

SUSTAINABILITY- LINKED BONDS:

Building a High- Quality Market



Climate Bonds INITIATIVE

SGX Group

Prepared by the Climate Bonds Initiative

Sponsored by the Singapore Exchange (SGX Group)

1. Introduction

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Climate Bonds Initiative

The Climate Bonds Initiative (Climate Bonds) is an international investor-focused not-for-profit organisation working to mobilise the USD100tn bond market for climate change solutions.

Climate Bonds promotes investment in projects and assets needed for a rapid transition to a low-carbon and climate-resilient economy. The mission is to help drive down the cost of capital for large-scale climate and infrastructure projects and to support governments seeking increased access to capital markets to meet climate goals.

This is Climate Bonds' first report focused on sustainability-linked bonds (SLBs), which are general-purpose debt instruments where the financial and/or structural characteristics vary depending on whether the issuer achieves predefined sustainability objectives.¹

These objectives are:

- i.** Measured through predefined key performance indicators (KPIs).
- ii.** Assessed against predefined, time-bound sustainability performance targets (SPTs, or simply targets).

Issuers are thereby committing explicitly to future improvements in sustainability outcomes within a predefined timeline, making SLBs a forward-looking performance-based instrument. By contrast, the sustainability credentials of Use-of-Proceeds (UoP) instruments, which finance specific projects, are typically evaluated at a point in time.²

Objectives and background

Given the immense potential of SLBs to improve sustainability performance across regions and sectors, the core aim of this paper is to facilitate the growth of SLB issuance while ensuring credibility and ambition.



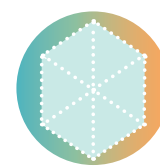
This paper forms part of the Climate Bonds post-issuance reporting series, which until now only covered green bonds (a green, social, and sustainability – GSS – bond reporting study will be released later this year).³ However, the scope of this report extends to profiling SLB issuance and structural features known with pre-issuance disclosure, as well as identifying issues and recommendations linked to post-issuance reporting. This helps to highlight the obstacles that seem to be impeding market scale.

SLBs are a relatively new innovation in sustainable finance and have seen limited research. The analytical findings and recommendations generated support a range of market participants in different ways, all of which support the growth of a credible market. For example, issuers can use this information to identify best practice, structure high-quality deals, amplify conversations with investors, and strengthen institutional capacities. Investors can gain clarity on market practices, improve deal screening capabilities, and enhance their stewardship role to promote best practices. Regulators and other standard-setters can identify and address gaps in guidance/rules while ensuring clarity of requirements for issuers and deal structurers. Other market participants, including development finance institutions (DFIs), can equally use this knowledge to provide more targeted technical assistance and in all market development activities. The insights can

also inform the development of sustainability-linked loans (SLLs) which are not assessed due to limited public disclosure.

Report structure

The report consists of five core sections.



Market profile and **Structural features** analyse SLB issuance based on pre-issuance disclosure.

KPI performance assessment and **Transition plan assessment** evaluate the performance of KPIs and broader transition plans based on post-issuance disclosure.

Discussion and recommendations is targeted at the development of a credible market. Definitions and acronyms are included in the appendix along with other material.

Methodology summary

The analysis is based on the Climate Bonds SLB Database (SLBDB), which was launched in January 2024 and classifies deals using a methodology aligned with the Paris Agreement (well below 2°C).⁴



Investors and other market participants can access this data to identify credible and ambitious SLBs that use greenhouse gas (GHG) targets. Deals classified as not aligned with the SLBDB are still included in the database as well as this report.

The first two sections include the total SLB market up to the end of November 2023, excluding bonds that had matured and a few that had not been screened at the time of analysis (full-year figures will be available in the Climate Bonds Global State of the Market report).

Sections 3 and 4 were new research used for this paper based on post-issuance reporting.

They cover the top 50 issuers by amount issued up to the end of 2022 (excluding sovereigns), providing nearly a year for the most recent bonds to report.

The bulk of the analysis was conducted during the last quarter of 2023. Pre-issuance sources mainly include SLB frameworks and bond prospectuses/official terms. Post-issuance reporting is based solely on issuer disclosure from websites, reports, assurance/external review documents, and presentations. Only part of issuers' disclosure is externally reviewed or assured.

Most of the analysis is expressed in terms of amount issued and number of bonds, with number of issuers occasionally included. Amount issued is typically used in research by Climate Bonds and others, but is more useful as a sustainable finance metric among UoP instruments which finance specific projects/assets.

2. Report summary

Sustainability-linked finance: a powerful tool

The sustainability-linked model provides a powerful bridge between financial and sustainability performance, with the potential to make more sustainability impacts financially material. This can be a highly effective mechanism to correct for externalities of economic activities, accelerating the transition to a sustainable system that is so urgent.



SLBs have, however, faced considerable criticism since their 2021 boom, which as this report shows is largely valid. But the problems lie in inadequate structural and calibration features, and weak underlying transition plans – not with the sustainability-linked concept.

SLBs present several benefits for issuers and the broader market. They offer a complementary funding model to UoP instruments and can be accessed by a broader range of issuers and sectors, including hard-to-abate sectors where it can be harder to identify eligible projects to be financed by green or other UoP bonds. SLBs encourage holistic entity-level transitions, transparency and disclosure, and communication between investors and issuers.

SLBs may also provide pricing benefits for issuers, partly due to the possibility of paying out penalties to bondholders.⁵ In the case of a coupon step-up and targets being met, issuers are expected to benefit from a lower coupon versus vanilla bonds throughout the bond's term.

The current SLB market contains a high share of low-quality deals that lack ambition, credibility, and adequate disclosure, issues which are likely even more pronounced among SLLs. Resolving this is a key objective of this paper and a prerequisite to enable the growth of sustainability-linked finance.

Several issues are linked to weaknesses in entities' underlying transition plans, which is a critical dimension – **strong SLBs start with strong transition plans.**

Building a high-quality market: guidance and rules create the foundation

Mandatory rules do not yet exist and most of the voluntary guidance available is limited and generic. The only monitoring of deals that appears to take place is by investors, who often do not have the capacity, resources, or bond supply to screen out low-quality SLBs. Assessments are made using proprietary methodologies, which reduces transparency and comparability in the market.



The more established green bond market demonstrates the importance of using commonly accepted standards (voluntary or mandatory), which is a priority for Climate Bonds. This was the main purpose behind both the **SLB Database (SLBDB)** and the **Climate Bonds Standard (CBS) V4.0** released in 2023. CBS V4.0 and the accompanying sector criteria complement but go beyond other existing market standards and initiatives, enabling the Certification of entities and general-purpose debt instruments against 1.5°C (along with UoP instruments which were already included in previous versions).⁶

To add credibility and unlock further scale and diversity, the core recommendation is the development and use of more guidance/rules for SLB structuring and disclosures. This can facilitate issuance while creating clear, higher, and more consistent standards to assess deal quality.

The best practice checklist in the final section highlights recommendations for issuance related to the following SLB elements:

- **Overall disclosure:** Provide adequate and timely public disclosure.
- **GHG targets and alignment with SLBDB Methodology:** Meet SLBDB alignment requirements. Targets should be ambitious (science-based) and feasible.
- **Target and trigger dates:** Allow enough time between target/trigger date(s) and bond maturity. Aim to set three-yearly targets during the SLB term. Set trigger date as soon as possible after the target date.

• **KPI selection:** Link KPIs to relevant reporting standards/regulations and refer to ICMA's KPI Registry for consistency. Do not use ESG ratings/scores or other opaque KPIs. Use at least one KPI related to climate mitigation. GHG scope 3 should be included if material. Use absolute metrics and production intensities; do not use economic intensities. Clearly disclose methodologies to assess KPIs.

• **Multiple KPIs/targets:** Use multiple KPIs linked to the entity's material impacts. Use multiple targets to reflect different time horizons or levels of ambition.

• **Call options and legal clauses:** Do not use callable structures and legal clauses in bad faith. If there is a call date, set it after at least the first target and trigger dates; if it is before, the call price should reflect the target not being met.

• **Post-issuance SLB reporting:** Clearly disclose reasons for changes in performance (quantitatively where possible), data restatements, and consistent information, and confirm methodologies to calculate KPIs.

• **Transition plan and link with SLBs:** Use transition guidance from Climate Bonds and others. Provide all relevant disclosure in a clearly labelled document or in a dedicated section of annual reports. Articulate the link between SLB issuance and transition plans, ensuring consistency.

• **Assurance:** Obtain assurance covering annual KPI performance at least, and ideally as many elements of sustainability reporting as possible. Reasonable assurance can add reliability.

While applying higher standards to an already struggling market may arguably stifle growth even more, these recommendations aim to increase confidence among market participants and resolve the obstacles preventing a larger and higher-quality market. Complementing the guidance for issuance, other mechanisms and topics are explored to enable further market development:

- Supportive and coherent policy
- SLB Facility to manage penalties and ensure standards
- Green Bond Transparency Platform: facilitating and standardising disclosure
- Financial mechanisms reinforce credibility
- Accounting for exogenous factors adds value
- SLLs can benefit from similar approaches

The recommendations largely follow from the quantitative research findings, a summary of which is included on the next page.

Key quantitative findings

1. Market profile: nascent and diversifying

With the first SLB issued in December 2018, the market is relatively young and characterised by a growing and increasingly diversified pool of issuers.



A cumulative USD279bn has been issued across 768 bonds from 469 issuers (as of Nov. 2023). Volumes surged in 2021 as markets recovered post-COVID and interest in SLBs spiked, but issuance has dropped slightly since. Adverse global market conditions in 2022 impacted capital markets in general, and heightened concerns around the credibility of the SLB market have hampered volumes since.

Non-financial corporates dominate heavily (84% of cumulative amount) but different types of public sector entities have started to access the market. An important milestone was reached in 2022 when two countries issued sovereign SLBs for the first time: Chile and Uruguay.

The top issuer domiciles by amount issued are Italy (USD49.5bn, 63% from Enel), France (USD28.7bn), and Germany (USD23.0bn). China is fourth (USD21.7bn) but first by bond count (127) and number of issuers (86).

The top three sectors combined have issued 41% of the amount: utilities (USD51.1bn, 61% from Enel), industrials (USD39.6bn), and agriculture & food (USD24.2bn). Industrials ranks first by bond and issuer count (162 and 106 respectively).

2. Structural features: more guidance needed

SLBs most commonly have one KPI (59% of bonds and 54% of the amount) although there may be up to four. Climate Bonds encourages issuers to use multiple KPIs (not necessarily in a single instrument) covering different material impacts to demonstrate a more holistic approach to sustainability, which can increase credibility. Given that GHG emissions are material to almost all entities, at least one KPI should be related to climate mitigation. While reporting standards and regulations (e.g., ISSB/SASB, GRI, ESRS) can also inform KPI selection, ICMA's KPI Registry provides a useful tool which encourages issuers to select at least one core KPI in their respective sector.



KPIs related to climate mitigation dominate heavily, yet many sectors demonstrate little or no use of some material KPIs, and several show little or no use of at least one highly material KPI. While the selection of KPIs among SLBs broadly reflects the materiality of themes in different sectors, improved guidance, active monitoring, and possibly regulation would ensure the most relevant KPIs are being selected and to an appropriate degree.

Only 14% of total SLBs representing 17% of the amount issued are aligned with the Climate Bonds SLBDB Methodology requirements.^{7,8} However, the proportion is growing: 35% by amount in 2023 (up to November). As the market is still nascent, a relatively low share of alignment is expected but should increase as the market develops.

Lack of GHG targets and partial GHG scope coverage are the top two reasons for non-alignment. The third reason is that targets are not in line with relevant science-based decarbonisation pathways, followed by use of economic intensity KPIs/targets.

Coupon step-ups dominate financial mechanisms, featuring in 58% of SLBs representing 77% of the amount issued. Step-ups can facilitate a premium and lower coupon at issuance, reflecting the potential penalty paid to investors. Redemption premiums are the second most popular mechanism. Pure step-downs are rare, but hybrid step-down/step-up structures are more common and used to reflect different levels of ambition in targets.

The average step-up (per target) is 24.8 bps. The mode is 25bps looking at both amount issued and bond count. Holcim used the highest step-up for a single target (150bps). However, the value of penalties is determined both by the step-up size and the number of coupons affected.

Misuse of call options is not currently a big issue but should be monitored (especially when interest rates fall). This includes monitoring the proportion of call options among SLBs, and especially the extent to which they are exercised.

Other legal clauses should also be monitored to ensure issuers act in good faith, such as those which enable issuers to avoid penalties due to certain exogenous factors or which exclude M&A and other investments.

3. KPI performance: almost all issuers report but quality varies

Of the 50 issuers sampled, 48 report KPI performance publicly, but this often lacks quality. Three aspects linked to poor reporting are highlighted: failure to explain reasons for changes in performance, lack of clarity around data restatements (especially GHG emissions), and inconsistencies in issuer disclosure.



KPI performance was assessed against issuer targets in a linear fashion, with four main outcomes defined:

- Target already met
- On track
- Off track
- N/A (cannot calculate)

The market shows heterogeneous performance, with a relatively even split of outcomes. Within the sample, 31% of SLBs and 34% of the amount issued have all KPIs off track, although only 16% of issuers fall into this group (Enel is one).

Of the SLBs sampled, 12% have targets currently met, almost all of which with observation dates up to 2025. Within these, the later the observation date, the less ambitious the targets are likely to be.

As well as target ambition, target feasibility varies widely. Some issuers have targets that are only a slight improvement versus the baseline or have even already been met at issuance (i.e., highly feasible). If these targets also lack ambition (below 2°C in the case of GHG targets), they are clear examples of greenwashing.

4. Transition plans: decent quality but wide range observed

There is a clear and strong positive correlation between SLB issuance and the quality of a company's environmental disclosure, with 67% of the issuers sampled achieving high scores (A or A-) in CDP's latest climate questionnaire. This contrasts heavily with CDP's overall climate scores, where almost half of companies (4,749 out of 10,994) scored F.



In Climate Bonds' assessment of transition plans, the top 50 issuers achieved an average of 17.4 out of 35 points (17.9 weighted by amount) but the range is wide: 0 to 27 points.

Earlier issuers are more likely to be sustainability or transition leaders. Earlier issuers scored higher than later ones, but the downward trend appears to be stabilising.

Latin American issuers score well. With seven issuers sampled (three from Mexico), Latin America achieved the highest average score (18.65) and the narrowest range of 11 to 23 points, also reflected in a relatively low standard deviation. Europe achieved almost the same average (18.56) and the highest maximum, but displays the widest range with almost two-thirds of the issuers in the sample (31/50).

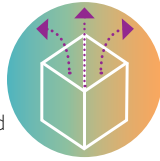
No low scores among aligned SLBs. No issuers of SLBs aligned with Climate Bonds' SLBDB Methodology scored below 12 points.

Disclosure of implementation and finance plans frequently lacks quality. Most issuers do not quantify the backward- and forward-looking GHG reduction of implemented measures, and the extent this will help them achieve their targets – this is true for all scopes but affects scope 3 most of all. Very few issuers have detailed disclosure of finance plans.

