as many clients on board" and "didn't want to do anything that unnecessarily hindered their clients from issuing green bonds" (pers. comm.).

Within this context, omitting eligibility-specific criteria for green can be understood as a tactic. Creating a detailed, science-based taxonomy would take significant time and,

moreover, it was believed that efforts to standardize green definitions by bankers was "not going to be viewed with as much integrity by the market" (pers. comm.). Any attempt to restrict GBPs-aligned bonds to financing a tightly defined set of eligible assets, and to mandate specific verification requirements, might furthermore add to costs. By codifying green bonds exclusively around execution processes, the intention was to enact a diverse market, characterized by low barriers to entry. Supplied by bonds with different "shades" of green, it would cater to different investor preferences for sustainability.

According to most market participants interviewed, the Principles have been the single most important influence shaping collective understanding of what constitutes a green bond, at least in Europe and North America. The four procedural pillars enshrined in the Principles were identified as the key reference points for determining whether a bond qualifies as a green bond. The role of the GBPs as a categorical referent (Cattani et al. 2017) is also evidenced by the fact that several prominent green bond databases and indexes, ratings/evaluation tools (e.g., by Moody's) and stock exchanges (e.g., Luxembourg) reference the GBPs in their methodologies and/or inclusion criteria.

That the GBPs became the dominant categorical template reflects several factors: they drew on emerging industry practice; were introduced during a formative phase of market development; they kept "things simple" (pers. comm.); and were "written by the participants for the participants" (pers. comm.), who used ties with market actors to promote and legitimate the standard. It also reflects the workings of an evolving growth machine. Its members have acknowledged that a nascent market could not readily accommodate multiple standards, and how differences in categorical criteria, requirements

and definitions could endanger the fungibility of the asset class. There has therefore been a degree of alignment around the GBPs. Most striking in this regard is growing mutual recognition between the two collective standards and their promoters, with the CBS increasingly positioned as a certifiable form of external review for the GBPs.

5.2 Preventing categorical stigma

> *If…anyone can tag its bond issues as being green, this market is not going to live very long.* (pers. comm.)

Just as environmental standards were deployed instrumentally to enact and grow a market, so they have also been pursued to reduce possible stigmatizing iterations which might threaten this growth. Bringing environmental sustainability into the market frame allowed a subset of bonds to be imbued with new sources of cultural value -- including bonds financing environment-related projects which would have previously been marketed as regular bonds (more akin to capital relabeling rather than "capital switching" (Castree and Christophers 2015, 378)). Yet, by enrolling environmental discourses, green bonds have risked being re-entangled in wider debates about the meaning, boundaries, and materiality of green. A prominent concern for their proponents is that, through these re-entanglements, the category may invite controversy, criticism, and audience disapproval, resulting in green bonds no longer being legitimately tradable.

Reflecting a wider reputation for good governance, together with their commitment to accountability, transparency and post-issuance reporting, the bonds released by the MDBs were mostly viewed positively by market and civil actors (Nicholls 2013). However, as the market began to diversify and grow beyond development banks, so did worries about the environmental credentials of green bonds. The decision by the newly-created CBI to develop a standard was influenced by these considerations. Without robust standards, capital could be allocated to projects of questionable environmental value, with negative long-term consequences for the integrity of environment-themed bonds (CBI 2010).

Such concerns increased with the involvement of corporate issuers from 2013 onwards, underpinned by fears that "someone would spoil the market by bringing a deal with poor green credentials and discrediting the product" (Hay 2014). One respondent with long-standing experience of issuance remarked: "this is potentially a very valuable product, but its one vulnerability, its one potential weakness, was going to be a loss of integrity…somebody debasing the currency as it were." Stigmatization threatened not only the fate of individual bonds, but the cultural value of the entire category. If the green bond category were tarnished, it would be more difficult to enroll new issuers or investors, and potentially undermine the commitment of existing ones. To the extent that products "provide clues on the values or belief systems within the organization" (Barlow et al. 2018, 2), and environmentally-oriented product categories carry expectations of virtuous behavior, disapproving evaluations of green bonds also risked damaging the reputations of market participants. Negative spillovers assumed heightened importance given that one motive for financial actors to pursue green bonds has been re-legitimation in the wake of the global financial crisis. In short, stigmatization from poor quality iterations could

undermine the whole project of market growth, a fear reinforced by the sentiment-driven nature of financial markets.