3. Market profile

Nascent and diversifying

With just over half a decade since the first SLB was issued in December 2018, the SLB market is relatively young and characterised by a growing and increasingly diversified pool of issuers, with more currencies, countries and sectors added each year.



Volumes saw a large boost in 2021 as markets recovered post-COVID and interest in SLBs spiked, but issuance has dropped mildly since. Adverse global market conditions in 2022 impacted capital markets in general, and heightened concerns around the credibility of the SLB market have hampered volumes since. Many investors appear to prefer the UoP model of labelled debt instruments, namely green, social, and sustainability (GSS) bonds.⁹

The number of bonds grew considerably more than the number of issuers in 2021, with repeat issuance becoming much more frequent. The average amount and bonds per issuer remained stable in 2022 and dropped slightly in 2023.

The top three issuer domiciles by amount issued are Italy (USD49.5bn, 63% of which from Enel), France (USD28.7bn), and Germany (USD23.0bn). China is fourth (USD21.7bn) but first by bond count (127) and number of issuers (86), and is where the first SLB originated from (2018, Beijing Infrastructure Investment Co.).

Despite being naturally dominated by non-financial corporates (84% of cumulative amount), different types of public sector issuers – including government-backed entities – have started to access the market. 2022 marked an important milestone as Chile (six deals totalling USD9.2bn, one in 2022 and five in 2023) and Uruguay (one USD1.5bn deal, 2022) priced sovereign deals.

SLB market profile (cumulative)



Amount issued: USD279bn	Average tenor: 6.9 years*
Number of bonds: 768	Number of currencies: 25
Number of issuers: 469	Number of issuer countries: 56
Average bond size: USD364m	Number of sectors: 22
Average amount per issuer: USD596m	First SLB: 2018 (Beijing Infrastructure Investment Co.)
Average bonds per issuer: 1.6	

NB: Climate Bonds Initiative data (SLBDB) as of 30/11/2023, including deals aligned and non-aligned with SLBDB. *Excludes 20 perpetual bonds from 18 issuers worth USD2.8bn.

Sustainability-Linked Bond Principles (SLBP)

The Sustainability-Linked Bond Principles (SLBP)

published by ICMA are voluntary process guidelines that outline best practices for financial instruments to incorporate forward-looking ESG outcomes and promote integrity in the development of the SLB market, by clarifying the approach for issuance of an SLB.¹⁰



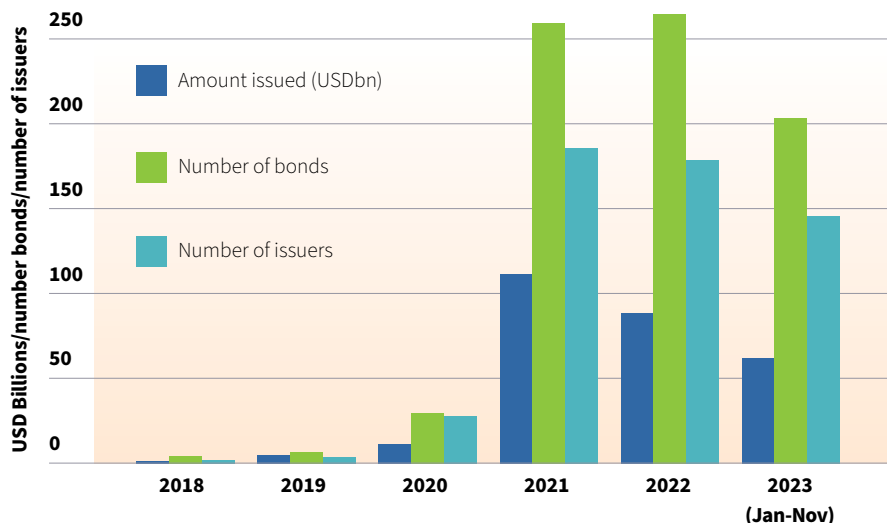
The SLBP recommend a clear process and transparent commitments for issuers, which investors, banks, underwriters, placement agents and others may use to understand

the financial and/or structural characteristics of any given SLB. The SLBP emphasise the importance of transparency, accuracy, and integrity of information disclosed by issuers.

The SLBP have five core components:

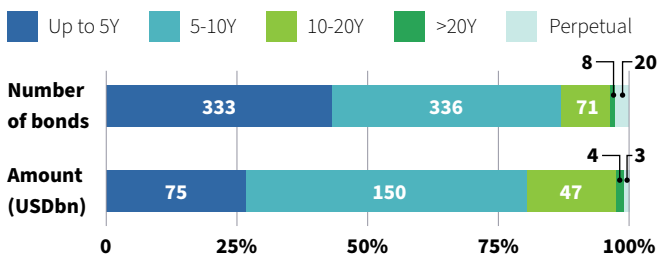
1. Selection of key performance indicators (KPIs)
2. Calibration of sustainability performance targets (SPTs)
3. Bond characteristics
4. Reporting
5. Verification

Volumes stagnant since 2021 boom

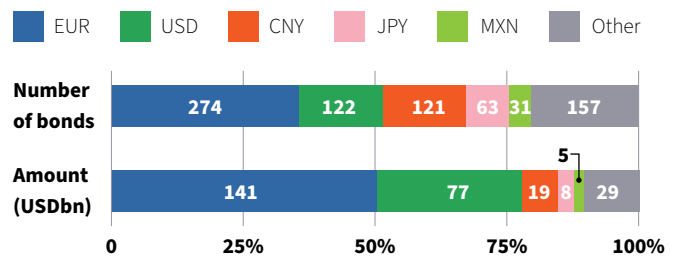


NB: Some deals from 2023 are pending screening for inclusion in the database. Full-year 2023 figures are likely to be slightly higher than shown and will be covered in Climate Bonds' annual Global State of the Market report.

5-10Y tenor is the most common

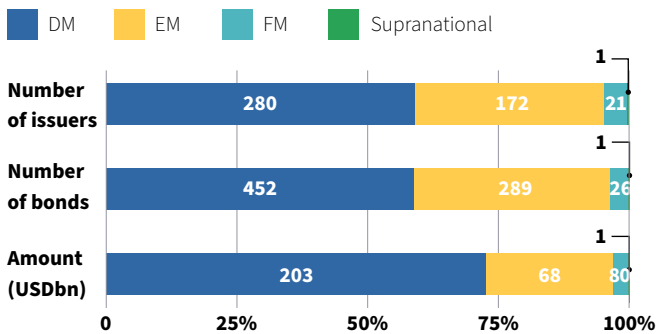


25 currencies used so far; EUR covers 50% of amount issued

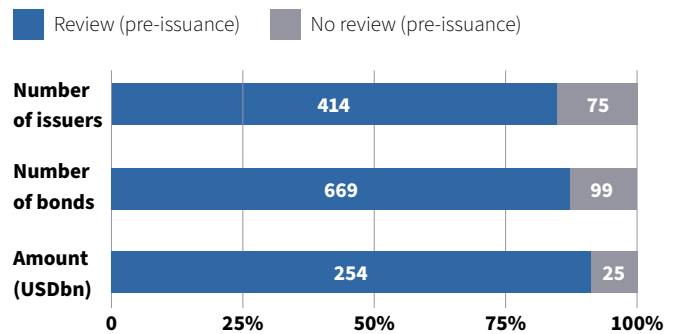


NB: EUR covers 50% of amount. JPY 4th, MXN 5th, and GBP 8th (amount), 11th (bonds), 9th (issuers). 2023: CLP, KRW, RWF saw first SLB issuances, and JPY, MXN, PLN, TWD were the only others with increase.

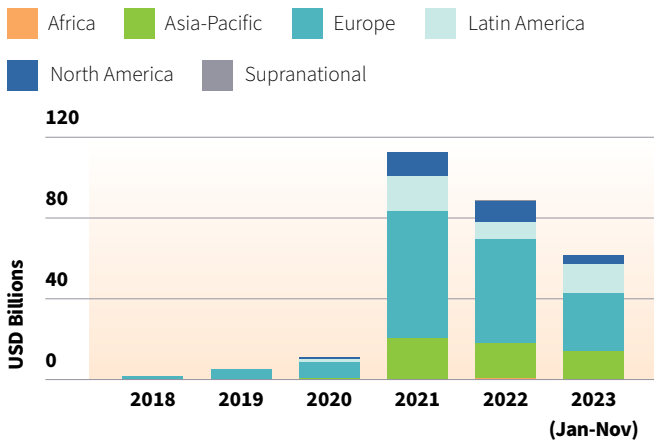
Substantial and growing share of EM bonds and issuers



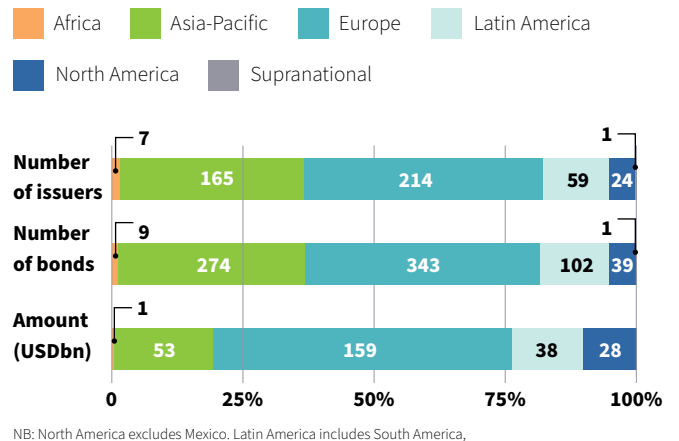
Almost 90% of SLBs obtain review (pre-issuance)



Latin America was the only region to grow in 2023, driven by sovereign issuance and Mexico¹¹

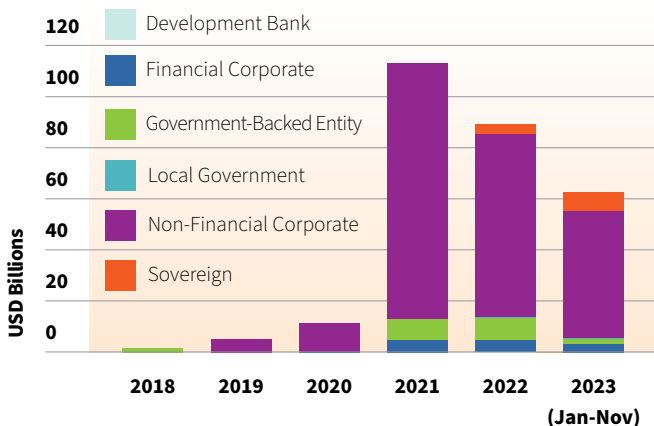


Europe accounts for 57% of amount, 45% of bonds, and 46% of issuers

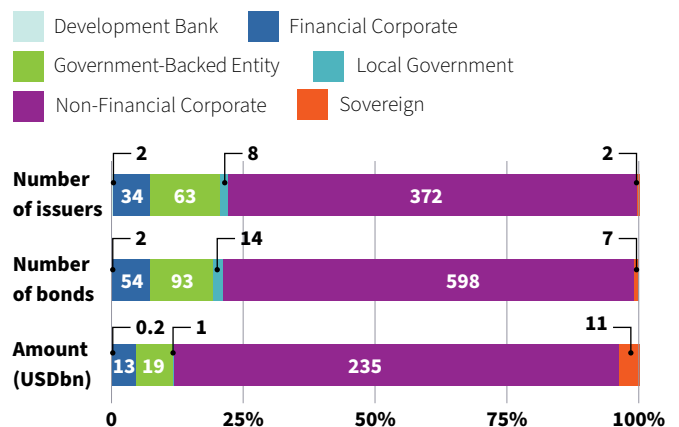


NB: North America excludes Mexico. Latin America includes South America, Central America and the Caribbean, and Mexico.

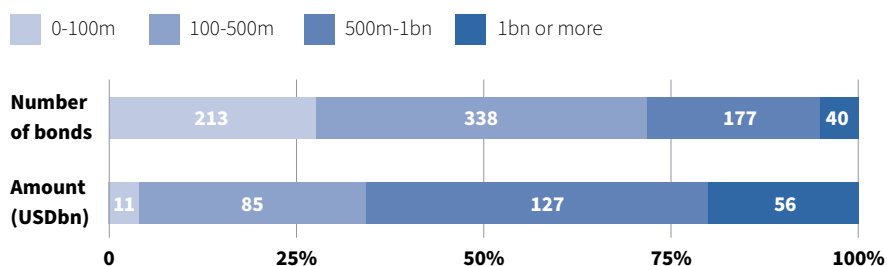
Only sovereigns and local governments increased volumes in 2023



Non-financial corporates dominate heavily



28% of bonds are benchmarks (USD500m+)



Industrial sector accounts for the most bonds and issuers

Sector	Amount issued (USDbn)	Number of bonds	Number of issuers	Sector	Amount issued (USDbn)	Number of bonds	Number of issuers
Utilities	51.1	94	42	Technology	8.6	26	21
Industrials	39.6	162	106	Consumer Staples	8.2	20	16
Agri & Food	24.2	62	32	Real Estate	8.1	45	29
Consumer Discretionary	19.8	56	40	Cement	5.5	17	8
Oil & Gas	19.7	30	17	Pulp & Paper	3.8	6	2
Materials	14.6	39	28	Energy	2.8	10	6
Healthcare	14.4	26	13	Airlines	2.6	9	7
Government	14.1	33	18	Steel	2.2	8	6
Communications	13.1	29	19	Shipping	1.9	11	8
Financials	12.7	47	31	Automotive	1.0	6	2
Chemicals	10.7	31	23	Renewable Energy	0.5	1	1
Total					279.3	768	469

NB: Sectors according to Climate Bonds SLBDB classification – some sectors are disaggregated more than other data providers. Energy refers to mixed (fossil fuel and renewable) energy companies. Government includes several sub-national entities but 75% of amount and all the largest bonds are from the two sovereign issuers.

Enel dominates top ten issuers

Issuer name	Country	Sector	Amount issued (USDbn)	Number of bonds	First SLB
Enel S.p.A.	Italy	Utilities	31.1	30	2019
Republic of Chile	Chile	Government	9.2	6	2022
Teva Pharmaceutical Industries	Israel	Healthcare	7.5	8	2021
Eni S.p.A.	Italy	Oil & Gas	5.2	4	2021
Enbridge Inc.	Canada	Oil & Gas	5.1	5	2021
Carrefour S.A.	France	Agri & Food	3.5	5	2022
ASTM S.p.A.	Italy	Industrials	3.4	3	2021
Telus Corporation	Canada	Communications	3.3	5	2021
JBS S.A.	Brazil	Agri & Food	3.2	5	2021
Faurecia SE	France	Consumer Discretionary	3.0	4	2021

Public sector issuance growing

SLB issuance has been dominated by corporates, but public sector issuers are becoming more common. Although much of the focus has been on sovereigns, government-backed entities recorded strong volumes in 2021 and 2022, driven by Chinese state companies operating mainly in the financial, energy, and transport sectors. In 2022 and 2023, local governments from Sweden, USA, Japan, and China also accessed the market, as did the Development Bank of Rwanda (explored more on the next page).



As in the private sector, SLBs offer several benefits for public sector entities. For example, diversifying funding sources and accessing a broader pool of domestic and foreign investors, aligning finance and different institutions with country-level sustainability objectives, and accelerating the transition in highly polluting and/or hard-to-abate sectors. Public sector issuance, especially sovereign, can also provide a powerful signal, enabling the development of domestic markets and paving the way for more issuers to emerge.

Some public sector institutions are unable to incur additional interest expenses for debt servicing, making step-downs more common among public sector issuers than corporates.

Two sovereign issuers so far

Chile and Uruguay are the two pioneer sovereign SLB issuers, but other countries are following their lead. Brazil, Thailand, and Vietnam have also signalled their intention to access the market.



In the SLBDB, sovereign GHG targets are only assessed against Nationally Determined Contributions (NDCs) for now. NDCs often lack ambition and are usually not aligned with 2°C or under, much less 1.5°C. The Assessing Sovereign Climate-Related Risks (ASCOR) framework can help to assess country-level climate action (see next page).

Sovereign SLBs scorecard



	Chile	Uruguay
Number of bonds	Six	One
Amount issued	USD9.2bn	USD1.5bn
Tenors	11 to 30.5 years	12 years
Currencies	USD, EUR, and CLP	USD
KPIs	Absolute GHG emissions, renewable energy installed capacity, women in management (social equality)	GHG emissions intensity (per unit of GDP), forest area cover
Financial mechanisms	Step-ups and redemption premiums	Step-ups and step-downs (two targets for each KPI)
ASCOR highlights	<p>Mixed results from first ASCOR assessment:¹⁵</p> <ul style="list-style-type: none"> • Second least ambitious 2030 GHG emission target among 13 high-income countries assessed (-16% versus 2019)¹⁶ • Net zero 2050 target but no disclosure on use of carbon credits • Fossil fuel subsidies represent 0.56% of GDP (relatively high for a country with low fossil fuel reserves) • Low carbon price (USD5 per tCO₂e), covering only 33% of GHG emission sources • Highest solar, geothermal, and hydro capacity plans of the 13 countries, and second-highest wind capacity 	<p>Generally positive results:¹⁷</p> <ul style="list-style-type: none"> • Main negative result is 30% increase in emissions by 2030 versus 2019 due to ASCOR's exclusion of land use, land use change, and forestry (LULUCF) (Uruguay's NDCs include emissions from LULUCF) • Like Chile, net-zero target set to 2050 yet lacks disclosure on the use of carbon credits • Carbon price of USD156 per tCO₂e is the highest of the countries assessed but only covers 19% of GHG emissions • Highest share of low-carbon electricity of countries assessed (94%) and no fossil fuel subsidies

NB: Figures as of November 2023.

Chile extends sustainable finance leadership

Chile is a sustainable finance leader, not just in Latin America but globally.

It has been a prominent issuer of thematic debt for several years, remaining the only country to have issued all types of GSS bonds along with SLBs.



Chile has made bold moves to improve its sustainability profile, but as the ASCOR assessment shows this has not yet been reflected across all areas and policies. This is similar to most countries, where more coherence across the economy and public sector activities is required.

Uruguay targets emission reduction and increase in forest cover

Uruguay's SLB was issued with support from the Inter-American Development Bank (IDB).

It uses multiple 2025 targets and financial mechanisms for each KPI to reflect different levels of ambition. For example, a 15bps step-up applies if the minimum target is not reached, while a 15bps step-down applies if the more ambitious target is achieved. Such a structure encourages performance improvements beyond a minimum level and is encouraged by Climate Bonds (see page 28). Also noteworthy are the innovative use of satellite imagery to track forest cover (the second KPI, along with GHG emissions reduction) and detailed disclosure around methodologies for KPI assessment.



Assessing Sovereign Climate-Related Risks (ASCOR)

ASCOR is a publicly available, independent, and open-source investor framework and database assessing the climate action and alignment of sovereign bond issuers, given the lack of a universally accepted way to assess sovereign debt from a climate change perspective.¹² It tries to answer similar questions as the assessment of corporate transition plans in section 6. Sovereign issuers can benefit from ASCOR to position themselves as climate leaders and access a broader pool of investors.

Key insights from the December 2023 ASCOR report include:¹³

1. A growing emission gap due to a lack of ambition in countries' targets.

Nearly all countries assessed have set an emission reduction target, but very few align with a pathway that limits global temperature rise to 1.5°C.

2. An implementation gap with insufficient policies to meet emission reduction targets.

Frequently weak or non-existent commitments to phase out fossil fuels (both subsidies and production) jeopardise a net-zero future.

3. An international climate finance gap.

Although the USD100bn commitment may finally be met in 2023, most high-income countries assessed need to increase their share of contributions towards international climate finance.¹⁴ Better disclosure of developing countries' climate finance needs could help facilitate financial flows.

Rwanda and potential for other development banks

The Development Bank of Rwanda (BRD) issued a seven-year RWF30bn (USD24m) SLB in October 2023, setting an important milestone



as the first SLB from East Africa and the first globally issued by a national development bank. The deal benefited from a partial credit enhancement from the World Bank made to the Government of Rwanda via the Access to Finance for Recovery and Resilience (AFIRR) project.¹⁸

The SLB aligns with BRD's commitment to Rwanda's sustainable development, embodied in the four pillars of its Vision 2050 strategy: human development, agriculture for wealth creation, competitiveness and integration, and urbanisation and agglomeration. The three KPIs selected are related to these objectives and have targets set to be achieved by 2028 at a national level.

The first KPI refers to enhancing ESG systems in licensed financial institutions (targeting 75% of institutions), the second to the share of loans for women-led businesses (targeting an increase from 15% to 30%), and the third to the number of loans for affordable housing (targeting an increase from 544 to 13,000).¹⁹ The bond has a step-down structure depending on

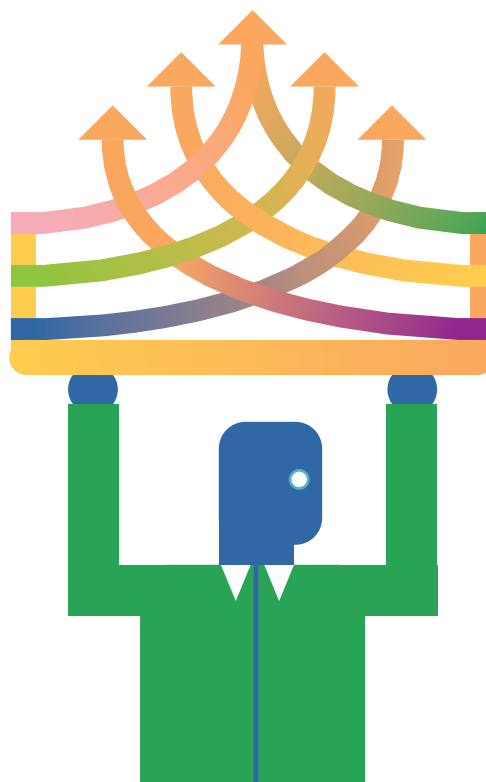
the number of KPIs met. If only one KPI is met there is no change, meeting two achieves a 20bps step-down, and meeting all three leads to a 40bps step-down.²⁰

The BRD's initiative is commendable and emphasises the role of national development banks in advancing the sustainability agenda, including by supporting local financial institutions.²¹ A recent OECD report about SLBs highlights a number of obstacles and recommendations to grow issuance from developing countries, including from the public sector. Its findings can and should be used along with this paper.

In a related move, Germany's Federal Ministry for Economic Affairs and Climate Action (BMWK) approved EUR20m (USD22m) for the IDB in



February 2024 to establish a Facility for Greening Public Development Banks and the Financial Sector in Latin America and the Caribbean.²² Its purpose is to help public development banks evaluate their portfolios, integrate climate and socioenvironmental risks into decision-making processes, and align with the Paris Agreement by increasing green lending and facilitating access to sustainable capital markets.



4. Structural features

SLBs rely on KPIs with associated baselines and targets, in addition to financial mechanisms that are triggered depending on whether the targets are met. These core structural features define SLBs as instruments, but their specificities and calibration vary considerably between issuers, and sometimes between bonds of the same issuer.

This information is typically contained in SLB frameworks, with specifics for each bond in official terms. Approximately 10% of SLBs lack (public) disclosure around some or all the structural elements (KPIs, targets, baselines, and financial mechanisms), especially among smaller deals. Much of the subsequent analysis therefore includes an undisclosed result.

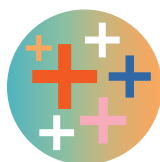
KPI selection

Most SLBs have one KPI; maximum four

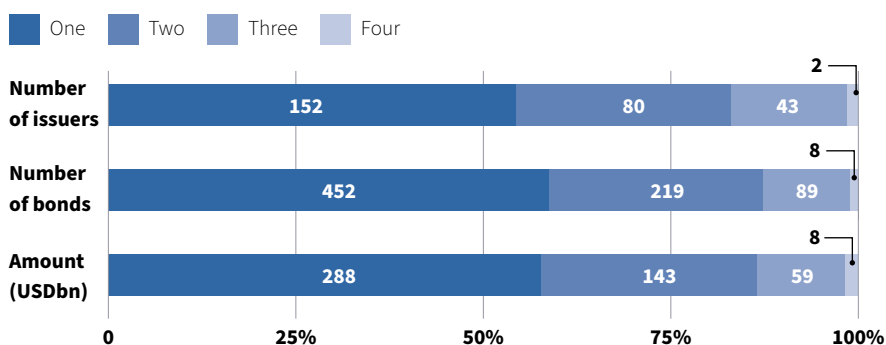
SLBs have used between one and four KPIs, one being the most common

with 59% of bonds and 54% of the amount (excluding undisclosed). According to research from Environmental Finance, the range is much greater in the SLL market, with a maximum of 17 KPIs observed (Carrefour) – however, very few SLLs use more than four.²³

In 15% of SLBs, the same KPI (almost always GHG emissions) had multiple targets with



Larger bonds/issuers slightly more likely to use multiple KPIs



different observation dates. As well as more comprehensively reflecting an issuer's multiple targets and time horizons in a single instrument, including shorter- and longer-term targets may help to attract investors with different time preferences, and to lower financial risk by spacing out targets. Issuers can also set multiple targets with the same observation date to reflect different levels of ambition (see page 14).

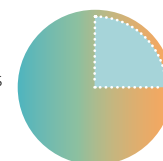
Recommendations: Climate Bonds encourages issuers to use multiple KPIs covering different material impacts and sustainability dimensions, as this shows a more holistic approach and can increase credibility.²⁴ Using complementary/orthogonal KPIs rather than duplicates related to the same impact (e.g., renewable energy and GHG

emissions) is typically better as it can lead to greater impact and better pricing.

With GHG emissions material to almost all entities, at least one KPI should be related to climate mitigation – and indeed the analysis on pages 11-12 shows KPIs related to climate mitigation dominate the market.

KPIs should reflect material themes of sectors

The materiality of different sustainability themes varies considerably between sectors (as well as other factors, e.g., geography). ICMA provides a useful matrix mapping the materiality of sustainability themes in different sectors based on the following reporting standards/methodologies: SASB, TCFD, MSC, GRI, ICMA.²⁵ The themes are grouped by the three environmental, social, or governance (ESG) pillars and classified as either most material or simply material to each sector (see next page).



In the SLB market a wide range of KPIs is used (including varying terminology for a given KPI). ICMA's Illustrative KPI Registry provides a long list across sectors that issuers and other market participants should refer to.²⁶ KPIs from frameworks and official terms often do not match the KPI Registry but this may improve over time. Issuers are encouraged to match their terminology where possible to support standardisation.

The KPIs recorded in Climate Bonds' SLBDB were mapped against the sustainability themes in ICMA's sector materiality matrix (explained in more detail in the appendix), with the same done for sectors as the categories differed. Both steps were performed on a best-efforts basis.

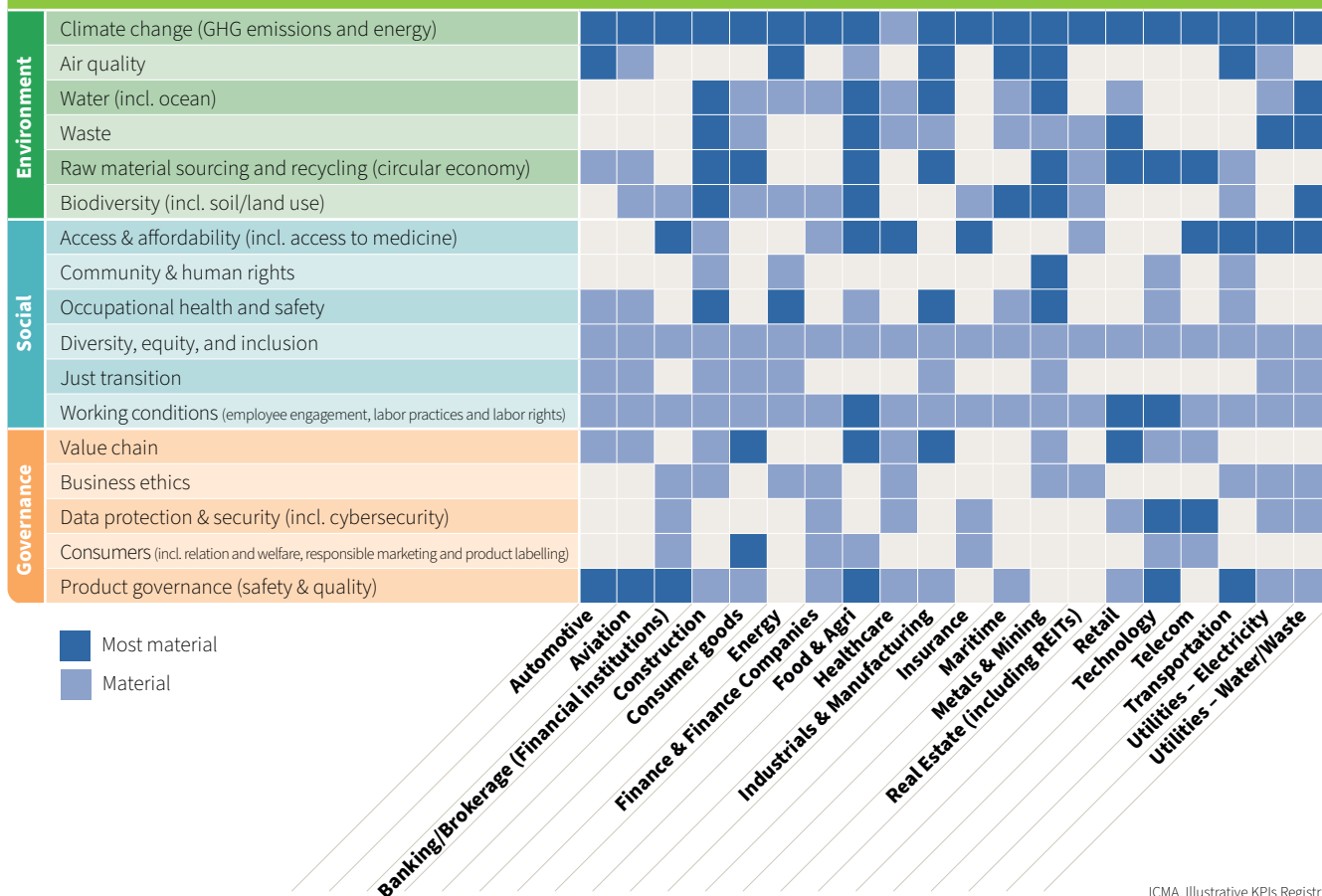
The shares of each KPI theme are shown by sector in the two charts below: the first based on the simple frequency (reflecting how many times each KPI theme was observed), the second based on a weighted frequency (weighted by the respective SLB's size). The themes are grouped into the three ESG pillars via the shaded legend.