Several respondents cited these worries as a central factor underpinning the decision to create the GBPs -- with the trope of greenwashing frequently mentioned as an impulse for an industry standard. In fact, in discussing the origins of the Principles, a degree of cynicism toward fellow market participants emerged; one respondent noted that they "don't trust each other" (pers. comm.). As one research participant involved in developing the GBPs remarked, "we wanted to discourage any abuses or any inappropriate transactions." Another leading actor similarly noted that the GBPs were conceived to ensure, "…that there are no free riders in this market…that no one is going to do some kind of greenwashing."

The Principles sought to reduce the likelihood of stigmatizing iterations through a neoliberal solution of design centered around transparency and self-interest. The underlying philosophy was that, in making available information about the underlying assets financed, green bonds which did not meet investor expectations of environmental sustainability would not receive investment: "[N]ice try…[but]…we're not buying it as a green bond" (pers. comm.). The reluctance of investors to purchase bonds with questionable environmental credentials would, in turn, disincentivize issuers "cutting corners on the greenness of the transaction" (Sfakianos cited in O'Toole 2014). Accompanying these effects is a narrative, articulated by supporters of the GBPs, that issuers who fail to honor their green commitments face reputational and legal risks. The Principles have not stopped audiences (including those from financial institutions, NGOs, and media outlets) bemoaning the absence of clearer definitions of green, or ongoing discussions about the risks of

greenwashing. Yet, by providing a widely accepted "reference framework" (pers. comm.), the GBPs have provided *enough* clarity, consistency, and transparency to convince a significant number of industry actors to participate in the market. The Principles have thus helped keep more foundational criticism at bay which might have called into question the entire product's legitimacy.

The decentralized regulatory function of the GBPs partly depended on trust. Through the convening effect of the Principles, together with pre-existing market experience, many of the actors involved in their development and subsequent use knew one another. Largely comprising underwriters, investors and issuers spatially anchored in Europe and North America, this group can be interpreted as an evolving transatlantic community of practice, dedicated to growing the asset class. Importantly, because of their interpersonal ties, actors could reasonably be trusted not to disrupt the integrity of the market through sub-standard issuances. As one investor explained, "yes, we've sat in the same room, so of course I can trust you to deliver." To further guard against damage to the legitimacy of the category, members of this community have sought to rhetorically govern the boundaries of acceptable market practice. For example, several high-profile investors publicly criticized the "greenness" of Repsol's 2017 green bond, principally on the grounds that it did not contribute to the Spanish oil and gas firm transitioning away from hydrocarbons. Whilst acknowledging its procedural best practice, the CBI refused to list the bond on its database, suggesting that the incremental environmental improvements involved were not sufficient for a sub-2-degree pathway. Such criticisms have created pressures for requalification, including through a new sub-species of green bond ("transition bonds") aimed at brown firms. Concerns over greenness have also underpinned the forthcoming voluntary EU Green

Bond Standard (EU GBS) which seeks to bring greater integrity to the market by restricting financing to activities aligned with a comparatively stringent EU Taxonomy (see Table 1).

With green bond issuance beginning to firmly take root outside of Europe and North America after 2014, and beyond the community which established the GBPs, the trust-based system of regulation could no longer be guaranteed to protect the category. Concerns over greenwashing were particularly acute in the case of emerging economies, characterized by fears that issuers with limited understanding, experience or capabilities would abuse the label by issuing green bonds with dubious credentials. Several London-based analysts interviewed in the research voiced fears that greenwashing by one or more Chinese issuer might "blow up" the nascent green bond market.