Total KPI frequency: product governance (driven by ESG ratings) is most used after climate*

KPI / sustainability theme	Frequency (number of times used)	Weighted (USDbn)	KPI / sustainability theme	Frequency (number of times used)	Weighted (USDbn)
Climate change	771	319.5	Diversity, equity, and inclusion	59	27.2
Air quality	Not used		Just transition	Not used	
Water	39	11.7	Working conditions	4	0.9
Waste	37	15.0	Value chain	22	5.5
Circular economy	41	16.9	Business ethics	2	0.1
Biodiversity	13	5.0	Data protection & security	Not used	
Access & affordability	34	16.0	Consumers	6	1.0
Community & human rights	1	0.2	Product governance	90	25.0
Occupational health & safety	4	0.4	Undisclosed	66	13.7

NB: Amount in Weighted column exceeds real total amount issued due to many bonds with multiple KPIs. *ESG ratings/scores are fairly common KPIs and were classified as 'product governance' since this was the best fit among ICMA's sustainability themes (see appendix for more detail).

Materiality matrix: climate change is among the most material themes in all sectors except healthcare



ICMA, Illustrative KPIs Registry.

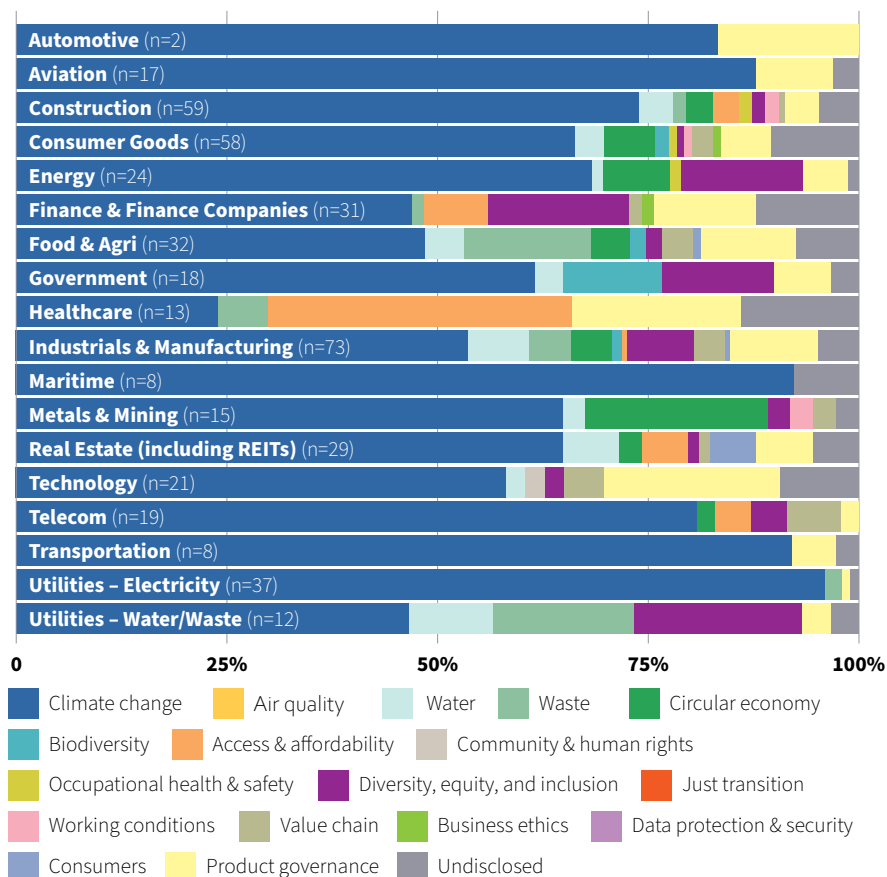
Climate mitigation KPIs achieve over 50% share in almost all sectors

KPIs related to climate mitigation are by far the most common and achieved over 50% share in almost every sector. These are typically expressed explicitly in terms of GHG emissions but sometimes refer to other metrics, such as energy consumption, renewable energy capacity, and EV use. KPIs related to climate adaptation are very rare.

The only sector where climate KPIs do not dominate is healthcare, which delivers a basic social good and is the only sector where climate change is not considered a most material theme. Climate KPIs also do not rank first in the automotive sector looking at the weighted frequency, but this is due to the very small sample of two issuers: Traton SE, which used a KPI linked to its ESG score, is a considerably larger issuer than Hyundai despite issuing only one bond versus the latter's five.

The difference between simple and weighted frequencies is most apparent in smaller sectors (namely automotive) due to greater variance, with smaller differences in larger sectors. All else equal, a greater difference is also more likely in sectors with large bonds/issuers, as these can distort the results.

Climate mitigation KPIs dominate in nearly every sector

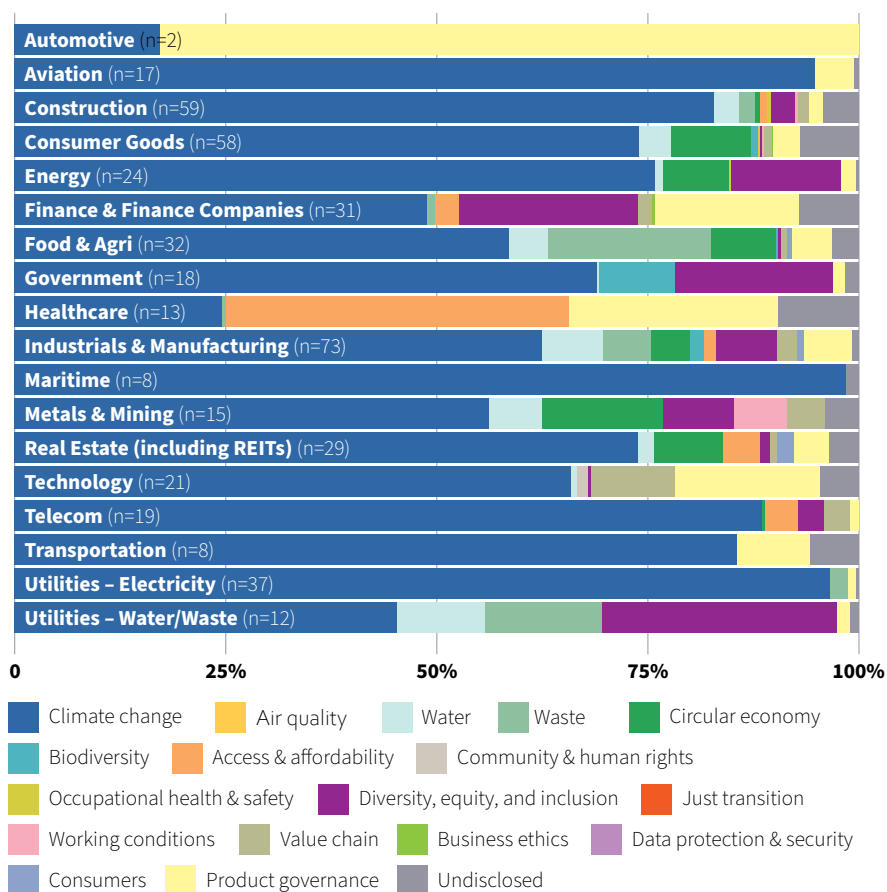


NB: n = number of issuers. Sector classification based on ICMA SLB KPI Registry (different from previous and subsequent sections).

Finally, the materiality matrix was compared against SLB KPIs to determine whether these reflected the material themes in their respective sectors. While this is highly recommended (including in the SLBP), it is possible that issuers are addressing material themes without using them in SLB KPIs.

The results vary by sector and are summarised in the table below, focusing on environmental themes which represent the bulk of materiality and KPI use.

Weighted frequency yields mostly similar results



NB: n = number of issuers. Sector classification based on ICMA SLB KPI Registry (different to other sections). Weighted by amount issued

KPI selection broadly reflect sector materiality matrix, but far from perfectly

Sector	Summary of KPI materiality assessment
Overall	<p>Many sectors have little or no use of material KPIs, and several have little or no use of at least one highly material KPI. This suggests more work is needed (e.g., through active monitoring, guidelines and possibly regulation) to ensure the right KPIs are being selected and to an appropriate degree.</p> <ul style="list-style-type: none"> Climate mitigation KPIs dominate heavily reflecting a high degree of materiality in almost every sector; they are even used disproportionately more than their materiality calls for. However, this only considers the theme of KPIs – GHG KPIs often do not cover all material GHG scopes, are not always ambitious enough (i.e., not in line with science-based pathways), and occasionally use economic intensity.²⁷ KPIs related to climate adaptation are very rare. KPIs related to climate adaptation are very rare. Excluding climate-related KPIs, environmental KPIs are not more common than social and governance ones. This is despite them being highly material more frequently and often easier to assess quantitatively than social impacts. KPIs related to biodiversity are rarely observed overall. They have only been used substantially in the government sector due to the Uruguay sovereign bond and a few other public sector issuers. Biodiversity KPIs lack even in sectors with highly material biodiversity impacts and high dependencies on nature (such as food & agriculture). Among social themes, KPIs linked to diversity, equity and inclusion (DEI) are the most common with almost twice the frequency as the second (access & affordability – A&A). DEI is material in all sectors but highly material in none, whereas A&A is most material in about half the sectors and material in a few. Product governance KPIs were used significantly. They are the most common KPI theme after climate, in large part due to including ESG ratings/scores (see appendix).²⁸ Three themes were not observed at all: air quality (non-GHG), just transition, and data protection & security. The fact that any themes at all lack representation across hundreds of issuers and SLBs is somewhat surprising. Among the three, just transition is the only one not classified as most material in any sector, but it is material in most.

KPI selection broadly reflect sector materiality matrix, but far from perfectly

Sector	Summary of KPI materiality assessment	Sector	Summary of KPI materiality assessment
Automotive (n=2)	Only two issuers. Only climate and product governance KPIs used, both of which are highly material – the latter refers to ESG score (product governance was the closest match among themes). Air quality (highly material) and several other material themes (mostly social) not observed.	Healthcare (n=13)	Only sector where climate KPIs are not top, which matches materiality matrix – only in healthcare is climate change not considered highly material. Access & affordability ranks first, with climate second looking at simple frequency and third by weighted frequency, behind product governance.
Aviation (n=17)	KPIs used only cover climate change and product governance, which are most material themes. Several other KPIs are material but not observed.		Access & affordability is the only ‘most material’ theme but the distribution of KPIs (among those used) is the most even of any sector, i.e., climate dominates disproportionately in other sectors. Highest share of KPIs undisclosed (14% simple, 10% weighted).
Construction (n=59)	One of the largest sectors and one of the most diverse in terms of KPI use. Most material KPIs are used but heavily weighted towards those related to climate change. Biodiversity is the only highly material KPI category not used. Very similar results between simple and weighted frequency.		Industrials & Manufacturing (n=73)
Consumer Goods (n=58)	Various KPIs used, broadly in line with materiality matrix (especially in environmental group) – but all much less frequent than climate-related. Highest number of KPIs undisclosed.	Maritime (n=8)	Only climate KPIs used (plus one KPI undisclosed) despite biodiversity highly material and others, such as air quality, material. Only eight issuers.
Energy (n=24)	Climate top and the only highly material theme with KPI use. Air quality is most material but not observed, while circular economy is not material but used several times. Within the social dimension, diversity, equity and inclusion (material) is by far the most common theme, while occupational health & safety (most material) does not appear.	Metals & Mining (n=15)	Another sector with many material themes, including almost all environmental themes considered highly material. Metals & mining issuers clearly favour environmental KPIs, with almost all climate-related and circular economy second. Otherwise, water is used as well as some social and governance KPIs, but never more than once.
Finance & Finance Companies (n=31)	Climate is the only most material theme and climate KPIs are most used, followed by diversity, equity and inclusion which is the clear runner-up theme. Other environmental KPIs are not used. Considering financed emissions (scope 3), several other KPIs in materiality matrix should be material, e.g., just transition (suggest ICMA revisits).	Real Estate (including REITs) (n=29)	KPIs used span several categories but climate top by far, broadly in line with materiality matrix where only climate is considered highly material.
		Technology (n=21)	Social and governance themes more highly material than environmental. Mismatch in SLB market as KPIs highly concentrated around climate, followed by product governance. Social KPIs particularly under-represented.
Food & Agri (n=32)	Sector with most highly material sustainability themes. This is reflected to some extent in KPI selection but not with the necessary range nor scale. Climate KPIs dominate followed by waste and product governance, otherwise very limited or no use in all categories. Biodiversity worryingly low.	Telecom (n=19)	Telecoms similar to technology in that multiple themes apart from climate are most material (circular economy, access & affordability, data protection & security) but barely represented in SLB issuance to date.
Government (n=18)	Materiality comparison not possible as the public sector does not feature among ICMA sectors. Most issuers are sub-national public entities but 75% of amount and all large bonds are from sovereigns (mainly Chile). KPIs concentrated in climate theme, followed by diversity, equity and inclusion, and biodiversity. Government is the only sector with a significant share of KPIs relating to biodiversity (Uruguay linked to forest area cover, Arizona Industrial Development Authority linked to forest restoration, and a few other issuers). The public sector often manages vast amounts of land and policies can be a main determinant of biodiversity preservation, but this should still be an objective for corporates and a much broader range of sectors. The TNFD may help to increase related corporate issuance, supported by coherent policy.	Transportation (n=8)	Almost all KPIs climate-related, but few issuers. More diversity clearly needed given many other themes are material, with three highly material (air quality, access & affordability, product governance).
		Utilities – Electricity (n=37)	Electric utilities also highly concentrated around GHG emissions. Understandable but various other themes are material, including access & affordability which is highly material (waste too although only refers to nuclear energy, which has not seen SLB issuance).
		Utilities – Water/Waste (n=12)	Water/waste utilities have more material themes than electric utilities. This is reflected to some extent in KPI use despite only counting one third of issuers (12 versus 37), with water and waste KPIs featuring several times. Interestingly, KPIs related to diversity, equity and inclusion also appear several times, which was not observed for electric utilities even though being equally material.

NB: n = number of issuers.

Financial mechanisms and structures

Step-ups dominate current market



Coupon step-ups are the financial mechanism that dominates the current SLB market, featuring in 58% of SLBs representing 77% of the amount issued. Step-ups provide a reward for bondholders in the form of a higher coupon if the issuer misses its targets. As a result, SLBs with step-ups can therefore be expected to achieve a premium at issuance (i.e., lower coupon) versus vanilla bonds, as reported by Anthropocene Fixed Income Institute (AFII).³⁰ The size of the premium depends on the amount and duration of the step-up, and crucially the likelihood of the issuer missing the target(s).³¹

Step-downs are much rarer. They are often problematic for bondholders due to a coupon drop if the targets are met (while for step-ups the coupon either stays constant or increases).³² Only nine bonds from six issuers have pure step-downs, although many more have a hybrid step-up and step-down structure that combines multiple targets to reflect different levels of ambition.

While other mechanisms exist, they are rare except for redemption premiums (where the issuer pays a premium if it chooses to redeem the bond early, or at maturity). These can take several forms and have shown some growth in the last two years.

Due to lack of disclosure, financial mechanisms could not be determined for 14% of bonds representing 9% of the amount issued.

What if there are multiple KPIs/targets?

In case of multiple KPIs, either a) individual financial mechanisms exist and can be triggered for each KPI, or b) an overall mechanism exists. In the latter case, the mechanism can be triggered if either all KPIs or just one are missed (or met, if a step-down is used). While it is up to the issuer to define this, individual mechanisms should be used if target observation dates differ (or at least if they are substantially apart), since trigger events are recommended to happen soon after target dates.

In case of multiple targets for a given KPI, these either reflect different levels of ambition or different time horizons. The first case typically employs a hybrid step-up/step-down structure (as mentioned above), while the latter uses individual mechanisms for each target. If the mechanism is a step-up, no trigger occurs if the first target is met (e.g., 2025), but one may occur later if the second target is missed (e.g., 2030). Conversely, if the first target is missed, a trigger occurs but may cease later if the second target is met.

Step-ups followed by redemption premiums are most used

Financial mechanisms	Amount (USDbn)	Bonds	Issuers
<i>Not disclosed</i>	24.2	109	82
Conservation success payment	0.2	1	1
Mandatory early redemption	1.0	7	5
Redemption discount	0.1	1	1
Redemption premium	19.0	82	61
Redemption premium (charity)	5.8	34	19
Redemption premium (emission permits)	0.3	4	4
Redemption premium (green electricity certificate/carbon credit)	0.6	4	4
Redemption premium (green electricity certificate/carbon offset)	1.7	18	4
Redemption premium (green investments)	0.1	1	1
Redemption premium (offset purchase)	1.3	6	5
Step-down	0.7	9	6
Step-up	214.5	447	266
Step-up (offset purchase)	0.4	2	1
Step-up and/or step-down	9.4	43	33
Grand Total	279.3	768	469

The step-up amounts may differ for each KPI/target. Step-ups for later targets should generally not be lower than earlier ones as the time between trigger and maturity is shorter.

Step-up sizes concentrated around 25bps

The average step-up per target stands at 24.8 basis points (bps). The average weighted by amount issued is 25.9bps, meaning that larger issuers are slightly more likely to suffer higher step-ups. The mode is 25bps looking at both amount issued and bond count – the 25bps step-up is seen very often (Enel has used it in all its SLBs) and is essentially the same as the average.

While these figures have remained similar in the last few years, the range is considerably wider in years with greater issuance, with the minimum and maximum step-ups both coming in 2021. The minimum is a virtually meaningless 1.5bps (Teva Pharmaceutical Industries), while the maximum of 150bps (Holcim) is 50bps greater than the second highest – Holcim is an outlier, with few issuers having used step-ups above 50bps for one target. **Holcim** displays several best practice features and ranks first in the analysis of transition plan disclosure (section 6).

Holcim set the highest step-up for a single target, yet counting multiple KPIs/targets several other issuers used financial mechanisms of 100bps or more, including the Republic of Chile. Along with Holcim, Wallenius and Klaveness (both shipping companies) have a 150bps mechanism for the

overall bond, but in both cases it is a redemption premium which cannot be compared like-for-like (see next page).

Although the sample size is much smaller, the magnitude of step-downs tends to be smaller than step-ups, with an average of 12bps. This also typically applies when a bond combines step-ups and step-downs.

25bps is the average and most common step-up

	Step-up (per target), basis points*
Average	24.8
Weighted average (by bond size)	25.9
Minimum	1.5
Maximum	150.0
Mode	25.0
Standard deviation	19.1

*Figures refer to the step-up per target. Some bonds with multiple KPIs/targets carry a total step-up higher than the table shows.

Other factors matter

Although the size of step-ups and step-downs has a bearing, the term they apply for (specifically the number of coupons) is equally important. Redemption premiums circumvent this issue by expressing the penalty as a share of the amount issued, i.e., independently of the period between trigger and maturity dates; but they only apply once, whereas step-ups/step-downs generally affect several coupon payments.

To assess the materiality of financial penalties or rewards for a given bond/issuer, the size of the coupon also matters – for example, a 25bps step-up appears less meaningful if the coupon is 8% versus 3%. Another aspect is the issuer's credit rating, as weaker ratings may impede issuers from setting high step-ups in order to continue being able to service their debt.

USD10m average potential step-up penalty

The total value of financial penalties at stake was only estimated for step-ups given they represent a large share of the market and the figures are directly comparable. Bonds with both step-up and step-down features were not included.

Total potential penalties of USD4.2bn were estimated among 425 bonds. This equates to roughly USD10m per bond, although the range is very wide due to differences in deal size and number of coupons post-trigger. Most SLBs have a potential penalty considerably lower than USD10m, while larger bonds may have to pay much more.

Step-up penalties for 24 bonds could not be calculated due to different reasons. Several of these were perpetual bonds where the number of affected coupons was unclear. Others lacked enough data to enable a calculation, e.g., undisclosed step-up amount or trigger date.

Since these figures exclude many bonds with insufficient disclosure and/or financial mechanisms other than step-ups, the real value of potential penalties across the market is higher, likely in the USD6–8bn range.

Legal clauses can affect credibility

Official bond terms include legal clauses which can threaten the credibility of deals. Two stand out in particular:

1. Clauses allowing issuers not to pay penalties if they have missed their targets as a result of a change in laws, regulations, rules, and policies applicable to them.
2. Clauses enabling issuers to exclude post-issuance acquisitions and certain investments from the calculation of performance at the target date.

Such clauses should be monitored and potentially regulated to ensure SLB issuers act in good faith.

Call options not currently a big issue, but should be monitored

Callable SLB structures have been under criticism for some time. The potential issue is that call dates that precede target and/or trigger dates give issuers the option to call the bond if they predict/know the target(s) will not be met, thus avoiding or reducing financial penalties (although they would still have to pay a call/redemption premium).

The SLBP lack guidance on this aspect. In the ELFA/ICMA recommendations for high-yield SLBs, it is recommended that issuers set the target and trigger dates before the call date. CBS v4.0 is stricter, requiring call dates to be set after the SLB's first target date.

Recommendation: Set the call date after at least the first target date. If the call date occurs before the target date, the call price should reflect an assumption that the target has not been met.³³

While callable structures can certainly pose a danger, research by AFII has found little evidence to support this, with only minor 'excess callability' among SLBs. AFII's research found a) no material difference in the proportion of SLBs that are callable versus comparable vanilla bonds, b) similar first call option dates between SLBs and comparable vanilla bonds, and c) a relatively

low value of call options among SLBs given increasing interest rates since most SLBs were issued.³⁴

Climate Bonds' data confirms that a strong majority of SLBs have call options, about 20% of which have call option dates before target observation dates. Within these, a wide range of 14 days to almost five years exists (of the call option preceding target date).

The conclusion is that while callability may not be a big issue currently, it could become more problematic in the future, especially if interest rates fall as has happened recently. **The proportion of call options among SLBs, and especially the extent to which they are exercised, should be monitored.**

Finally, although the focus has been on call dates preceding target and trigger dates, this is not the only potential issue. Issuers can still save on penalties when call dates happen after target and trigger dates, as long as there are coupon payments after the call date. The potential savings for issuers and risk of misuse are simply lower – all else equal, the later the call date, the weaker the incentive to misuse. The use of call options should therefore also be monitored among this group.

Alignment with SLBDB Methodology

Climate Bonds formally launched the SLBDB in January 2024. Its primary objective is to act as a tool that helps users, particularly investors, to identify deals with targets that are credible and aligned with the well below 2°C goal of the Paris Agreement, as well as to highlight best practice and guide issuers. It incorporates some aspects of CBS V4.0, including the Climate Bonds sector criteria where available.

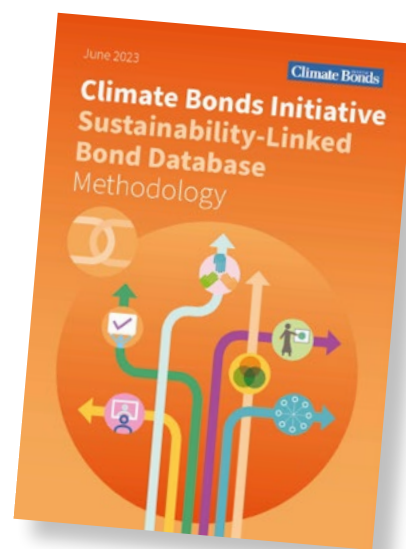


Three categories of aligned bonds

The SLBDB screens deals under a methodology that classifies SLBs as aligned or not aligned based on multiple requirements.

Three categories for aligned bonds exist, the difference lying in the degree of alignment of targets with the relevant decarbonisation pathway:

- **Fully aligned:** targets are aligned with the sector-specific pathway (emissions below required threshold).
- **Strongly aligned:** targets are not currently aligned but will be by 2030.
- **Aligning:** targets do not meet absolute/intensity threshold but are aligned on a percentage reduction basis.



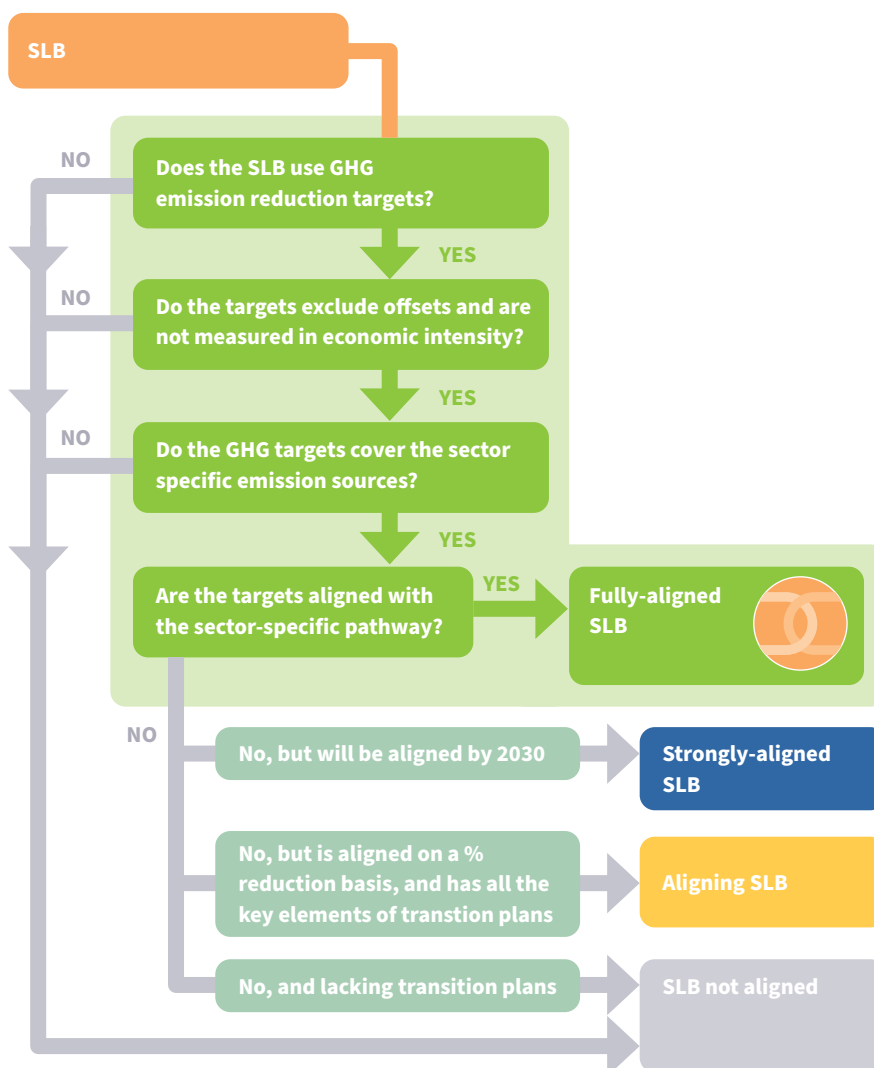
A lack of feasibility to meet science-based emission thresholds in the near term should not deter issuers from setting targets, nor from issuing SLBs. While the optimal outcome is for SLBs to be fully aligned, the latter two categories can support issuers that find it unfeasible to meet the threshold currently but still have relatively ambitious targets.

The tree diagram opposite summarises the process, with a full explanation provided in the SLBDB Methodology.³⁵ A few best practice case studies for SLBs from different sectors are additionally included on Climate Bonds' website.³⁶

The assessment is currently only based on climate mitigation credentials, with other environmental and potentially social dimensions expected to be added in the future. Climate mitigation KPIs are only considered if expressed in terms of GHG emissions (not other forms such as energy use, renewable energy generation and capacity, and EV shares, which may also be integrated in the future).

For clarity, this report is based on all SLB issuance, i.e., aligned and not aligned with the SLBDB. Both are included in the database.

Climate Bonds SLB Database Methodology overview



The table opposite summarises the results of the alignment assessment.

A large proportion of the market does not meet the SLBDB alignment requirements: of the 14% of SLBs and 17% of the amount that do, the vast majority are fully aligned.

A relatively low share of alignment is expected as the market is still nascent, but this should increase over time.

Bonds that lack GHG KPIs/targets are considered not aligned because the SLBDB Methodology is based on climate mitigation. Climate Bonds recommends issuers to use at least one GHG-related KPI across their SLBs, but not necessarily in each bond.