Actors with a strategic ambition to nurture green bond issuance in emerging economies have been aware of these dangers. As one commentator with experience of working in China remarked:

> *They [the Chinese authorities] understand the international market, that greenwashing is definitely one of the risks…Because the point where you have one, kind of, brown bond out as a green bond…then your reputation basically kind of ruined.*

Likewise, one Brazilian interviewee noted, "there's a reputation risk for our banks, for our financial sector and the enterprises if we start issuing green bonds that are greenwashing

bonds." In short, domestic issuances might suffer from a form of territorially-encoded stigmatization, making it harder to market bonds originating in specific countries. Reducing the likelihood of illegitimate green bonds reaching the market has provided an incentive to create domestic standards in emerging economies. Within countries such as China and India, standards have thus had a regulatory ambition, in the sense of controlling the quality of issuances and imbuing iterations of the category with a degree of credibility. Standardization has also sought to reduce the likelihood of stigmatization by promoting an understanding amongst potential domestic issuers, investors, and underwriters of what qualifies as a legitimate member of the green bond category.

5.3 Constructing a lenient zone of qualification

Key members of the growth machine have long been cognizant that sustained expansion of the market would depend on enrolling an ever-larger set of issuers from a growing number of territories. Geographic diversification opens new opportunities, including in developing and emerging economies, where large-scale debt financing has been framed as an important source of capital for meeting domestic environmental goals. Yet critical to ensuring that bonds issued in different geographies could be bought, sold, and traded internationally is that their basic features are sufficiently equivalent (Carruthers and Stinchcombe 1999; Cooper 2015). Standards have played a key role in enacting such equivalence across space and, furthermore, avoiding closures in a zone of qualification for green bonds by institutionalizing categorical leniency.

At the heart of this expanding zone of qualification have been the GBPs which have provided the categorical template for creating a largely integrated technozone within the

European and North American macro-spaces. Important in this respect has been the transatlantic network coalescing around the GBPs. A key feature of this community is that existing members have enrolled newcomers into, and educated them about, the green bond market around the categorical features codified in the Principles (Monk and Perkins 2020).

Standards have also been enrolled as spatial mobilisers -- or "cross-boundary translation device[s]" (du Gay et al. 2012, 1090) -- to actively extend and maintain a lenient zone of qualification beyond Europe and North America. A range of non-domestic actors have been active in these strategic projects of geographic-cum-network extension: the CBI, ICMA, MDBs (such as the Inter-American Development Bank), bilateral donors (e.g., UK's Department for International Development), and underwriting banks (Hilbrandt and Grubbauer 2020; Zhang 2019). For example: GIZ (Germany's development agency) and SEB (a Swedish financial group) have co-operated on a strategic alliance on *Green Bond Market Development in G20 Emerging Economies*, involving "green bond symposia, technical workshops and tailored advisory support to key stakeholder groups " (EMDF 2018). As part of these initiatives, standards have been explicitly used to educate domestic actors about what a green bond is, how actors can issue them, and what issuers and investors should be looking for in terms of verification and assurance.

Domestic actors have also deployed standards strategically to secure entry to the dominant zone of qualification for green bonds. Primary amongst them are public financial regulators in several emerging (including China, India, Indonesia, Nigeria, and Morocco) and developed countries (including Japan and Singapore) which have issued their own guidelines for green bonds. A striking feature of these standards is that all are "basically cut and pasted from the

Green Bond Principles" (pers. comm.). That is, they incorporate the four pillars of the GBPs, although with a degree of local adaptation and transformation.

Incorporating the GBPs was expedient in that regulators and other actors could more readily issue guidelines of their own by drawing on a pre-existing, open-source reference document. Besides, it made little sense to "reinvent the wheel" (pers. comm.), particularly when the Principles had already achieved widespread market acceptance in Europe and North America. The decision to model domestic standards on the key procedural dimensions of the GBPs was moreover strategic. By doing so, green bonds issued by domestic actors could more easily be marketed to foreign investors, thereby helping countries to attract additional foreign investment. As a representative from a MDB involved in the ongoing development of domestic standards in Latin America noted: "if we follow the international standards, we know that we…will have the access of international investors."