Several reasons for non-alignment exist. However, due to the funnel approach depicted above, SLBs that do not satisfy a given requirement are classified as not aligned and not considered for the next requirement. The non-aligned figures therefore represent the bonds that failed to meet the requirements under this funnel approach, rather than those that actually exhibit each feature. This only significantly affects the not in line with pathway reason (including partially not in line).³⁷

Partial GHG scope coverage is the top reason for non-alignment (by amount issued)

Alignment	Category / Reason	Amount (USDbn)	Bonds	Issuers
Aligned	Fully aligned	40.9	87	58
	Aligning	4.7	12	4
	Strongly aligned	1.6	6	4
	Total aligned	47.2	105	64
Not aligned	Lack of GHG targets	73.3	320	206
	Partial GHG scope coverage in targets	110.5	200	114
	Lack of target disclosure	20.9	84	58
	Not in line with pathway	11.9	24	19
	Use of economic intensity target	9.5	20	13
	Partially not in line with pathway	6.1	15	13
	Total not aligned	232.2	663	411

NB: Alignment is determined for each SLB. Non-aligned figures represent bonds that failed to meet each requirement under the funnel methodology approach, which particularly affects not in line with pathway figures.⁴¹

Reasons for non-alignment

Material scope 3 emissions often not covered

Lack of GHG targets is the top reason for non-alignment by bond and issuer count, while partial emission coverage is the leading reason by amount.³⁸

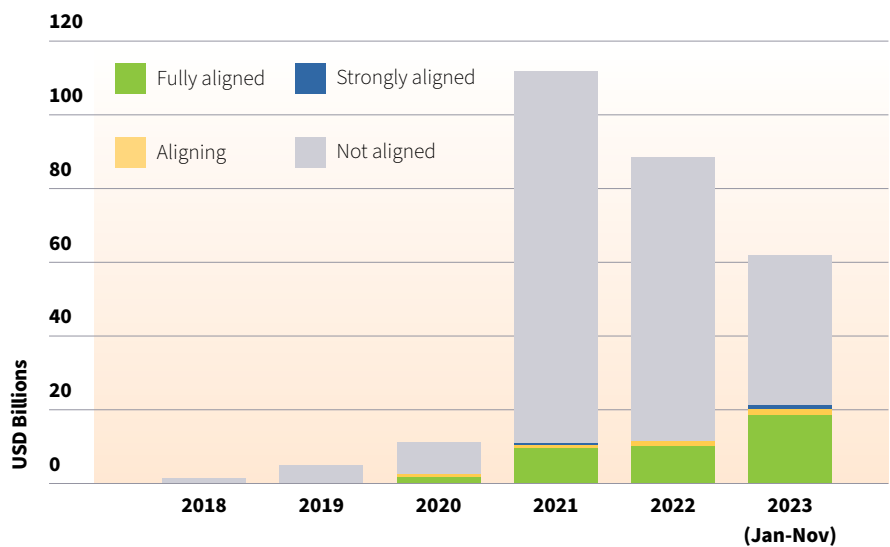
SLBs lacking GHG KPIs/targets are thus smaller than those with partial coverage of material GHG scopes (2.4x smaller bond size, 2.7x smaller issuer size). This is mainly due to almost all of Enel's bonds falling in the latter group, although it also applies to several other large issuers.

In fact, seven of the top ten issuers have all or most of their SLBs linked to KPIs/targets that do not include scope 3 emissions, even though these represent the largest source of GHG emissions in their sectors.

The analysis suggests partial coverage of GHG scopes in targets is the leading source of greenwashing in the SLB market, although this may not be intentional.³⁹ The difficulty of estimating scope 3 emissions (versus scopes 1 and 2) is a familiar challenge for many organisations and is likely to deter some issuers from including scope 3 in their targets. This should become easier with advances in technology; improved data collection processes and traceability systems; and the increasing availability, quality, and accessibility of reporting, especially since one company's scope 3 emissions are often another company's scope 1.

All entities with material scope 3 GHG emissions should set targets accordingly, even if these are only for the medium- to long-term. In the short-term, KPIs related to scope 3 not expressed in terms of GHG (e.g., share of value chain with sustainability performance assessed, share of renewable energy use in supply chain, etc.) can be useful.

35% of volume aligned with SLBDB Methodology in 2023 (up to Nov.)



Ambition of targets varies

Setting targets that are not in line with relevant pathways is third on the list of non-alignment reasons and, due to the funnel approach, more common than the table above suggests. Issuers should be setting sufficiently ambitious targets that meet Paris-aligned decarbonisation pathways (or at least meeting the same percentage reduction, i.e., considered aligning).

Although much less common, the use of economic intensity is fourth on the list of non-alignment reasons. Framing KPIs/targets in terms of economic intensity detracts from the science, and can potentially be manipulated by issuers (e.g., changing prices).

The ranking of non-alignment reasons has remained similar since 2020, except for lack of GHG targets whose share dropped markedly in 2023.⁴⁰

Alignment is improving

Despite the low level of alignment with the SLBDB Methodology, the proportion is growing.

This is driven by more issuers using GHG targets, in addition to repeat issuance being more common among issuers that already had aligned SLBs (especially relevant for amount issued). Some repeat issuers are also becoming more aligned, e.g., Enel's only aligned SLB was one of the two it issued in 2023. Another factor is the 2022–23 sovereign issuance from Chile (USD9.2bn) being aligned.

More recent SLBs may also be making increased use of sector-specific guidance, including from Climate Bonds. In the agriculture & food sector, which has benefited from increased attention and guidance in the last few years, between 2021–23:

1. The aligned volume grew from zero to USD3.8bn (all fully aligned).
2. The non-aligned volume with partial GHG scope coverage fell from USD7.3bn to zero.
3. The non-aligned volume lacking GHG targets dropped from USD2.5bn to USD671m.

While this is remarkable, it only refers to GHG KPIs. For example, KPIs related to biodiversity are very rare across the market, including in the agriculture & food sector where they are highly material.

5. KPI performance assessment

This section provides an assessment of performance against targets to determine whether the issuer is on or off track to meet them (although this is of course no guarantee of the performance at the observation date).

This exercise can help both issuers and investors assess the likelihood that the targets will be met and whether financial penalties will kick in – and by extension whether more or different action is needed from the issuer to meet them. At overall market level, it can provide a rough assessment of the feasibility of targets from the perspective of issuers (i.e., are issuers setting achievable targets?). However, the assessment says nothing of the ambition of targets (see below).

The assessment in this section and the following one is based on analysis of post-issuance reports (annual, sustainability, climate, transition, SLB, etc.). **The analysis in both sections covers the top 50 issuers up to the end of 2022.** These represent 53% of the amount issued and 28% of bonds up to the end of 2022, and 41% of the amount and 20% of bonds of the total market up to the end of November 2023.

Almost all top 50 issuers are corporates, along with a few government-backed entities. The two sovereign issuers (Chile and Uruguay) would have made the list but were excluded as Climate Bonds does not yet have a framework to assess country-level transition plans. A summary of their deals and country-level assessments under the ASCOR framework is included on page 8.

Methodology

Four outcomes were defined assuming a linear improvement path:



1. SPT met: the target is currently met (this does not guarantee it will be met at the observation date).

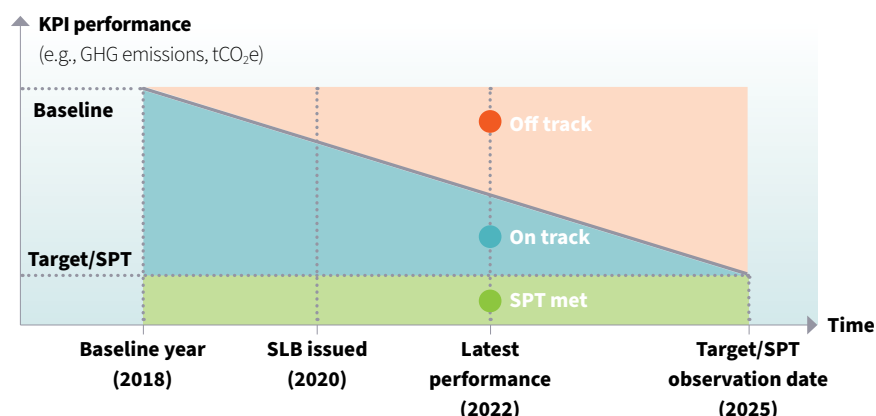
2. On track: the target is on track to be met, i.e., the CAGR of the latest performance versus the baseline equals or exceeds the CAGR between the baseline and the target (e.g., 7% annual GHG emission reduction achieved while meeting the target requires 5%).

3. Off track: the target is not on track to be met, i.e., the CAGR of the latest performance versus the baseline is lower than the CAGR between the baseline and the target (e.g., 3% annual GHG emission reduction achieved while meeting the target requires 5%).

4. N/A: assessment not possible due to lack of baseline and/or target and/or performance – one way or another, this effectively means poor SLB disclosure.

The assessment was conducted for each combination of KPI, baseline and target, since

Visualising KPI performance (example)



issuers can use the same KPI with different target dates (either within the same SLB or across multiple SLBs) and the outcomes can therefore differ.⁴²

Limitations

This is a crude assessment. To simplify the analysis, only the latest performance (usually 2022 data) was assessed a) against the target, b) in a linear fashion. Targets often lack ambition, while a linear assumption may not represent the real nor planned decarbonisation path. For instance, improvements in performance often depend on infrastructure investments which deliver irregular emission reductions.

The assessment is only based on quantitative data, and would ideally account for qualitative reasons for performance changes.⁴³ Exogenous factors also affect performance, which raises the issue of attribution: some issuers may be on track to meet their targets supported by such factors, while others may be trying harder but hampered by exogenous events and failing to perform in line with their targets.

On track does not mean better than off track

Being on track (or having already met the target) is not necessarily better than being off track. The reality is that:

- The targets set by issuers vary greatly in terms of alignment with the science.
- The baselines and starting points at the time of SLB issuance also vary widely between issuers.

Some issuers therefore have targets that are much more easily achieved than those of others, sometimes being only a slight improvement versus the baseline or even already being met when the SLB is issued. If they are not aligned with the science (Paris Agreement or well below 2°C), they represent clear examples of greenwashing.

This paper refers to KPI performance only against the targets set by issuers. There seems to be a moderate inverse relationship between setting science-based targets and being on track to meet them. Page 20 assesses KPI performance against alignment with Climate Bonds' SLBDB Methodology, a core part of which is the level of ambition of climate targets.

SLBP disclosure recommendations

The SLBP recommend the following post-issuance SLB disclosure:⁴⁸



Regular & easily accessible disclosure, annually, and in any case for any [date/period] relevant for assessing SPT performance leading to a potential adjustment of SLB financial and/or structural characteristic(s) of the bond:

- Up-to-date information on the performance of the selected KPI(s), including baselines where relevant.
- Any information enabling investors to monitor the level of ambition of the SPTs (e.g. any update in the issuer's sustainability

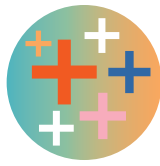
strategy or on the related KPI/ESG governance, or in the national strategy and sustainable development policies and more generally any information relevant to the analysis of the KPIs and SPTs).

When feasible and possible:

- Qualitative or quantitative explanation of the contribution of the main factors, including M&A activities, behind the evolution of the performance/KPI on an annual basis.
- Illustration of the positive sustainability impacts of the performance improvement.
- Any re-assessments of KPIs and/or restatement of the SPT and/or pro-forma adjustments of baselines or KPI scope.

Results

Market performance is split



The analysis shows a market with heterogeneous KPI performance relative to targets. This is consistent with assessments done by others (e.g., Barclays and SEB), which despite covering smaller samples also pointed toward varying levels of performance across bonds and issuers.^{44,45}

This is neither surprising nor a bad thing, at least in a relatively nascent market. While it is true that many targets lack ambition, many issuers are stepping out of their comfort zone and setting ambitious targets that they may not reach. Nevertheless, the ultimate objective is for issuers to reach their science-based targets, and looking at amount issued and bond count the most common outcome is for all KPIs to be off track.

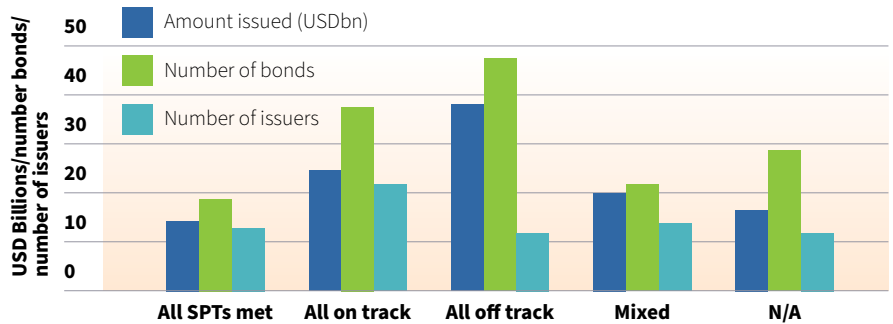
Part of this appears to be due to adverse exogenous factors in the last few years which are beyond the control of individual entities – e.g. Enel has all KPIs off track, attributing much of this to geopolitical reasons including the Ukraine war (pricing dynamics indicate investors also expect Enel's targets to be missed).⁴⁶

Several targets have already been met, most of them being observed after the analysis was conducted (see next page). Only a few outstanding SLBs had already passed their target observation date, most being met. The mixed result refers to multiple performance outcomes for a given bond.

The most common reason for N/A are undisclosed baselines, followed by undisclosed targets (more prevalent among non-GHG KPIs), and finally a lack of publicly available post-issuance reporting. The disclosure from **State Grid Corporation of China** sits behind a paywall, while **Picard Groupe SAS** (France) only makes it available to investors.

Among SLBs with mixed performance, all possible combinations exist. The most common case is having one or more KPIs on track and one or more off track. One issuer (Teva Pharmaceutical Industries) has a target already met as well as KPIs on and off track: scope 1 and 2 GHG emissions target met, number of regulatory submissions on

High share of amount and bonds with all KPIs off track



NB: 'Mixed' refers to bonds with multiple KPIs/targets and multiple performance results (e.g., some off track, some on track). Disaggregated issuer count figures are higher than the real total (50) as bonds from the same issuer can have different results.

track, medicine product output for middle/lower income countries off track.

While mixed results are usually due to different KPIs used within the same SLB, some SLBs use the same KPI with multiple targets and achieve mixed results. For example, **Vestas Wind Systems** issued two bonds using a 'material efficiency' KPI (non-recycled waste from per MW of wind turbines produced and shipped) with 2025 and 2030 targets: it is on track to meet the 2025 target but not the 2030 one.

The mixed category is shown combined throughout this section as it is relatively small and not feasible to disaggregate all its combinations in charts.

Almost all issuers report publicly, but quality varies

Of the 50 issuers sampled, 48 publicly report KPI performance (post-issuance), but the quality of reporting varies widely. A similar conclusion was reached in Climate Bonds' last assessment of reporting in the green bond market. Reporting platforms, such as the IDB's Green Bond Transparency Platform (GBTTP), can improve, standardise, and facilitate disclosure while providing centralised access to data users.

Three aspects linked to poor reporting are explored next: reasons for changes in performance, restatements of data (especially GHG emissions), and inconsistencies in issuer disclosure.

Explaining the evolution of performance

Most issuers provide reasons for changes in performance, but with varying detail and often lacking magnitudes. A few do not provide this at all.

Providing reasons for the evolution of performance is important.

For example, it is one thing to state 'GHG emissions dropped 2%', another to explain the underlying reasons for the change and what measures the issuer has taken to decarbonise. The magnitude of each reason should be disclosed alongside (ideally quantitatively) to assess the issuer's (real) transition. Some reasons do not lead to real emission reductions, e.g., purchasing carbon offsets/credits, divestments of high-carbon assets.