Yet the transnational project of standardization has not created a truly integrated technozone. One reason why the zone of qualification remains an incomplete, variegated accomplishment is that public standards have deviated from the template established by the GBPs and investor expectations formed around the Principles. Referencing the language of policy mobilities, mutations have occurred as both "product" and "policy" knowledge have been translated into domestic contexts (Baker et al. 2016; Stone 2017). Many of these mutations are minor, with little impact on the mobility of categorical iterations. However, others are more substantive, potentially restricting the entry of bonds to the dominant zone of qualification.

A notable case is China where domestic green bond guidelines governing issuances in local currency depart from what are regarded as international requirements for categorical membership, most controversially by including clean coal in the taxonomy of eligible assets. Revealing how the translation of green bonds carry the imprint of domestic interests, the permissiveness toward fossil fuels owed much to the central government's position that coal will and should remain part of the domestic energy mix. As one Chinese commentator explained, domestic actors who oversaw the development of China's taxonomy of eligible assets "had to make a nod to clean coal" and "couldn't…write off coal entirely, because that would be going against the…mainstream government." Likewise, the "publicization" (Arcuri 2015) of green bond standards can also be understood within the context of another of the state's strategic priorities; specifically, the development of a green financial system in the country. The government was aware that the existence of private voluntary standards (notably, the CBS and GBPs) would, by themselves, be insufficient to stimulate domestic issuance and investment. Instead, eager to catalyze the supply of green bonds, public standards were promoted as part of a "top-down", "regulatory push" (pers. comm).

Another disruption to the circulation of Chinese bonds within the dominant zone of qualification is regulatory in nature. A complex domestic approvals process and set of capital controls have made issuing offshore green bonds in foreign currencies difficult, contributing to over three-quarters of domestic issuers choosing to market their green bonds to local investors in the onshore market (Zhang 2019). Such bonds have not had to pass through the "obligatory passage points" (Latour 1999) for categorical membership governed by Western standard-setters, index providers, databases, and international

investors. One consequence is that over a third of green bonds issued in China in 2017 did not meet “international requirements” (CBI 2018).

An important feature of the growth machine is that certain members have nevertheless sought to avoid closures in the technozone which might disrupt the development of a globally fungible market. Highlighting how the construction of a zone of qualification is not only a technical feat, but a discursive one, one tactic has been to downplay differences in categorical variants or their significance for product qualification. For example, the CBI has publicly stressed the high degree of alignment between Chinese standards and international ones, notably the GBPs and CBS. It has also emphasized how aspects of Chinese standards are “amongst the most rigorous in the world” (CBI 2017). Another way actors have sought to reduce frictions in the fabric of the technozone is through efforts towards harmonization. A prominent example is the collaborative project between the EIB and China’s Green Finance Committee (CGFC), initiated in 2017, with the aim of “the establishment of a common language in green finance…so that demand can meet supply more efficiently within and across jurisdictions” (CGFC/EIB 2017, 3).

Proponents of market growth have also attempted to avoid potential ripples in the fabric of the technozone by arguing for categorical leniency, in the sense that qualifying criteria for entry should largely be defined around procedure rather than product. A central thrust of this discursive work has been that it would be difficult, indeed problematic, to have universal definitions of green because conceptions, expectations and requirements of sustainability vary across countries. It was a trope which arose multiple times during interviews and, moreover, one frequently invoked to argue that “too much standardization

will kill the market, not create it" (underwriter, cited in EuroWeek Editor 2015). For example, during the research, concerns were raised that the anticipated EU GBS might impede the development of a truly integrated international market.

6. Discussion

Four wider themes emerge from the analysis which deserve further discussion: (1) power in qualification; (2) enrolling and satisficing environmental concerns; (3) sustaining and expanding markets; and (4) beyond distributed agency.

6.1 Power in qualification

Our findings foreground the role of standards as devices through which power operates. By successfully deploying standards to qualify, stabilize, and solidify product categories, actors not only format the green economy in ways aligned with their interests, but also enact power. The paper therefore adds to the literature on sustainability standards which has predominantly analyzed power in terms of the capacity of specific actors to shape the requirements of individual -- often multi-stakeholder -- sustainability standards (Klooster 2010; Langford 2019). The present analysis goes further, offering an account of power whose effect is to give rise to dominant cognitive understandings of an entire environment-themed product category. Indeed, through supply-side cognitive framing, the GBPs "short-cut" what the literature on marketization often characterizes as a potentially long, drawn-

out, and contentious processes of qualification (Callon et al. 2002; Callon 2009; Reijonen and Tryggestad 2012).

We also expose the relational nature of power in qualification (Gond and Nyberg 2017). The power of the GBPs, and the network of actors involved in their creation, derived from their multiple associations (Latour 1986). Through these relations, a wide range of market actors were enrolled into the Principles, and a specific cognitive understanding of product qualities successfully naturalized. The architects and early supporters of the GBPs held little coercive power, i.e., the power to dominate others. Instead, their ability to mobilize chiefly rested on trust, legitimacy, and pre-existing ties, which allowed power to be "exercised *with* other*s*" (Allen 2003, 5). Our study also vividly exposes the limits to relational power, as evidenced by the labor, and compromises, required to translate the categorical requirements enshrined in the Principles beyond Europe and North America (Barry 2013).

6.2 Enrolling and satisficing environmental concerns

Another insight from the paper concerns how market-based projects of the green economy are configured for growth. We show how the essence of growth-oriented standards is to ensure that just about enough rigor, information, and associations with green are brought into the frame to render environmental goods legitimately tradable (Stephan 2012): legitimate in the sense that they are satisfactorily distinct from non-environmental alternatives; in the sense that they provide sufficient promises of green improvements (including by catering to investors with different appetites for green); and in the sense that the worthiness of the entire market is not called into question (Bowen 2019; Durand and Vergne 2015). Telling in this regard is that, rather than the science-based requirements for

environmental sustainability, standards such as the GBPs have been guided by the considerations of what is sufficient to animate market transactions. The green bond market thus reveals how the environment can be enrolled as a new source of value, but in a potentially narrow, economizing way, the implications of which we discuss below (Berndt and Wirth 2018).

6.3 Sustaining and expanding markets

A recurrent theme of the literature on marketization is that markets are fragile assemblages (Berndt and Boeckler 2011; Fields 2018). Yet markets do survive and prosper leading to a call from Christophers (2015, 1864) for more 'theorizing how and why capital repeatedly thwarts markets' deconstruction'. This paper identifies a role for standards in such an endeavor -- particularly within the context of markets for sustainability (Slater 2002). The concept of stigmatization is potentially useful in this respect, drawing attention to how norm-violating entanglements risk de-legitimizing markets, product categories, and market participants. We also suggest that the concept can usefully be extended to territories to understand how goods from certain locales, countries or regions may suffer legitimacy dilution.

Along similar lines, insights from the paper contribute to theorizing how markets expand (Muellerleile 2013), but also remind us of the tensions in this dynamic. Our findings move beyond recognition that standards enable the circulation of goods through compatibility, equivalence, and comparability within zones of qualification (Barry 2001; Loconto and Busch 2010). We moreover show how standards contribute to the extension of such zones -- and their spatial and relational boundaries -- through their enrolment as spatial mobilisers (or

"carriers") of categorical criteria, templates, and expectations. Yet, as well as unifying space, environmental standards can simultaneously differentiate it. Echoing work on territorial eco-certification (Buckingham and Jepson 2013; Foley and Havice 2016), standards create new opportunities for domestic actors to assert their interests, authority, and legitimacy through "state-led qualification" (Ashton and Christophers 2018). What is more, standards do not necessarily overcome other territorially-inscribed frictions, exposing the limits to cross-border performativity (Kama, 2014). Consistent with Akhter and Ormerod's (2015) work on hybrid technozones, the result can be complex, variegated zones of qualification where product markets carry the in-print of territorial geographies.