In the case of GHG KPIs, this can be described as a backward-looking explanation of implementation plans, which is a transition plan element of CBS V4.0 (see appendix 2). An explanation of expected (future) measures and what they will accomplish is equivalent to the forward-looking component.

The granularity of disclosure from SLB issuers around reasons/measures ranges from very generic to detailed. It is relatively uncommon for issuers to provide quantitative data on the outcomes of measures undertaken (**Orbia** does this very well – see page 25).

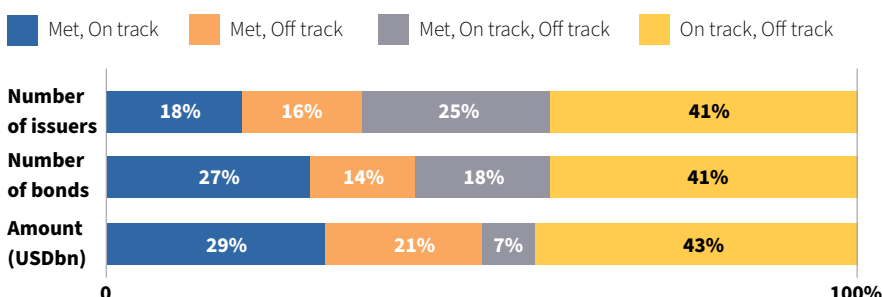
Finally, exogenous factors beyond issuers' control affect performance, sometimes to a great extent. Some issuers have clauses to avoid penalties if certain exogenous factors materialise. Only a system that estimates or otherwise enables an assessment of performance attribution can fully solve this issue (see page 30), which is likely to become more important as the sustainability-linked model grows in use.

Snam reports like-for-like (accounting for exogenous factors) versus actual figures.

Restatements often not clear

Restatements of data affect SLBs because KPI performance is assessed over time. Almost all cases refer to restatements of GHG emissions, the top reasons being changes in GHG accounting methodology (which may occur to improve the accuracy of GHG estimates, among other reasons) and M&A activities (which alter the GHG inventory and emissions profile of the company). Some issuers have clauses excluding M&A and other investments from the calculation of performance, but providing clear restatements is a more transparent way of addressing this.

All possible combinations exist in the mixed category



Restating data is standard practice but the disclosure around it should improve, especially among SLB issuers due to the impact on outstanding deals.

Data restatements almost invariably mean the baselines and targets in SLBs also need to be restated to maintain the same level of ambition.⁴⁷ This applies regardless of whether targets are expressed in absolute, intensity, or percentage reduction terms.

The guidance available on restatements in the context of SLBs is very limited. The SLBP only includes one line in the disclosure template on this: 'when feasible and possible, report any re-assessments of KPIs and/or restatement of the target and/or pro-forma adjustments of baselines or KPI scope.'

Climate Bonds suggests more prescriptive guidance. Entity-level reports should include the scope and extent of restatements, as well as when and why they happened. SLB documents should clarify the impact on outstanding bonds, e.g., following a divestment, 'the baseline was adjusted downwards from 8 to 7 ktonnes CO₂e, the target from 4 to 3.3 ktonnes CO₂e'. When updating SLB frameworks, issuers should clarify which version applies to each outstanding SLB (or clarify that the new framework applies to all outstanding bonds).

Overall recommendation: data restatements related to SLB KPIs should lead to updated targets and SLB frameworks that match entity-level disclosures and apply to all outstanding and new bonds. Targets should remain at least as ambitious as they were.

This standard approach should be included in the SLBP and other guidance.

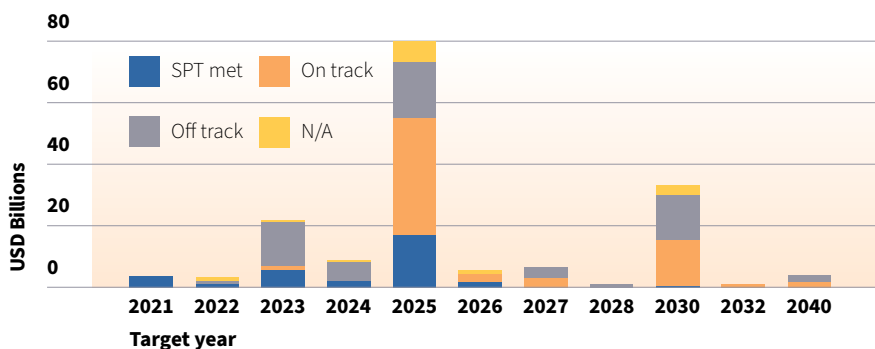
Restatements were accounted for in the assessment of KPI performance when the impacts on structural SLB features were clear, but they are often not. Several issuers fail to explain the impact on the targets of outstanding SLBs. A couple of issuers in the sample seem to have restated GHG emissions but do not state this in their entity-level reports, which represents particularly bad practice.

Inconsistencies in issuer disclosure

Targets in SLB documents (framework and official terms) sometimes differ from those in corporate-level webpages and documents (annual, sustainability, climate, transition, SLB, etc. reports), e.g., **A2A, Braskem**. This can extend to baselines, but target mismatches are more common.

Inconsistencies generally do not seem to be intentional (the differences do not seem to present benefits for issuers), but rather a result of error or simply poor disclosure. To ensure clarity and coherence, it is important that issuers take care to ensure the consistency of their overall reporting, including between entity-level reports and SLB documents.

A few targets already met only observe after 2025



Targets observed earlier more likely to be off track

Many targets of outstanding SLBs have observation dates at the end of 2025. Some issuers have many or all of their targets, bonds, and potential penalties hanging in the balance that year. Targets observing in 2025 show a relatively even performance profile.

Several targets are already met, almost all of them with observation dates up to 2025

– among these, the later the observation date is, the less ambitious the targets are likely to be. **Snam** has one target tied to scope 1 and 2 emissions which observes in 2030 but is already met, pointing to a lack of ambition. It also failed to include scope 3 (highly material for oil & gas companies) until its latest SLB in February 2024, although transported gas emissions are excluded.

Since the analysis was conducted in late 2023, no observations in 2021/22 are classified as on track, as that would mean the target being met. Either the target is met, missed (classified as off track), or N/A.

Targets with observation dates sooner (2023/24) are off track more than later ones (post-2025), although the difference is not large. Due to the compounding effect, targets further away can involve smaller annual percentage improvements than earlier ones and, all else being equal, the closer to the observation date, the harder it is to hide being off track.

However, assuming a constant improvement rate may be unrealistic. In the case of decarbonisation, initial GHG emission reductions can be easier to achieve than later ones (diminishing marginal abatement costs), potentially even if improvements in technology enable further decarbonisation. If

so, this means that targets post-2030 are more likely to be missed than this analysis suggests; and more broadly that many net-zero pathways, often based on linear or occasionally even accelerated decarbonisation trajectories, are too optimistic.

SLBDB alignment: higher share off track among aligned bonds

Bonds must meet several criteria to be aligned with Climate Bonds' SLBDB Methodology, one of which is alignment with relevant science-based pathways. With more ambitious targets likely to be harder to achieve (all else equal), an inverse relationship between SLBDB alignment and KPI performance might be hypothesised. The data seems to support this, to a degree.

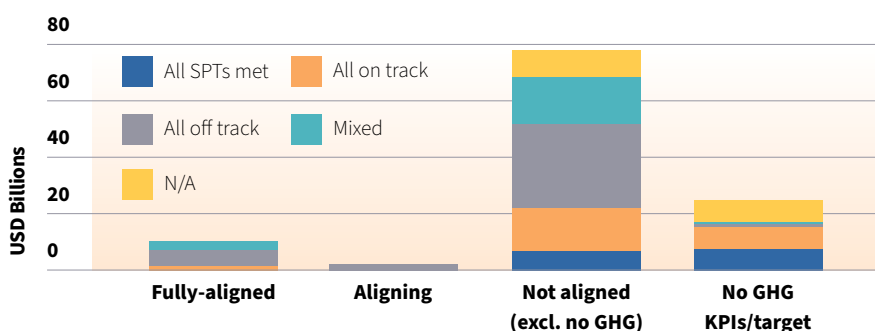
A higher share of aligned bonds is off track versus non-aligned bonds.

It was also found that all bonds with all targets met were not aligned, which further supports the idea that less ambitious SLBs, or those that do not use GHG KPIs/targets, are more likely to be closer to reaching targets (in this case having already met them).

Bonds with no GHG KPIs/targets are part of the non-aligned group but were analysed separately to test the hypothesis more precisely, since it does not apply to them. This group had the highest share of bonds with either all targets met or all KPIs on track, a finding which is explored in more detail on the next page.

While these findings make sense, the sample size of aligned bonds is relatively small. Starting in 2024, post-issuance performance data for all bonds aligned with the SLBDB Methodology will be tracked by Climate Bonds.

Only bonds not aligned with SLBDB Methodology have met all targets



KPIs: GHG-related KPIs more off track than others

A higher share of GHG-related KPIs was found to be off track versus other KPI categories.

Perhaps targets linked to GHG emissions are relatively more ambitious and harder to achieve, in part due to the availability of definitions, guidance and benchmarking related to climate change (for other KPI categories there is little or no guidance on pathways, nor a 1.5/2°C benchmark). Another important factor, however, is the impact of exogenous events – for example, the Ukraine war has led to a greater reliance on fossil fuels that negatively impacted climate-related KPIs more than others (especially in Europe).

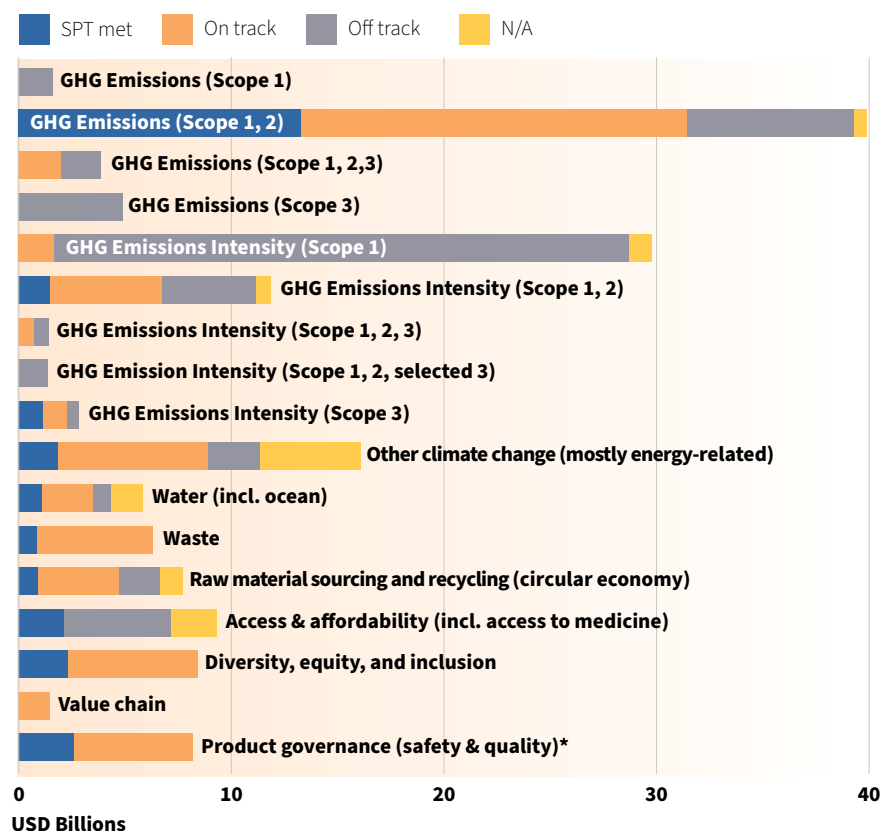
No visible difference in performance was observed between GHG scopes – but between absolute- and intensity-based emissions, the latter has a greater share of KPIs off track as well as a lower share of targets already met.

Intensity-based metrics can be based on production/output (e.g., per kilogram or unit of product), economic (most commonly per unit of sales revenue), or occasionally other metrics (e.g., per employee). Because these involve an additional dimension to assess performance compared to absolute emissions, they can be more sensitive to exogenous factors such as macroeconomics, politics and social unrest, especially in the case of economic intensity which can additionally be manipulated by companies, e.g., changing prices – along with economic performance not being grounded in science, this is part of the reason the use of economic intensities is considered not aligned in the SLBDB Methodology. The pronounced impact of exogenous factors in the last few years may be behind the relatively weaker performance of intensity-based GHG emission KPIs versus absolute ones.

However, production-/output-based intensities are the most common type of intensity observed. Since this is the most legitimate way to measure decarbonisation, it is likely that issuers selecting it demonstrate higher standards and a higher level of ambition in their targets, making these relatively harder to achieve.

Apart from GHG KPIs, only access & affordability had off track as the most common result. In all others – including climate KPIs not expressed in terms of GHG emissions (e.g., renewable energy use and capacity) – the most common result was on track.

GHG-related KPIs more off track than others



NB: Due to the high frequency of KPIs related to GHG emissions, these are shown individually, while others are grouped according to sustainability themes from ICMA's KPI Registry.*Product governance mostly consists of KPIs related to ESG ratings/scores.

Most themes not observed in sample

Many sustainability themes were not observed among KPIs selected by the top 50 issuer sample, most of them related to social impacts and to a lesser extent governance:

- Air quality
- Biodiversity
- Community & human rights
- Occupational health & safety
- Just transition
- Working conditions (employee engagement, labour practices, and labour rights)
- Business ethics
- Data protection & security (including cybersecurity)
- Consumers (including relation and welfare, responsible marketing, and product labelling)

The list is extensive. None of the top 50 issuers up to the end of 2022 (excluding sovereigns) used biodiversity-related KPIs, which mirrors the findings on pages 10-13. Climate Bonds expects advances in nature-related disclosures, such as through the TNFD and EU regulations, will encourage more issuers to incorporate biodiversity and broader nature-related KPIs in their SLBs. Some themes, including biodiversity, are also likely to be deployed with increasing frequency as issuers become more comfortable translating them into tangible targets – and as more themes become financially material to more entities.

6. Transition plan assessment

SLBs are vehicles through which entity-level transition plans can be showcased and used to raise sustainable finance.

Only part of a company's full transition plan is typically used to structure an SLB, with SLB-specific disclosure revolving around the selected KPIs (and their post-issuance performance), baselines, targets, and financial mechanisms.

SLB frameworks along with official bond prospectuses provide this information pre-issuance (although these documents are not always found, either because they do not exist or are not public). Since SLBs are general-purpose instruments, relevant post-issuance disclosure is inextricably linked to entity-level annual or sustainability reports, unlike reporting for UoP bonds which is generally provided via standalone reports.