6.4 Beyond distributed agency

What we characterize as a growth machine is, in many respects, an epitome of distributed agency. It is distributed in that its agency is comprised of human (individuals from underwriting banks, financial regulators, etc.) and non-human actants (standards, indexes, etc.) which contribute to realizing certain outcomes (Callon and Muniesa 2005). It is also distributed spatially, in that its constituents are dispersed across geographic space, with the capacity to govern, coordinate and control "at a distance" (Allen 2003; Loconto 2015). Our formulation of the growth machine does not seek to challenge these perspectives. Yet it offers several additional insights into the agency underpinning networked projects of environment-themed marketization. Specifically, the growth machine concept invites us to consider how multiple actors come to mobilize behind a common goal of growth, as well as the compromises they make. It also brings into focus the discursive tactics used to justify, normalize, and sustain growth-oriented actions. The growth machine additionally directs attention to the collective identities and communities forged by, and around, such

endeavors (Henriksen and Seabrooke 2016; Hilbrandt and Grubbauer 2020). Indeed, to the extent that standards have enrolled individuals into an actor-network, they are both an effect and cause of the growth machine. The findings of the paper further point to a productive re-working of the growth machine concept by acknowledging its potentially transnational nature (Surborg et al. 2008), and how such machines may have multiple, spatially dispersed parts which are only loosely coupled.

7. Conclusions

What are environmental standards for? And whose interests do they serve? Within the context of debates about the role of finance in sustainability transitions, the present paper sheds light on these prescient questions by examining the role of standards in governing green bonds (Bridge et al. 2020). We show that the ultimate objective of standards has not been to regulate the environmental credentials or contribution of individual bonds. Nor has it simply been to create a market for green bonds (Bain et al. 2013). Rather, it has been to enact, protect and expand the boundaries of a specific type of market: a growth-oriented one. The various roles played by standards identified in this paper can be interpreted as a means to an end, where the end is year-on-year expansion of market scale.

It would be easy to rearticulate a familiar tale of neoliberal environmentalism; positioning standards as servants of capital supporting the expansion of environmental markets for the sole purposes of accumulation (Bracking 2015; Jones et al. 2020; Sullivan 2013). It is certainly true that an impulse for industry standards was (partly) rooted in ambitions to

create new business opportunities. It is also true that standards, and the narrative of a blossoming green bond market, have served a wider role of (re-)legitimating neoliberal capital by affirming its virtuous contribution to public environmental goals (Kish and Fairbairn 2018). Yet the story is more complex. The green bond market bears witness to the environmental values, commitments, and expressive desires of a multitude of actors to "make a positive difference" (Barman 2015; Paterson and Stripple 2012). Market protagonists have also long maintained that the purpose of green bonds goes beyond their direct, additional contribution to reducing environmental degradation. They are moreover a vehicle to transform financial markets to meet the capital requirements of sustainability transitions by lowering the costs of financing green vis-à-vis brown. Hence green bond standards have been driven by plural interests and imperatives: financial institutions with a commercial stake in a vibrant green bond market; NGOs seeking to mobilize capital to substantively address sustainability concerns; governmental (and other public) actors seeking to fulfil environmental commitments and foster the development of (green) financial systems; and individuals in both private and public domains searching for purpose and fulfilment, and "doing their bit".

It is within this context that our findings allude to some of the dilemmas associated with market-based projects of the green economy. The imperative for growth -- an ambition hard-wired into the logics of contemporary capitalism -- resulted in green bonds being solidified by as a flexible product category and the construction of a lenient zone of qualification around these categorical requirements. This has helped enroll a growing number of actors and territories into an increasingly liquid green bond market. Yet the very same goal-directed imperative has meant that shorter-term environmental considerations

have, to a greater or lesser extent, been subordinated. Indeed, there is a danger that the project of governing for growth obfuscates the current unsustainability of the capitalist system, aspirationally re-focusing attention on what financial markets might achieve in the future rather than what they do today -- a kind of imaginary temporal "fix". And despite the noble motives of many protagonists, green bonds may ultimately be an act of self- and collective deception (Newig 2007), largely designed by and for market actors wishing to convince themselves and others that "something is being done."

Recent developments such as the EU GBS signal increasing acceptance by some members of the growth machine that ongoing market expansion may depend on more stringent, criteria-based definitions of green aligned with public goals such as the Paris Agreement. Yet it remains to be seen whether a stricter, less flexible interpretation of the category gains traction with market participants. It also remains to be seen whether governments will narrow the discretionary space for green by legally requiring issuers to align activities financed by green bonds with more environmentally demanding taxonomies (based on, or similar to, the EU's). What is apparent is that a multiplicity of green bond standards is emerging, some of which can be described as "baseline" (i.e., modelled around the GBPs), while others "premium" (i.e., more stringent standards) (Reinecke et al. 2012).

The paper has implications for theory. It demonstrates the value of a marketization perspective in understanding the work performed by environmental standards, but also offers several areas of conceptual development. Our analysis shows how a more explicit conceptualization of power in marketization can help shed light on *who* is able to successfully enact and translate their visions of new product categories into reality. It also

provides answers as to *why* some actors are more successful than others -- thereby allowing politics to be re-centred in the techno-politics of market construction (Higgins and Richards 2019; Kama 2014). Additionally, the paper demonstrates how a richer, more nuanced theoretical understanding of marketization within concerned markets can be obtained by engaging with the concept of legitimacy. Doing so offers a novel way to conceptualize how economically viable, growth-based projects of the green economy are made possible by bringing just about enough virtue into the market frame to legitimate transactions. We are thus able to move beyond frustrated debates about greenwashing to better understand why market-based projects deliver a certain, albeit finite, contribution to sustainability. The paper also augments the existing literature on marketization by bringing into focus the value of a mobilities perspective (Stone 2017). In particular, it offers a theoretical contribution by invoking standards as carriers of qualifying criteria, and provides an analytical framework to understand how products may be selectively requalified as they are translated into different territorial contexts.

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Endnotes

[1] China accounted for approximately 80 percent of emerging market issuance between 2012-2018.

[2] We thank an anonymous reviewer for the suggestion to pursue this idea more explicitly.

[3] China, Egypt, India, Japan, Malaysia, Morocco, Nigeria, Philippines, and Singapore.

Figure 1. Growth of the green bond market 2007-2018

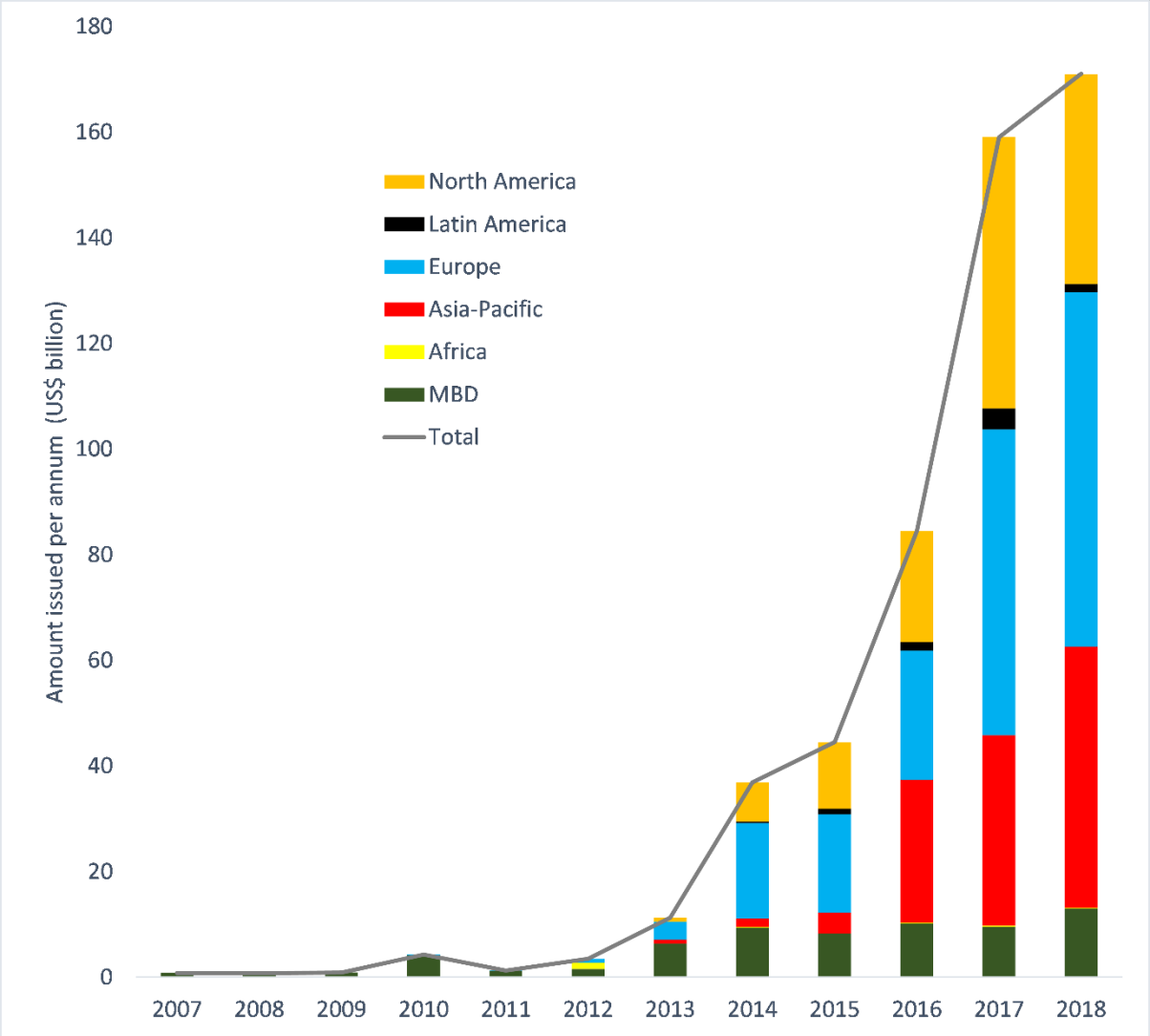

Table 1. Standard-setting actors

Actor group	Member(s)	Standard and description
Civil	CBI	Climate Bonds Standard (CBS) -- a voluntary, third-party certifiable standard which sets out the procedures required for climate bond issuance and reporting. The CBS prescribes a detailed, science-based taxonomy of eligible assets within different sectors (bioenergy, solar energy, waste management, etc.). Verification by an accredited auditor is required to use the Climate Bond Certified label.
Market	ICMA, supported by an Executive Committee with equal representation from issuers, underwriters, and investors	Green Bond Principles (GBPs) -- a voluntary, procedural framework which outlines four key components involved in issuing a green bond: (1) use-of-proceeds; (2) process for project evaluation and selection; (3) management of proceeds; and (4) reporting. The Principles suggest some broad categories of eligible assets, but do not prescribe them. An external review is recommended but not required.

Governmental	— Domestic (territorial) financial/corporate regulatory bodies (mostly in emerging economies)	Green bond guidelines/regulations -- procedures for issuing and reporting. Mostly mandatory requirement for issuers in local currencies. Some guidelines prescribe specific eligibility or exclusion criteria for green bonds (e.g., China and Indonesia), while most other guidelines/requirements only provide broad suggested categories (e.g., India and Japan). Mandated requirement for an external review varies by jurisdiction.
	— Supranational bodies	ASEAN Green Bond Standard -- voluntary procedures for issuance and reporting for issuers within ASEAN region. Closely modelled on GBPs. Specifically lists fossil fuel generation projects as ineligible for financing. EU Green Bond Standard (EU GBS) -- voluntary standard. Builds on, but also goes significantly beyond, the framework established by the GBPs. Mandatory alignment of proceeds with EU Taxonomy for Sustainable Activities and external verification by accredited external verifier. The

		Taxonomy seeks to remove uncertainty around green financing by providing a list of activities considered environmentally sustainable according to a series of (purportedly) scientifically informed criteria and thresholds. GBS yet to be formally adopted at time of research.