To make the analysis more robust, and since the source of information was usually the same as that needed to assess KPI performance, an assessment of issuers' entity-level transition plan disclosure was included based on the Climate Bonds Standard (CBS) V4.0.⁴⁹

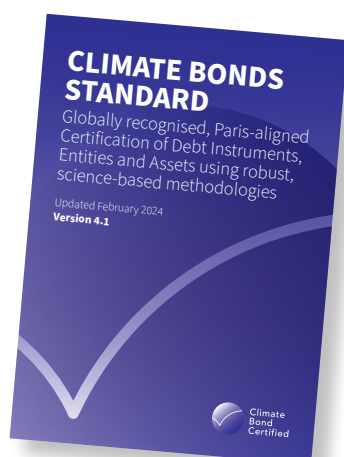
Climate Bonds Standard V4.0 and other guidance

Launched in 2023, the expanded CBS V4.0 and accompanying sector criteria are designed to enable the Certification of non-financial corporates, assets, and sustainability-linked debt instruments, along with UoP instruments which were already included in previous versions (assessment of financial institutions and countries is planned in future versions).



CBS V4.0 reflects the Five Hallmarks of a credibly transitioning company:⁵⁰

1. Paris-aligned targets
2. Robust plans
3. Implementation action
4. Internal monitoring
5. External reporting



Results summary (out of 35 points)

Average	Weighted average	Median	Minimum	Maximum	Standard deviation
17.4	17.9	18	0	27	6.3

Other useful Climate Bonds resources exist, such as the *Financing the Corporate Climate Transition with Bonds: A Practical Guide and Scaling Credible Transition Finance – ASEAN reports*.⁵¹ Climate Bonds is also developing a Transition Plan Monitor (TPM) to assess and track the transition plans of non-financial corporate entities globally, leveraging the science-based Climate Bonds sector criteria.⁵²

Several other initiatives also provide transition plan guidance which can extend to SLB issuance, with different merits, areas of focus, and levels of detail. For example, CDP, International Sustainability Standards Board (ISSB), Glasgow Financial Alliance for Net Zero (GFANZ), UK Transition Plan Taskforce (TPT), Institutional Investors Group on Climate Change (IIGCC), Climate Policy Initiative (CPI), Assessing low-Carbon Transition (ACT) Initiative, Science Based Targets Initiative (SBTI), Transition Pathway Initiative (TPI), ICMA's Transition Finance Handbook, etc.⁵³ ICMA published a paper in February 2024 summarising the state of transition finance.⁵⁴ Climate Bonds is releasing a mapping of corporate transition frameworks to demystify the current landscape, with the first phase finding broad commonality in the principles underpinning credible targets, delivery strategies, and accountability mechanisms.⁵⁵

Regional regulatory-led transition finance initiatives have also started appearing, e.g., EU, UK, USA, Japan, Singapore-Asia Taxonomy. In China, transition pathways were published at the end of 2023 for Shanghai and Hebei's iron and steel industry (Hebei produces 12% of the world's total). All these efforts complement broader reporting standards such as ISSB and GRI.

Scoring methodology

The assessment of transition plans only considers climate-related disclosure, as this is the remit of the CBS and most SLB activity is linked to climate performance. It is an indicative assessment based on a scoring system developed specifically for this paper, which includes most of the requirements used to determine entity-level eligibility in CBS V4.0 (see pages 27–45 of the CBS, especially the summary checklist starting on page 39).

A single score between 0 and 35 points is calculated for each issuer. The assessment is entirely based on the issuer's disclosure,

on a best-efforts basis. Some aspects of the scoring require a qualitative assessment given that issuer disclosure does not come neatly packaged against the scoring elements and is often vague.⁵⁶ Softer factors, such as clarity, presentation, and ease of finding information, were not considered in the scoring.⁵⁷

Although less granular than CDP's methodology, the approach is similar. The scoring assesses whether specific information is disclosed by issuers and, to a lesser degree, the content of that information; but it only focuses on transition plans, whereas CDP assesses overall environmental disclosure and to some extent performance.

A more detailed explanation of the scoring system and results is included in the appendix.

Results

Wide range of scores

Scores ranging from 0 to 27 points were observed, with the average of 17.4 almost exactly half of the total 35 points possible. The weighted average (by amount issued) of 17.9 indicates that larger issuers are slightly more likely to score higher.

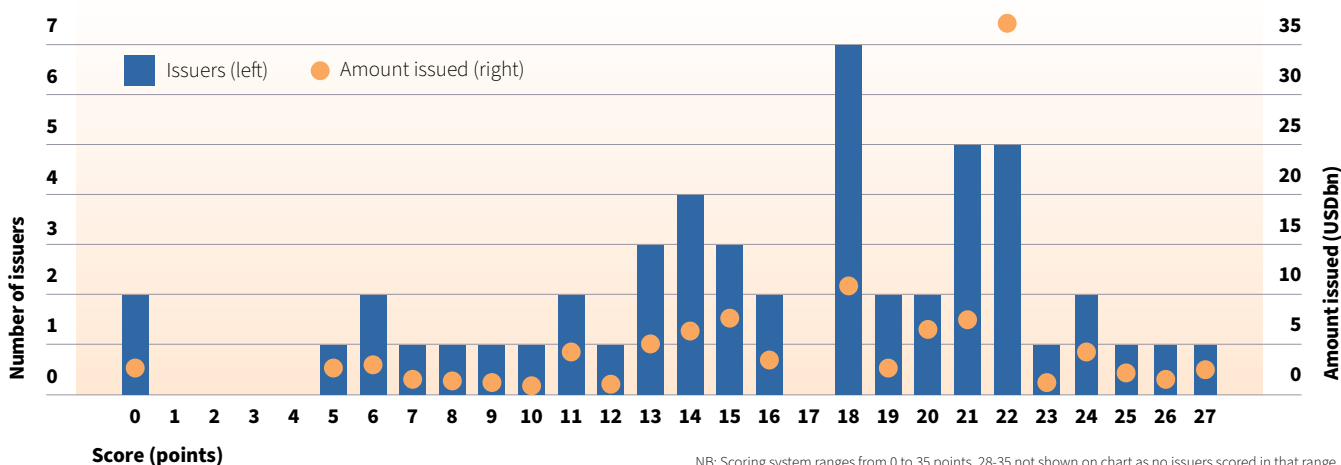
The average is closer to the maximum, reflecting a distribution skewed towards the top of the range. Holcim, a producer of construction materials including cement, has issued USD2.4bn across seven SLBs and was the only issuer to achieve 27 points. It has also used the highest step-up ever observed for a single target (150bps), a commendable move.

Overall these are respectable results, suggesting the largest SLB issuers generally have fairly good transition plan disclosure.

This corroborates the comparison against CDP's climate disclosure score, which showed a strong positive relationship between SLB issuance and broader climate-related disclosures.⁵⁸ A comparison of our scores versus CDP's yields a positive correlation of 0.55.⁵⁹

However, the analysis also points to much improvement needed. As the largest SLB issuers, many of these can be expected to be sustainability and climate leaders, but none scored in the top 20% of points possible (28+), and half scored in the bottom 50% (17 and under). Two issuers scored zero due to lack of public disclosure: **State Grid Corporation of China** and **Picard Groupe SAS** (France).

Distribution skewed towards top of range



The fact that larger issuers are more likely to score higher can also be seen in the chart, as the ratio of amount issued to number of issuers is higher in the top half of the range. The most extreme example of this is at 22 points, which is Enel's score.

Among the top ten issuers in the overall market (i.e., including 2023 and sovereign issuers – see page 7), eight were scored, with six achieving above-average scores: **Faurecia SE** (24), **Enel S.p.A** (22), **Telus Corporation** (22), **Carrefour S.A.** (22), **Teva Pharmaceutical Industries** (20), and **Eni S.p.A.** (19). The two that didn't were **ASTM S.p.A.** (15) and **JBS S.A.** (11).

Earlier issuers score higher

The earliest issuer in the top 50 sample (and the third overall) was Enel, the only one to have issued in 2019. The market has since been accessed by hundreds of entities, each at different stages of their transition journey and with different levels of commitment to sustainability.

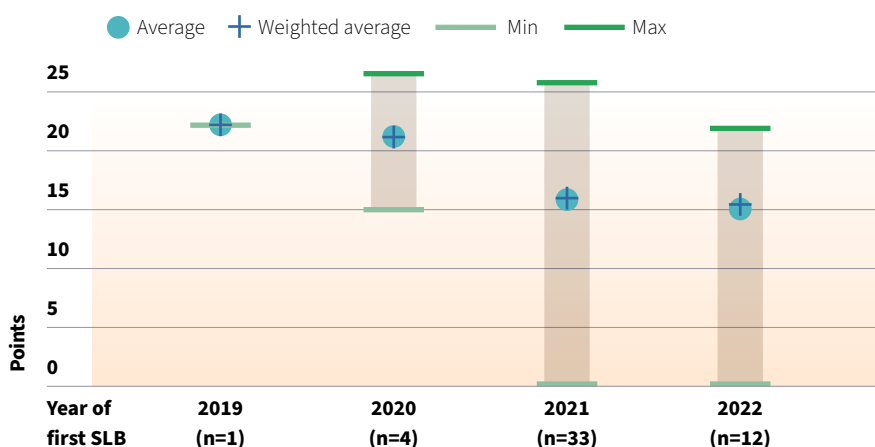


Nascent markets are often characterised by early movers that are leaders or pioneers, gradually expanding to a broader range of entities. To test this hypothesis, the scores were compared against the year that each issuer raised their first SLB.

Despite few years to compare, the results point to a trend that supports the hypothesis. Both the simple and weighted average scores fall the later the first SLB is issued, i.e., sustainability or transition leaders were more likely to be earlier issuers of SLBs. On the flipside, causality could work the other way; issuing an SLB may help advance sustainability strategies and transition plans.

While it is likely that both effects play a part and complement each other, the first appears to be stronger. For most (perhaps all) issuers, the decision to issue an SLB reflects an existing commitment to sustainability and follows the

Score decline shows signs of stabilisation



NB: Weighted average score based on amount issued. n=number of issuers.

creation of a transition plan. Mirroring the GSS bond market, the longer the time since its first SLB, the more advanced an issuer is likely to be in its sustainability journey and the more robust its institutional capacity is likely to be in driving sustainability internally and externally.

Regardless, the data points to a stabilisation in the downward trend. The quality of transition plans ought to improve as more guidance becomes available and regulation comes into place, and as SLBs become increasingly scrutinised by investors.

Latin American issuers score well

With more developed markets, standards and regulations, and typically greater investor and consumer pressure, issuers from developed regions can be expected to have more advanced transition plans. On the other hand, the heightened need for transition in highly polluting and hard-to-abate sectors often affects developing regions more.

The regional analysis of scores paints a mixed picture. With seven issuers, Latin America stands out as the region with best transition plans overall. It achieved the highest average score (18.65) and the narrowest range of 11 to 23 points. Europe achieved almost the same average (18.56) and holds the highest maximum, but representing almost two-thirds of the issuers in the sample (31/50) displays the widest range of all regions.

North America has the third-highest average of 13.7, considerably below the top two. It only accounts for 14% of the top 50 issuers, which drops to a mere 5% in the total market. Increasing the volume and diversity of corporate issuance from North America is a priority and an important objective going forward, not just in terms of SLBs but other thematic instruments.

No issuers from Africa featured in the top 50.

Broader range of transition plan quality in Asia-Pacific

Comparing the two less developed regions, issuers from Latin America seem to have more advanced transition plans than those from Asia-Pacific, with the minimum in the former (11 points) almost as high as the average in the latter (12.4). The range in Asia-Pacific is also high considering it is the region with fewest issuers in the top 50 sampled. **Teva Pharmaceutical** (20), **Woolworths Group** (20), and **Wesfarmers** (19) were the top three scorers from Asia-Pacific; from Latin America, **Nemak** (23), **Orbia** (22), and **Braskem** (21).

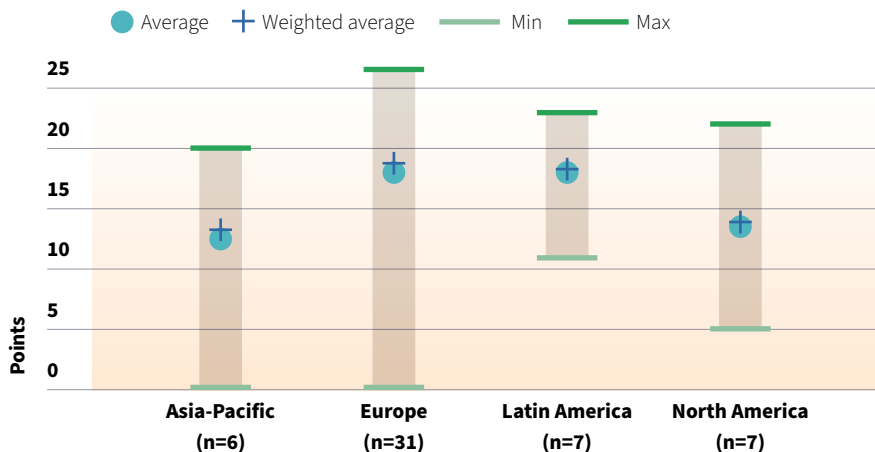
Perhaps the difference is explained by the greater development of financial markets and SLB support mechanisms in Asia-Pacific, which not only encourage more issuers to access the market but facilitate the process of doing so. Examples include the ASEAN SLB Standards, taxonomies which may also set transition standards (e.g., Singapore-Asia Taxonomy), prescriptive transition guidelines in Japan, China and other countries, SLB pilot scheme in China. Looking at the overall market, 165 issuers and 279 bonds come from Asia-Pacific, compared to 59 issuers and 102 bonds from Latin America. Those from Latin America are considerably larger, with a USD650m average issuer size and USD370m average bond size versus USD320m and USD190m in Asia-Pacific; this may also be related to more deals in Asia-Pacific being issued in the onshore market.⁶⁰

Regions with a more enabling market ecosystem may lead companies that are not as advanced in their sustainability journey to issue SLBs, especially given the lack of minimum standards that still characterises the global market (most issuers follow the SLBP but these are simply principles for issuance and disclosure).

By contrast, a less enabling market environment – such as in Latin America – means that fewer entities issue SLBs but these are more likely to be leaders with more advanced transition plans. This hypothesis is further supported by the fact that some SLBs from Latin American issuers are aligned with Climate Bonds' SLBDB Methodology, while none from Asia-Pacific are. In fact, all aligned SLBs in the sample are from European or Latin American issuers.

Climate Bonds will look to assess these hypotheses for larger samples in future studies.

Wide range and dispersion in Asia-Pacific



No low scores among aligned SLBs

Issuers of aligned SLBs achieved the same average score as those that issued non-aligned SLBs (excluding bonds that lacked GHG targets). However, the range is much narrower in the former group, with no issuers of aligned SLBs scoring below 12 points.

While this is partly related to the smaller sample size in the first group, it should hold even with comparable sample sizes – it is unlikely that issuers of aligned SLBs would ever have very weak transition plans. A small part of this is by design: similar criteria are used to determine SLBDB alignment and to score target disclosure in the transition plan assessment.

Larger issuers achieved a higher average score than smaller ones across all categories

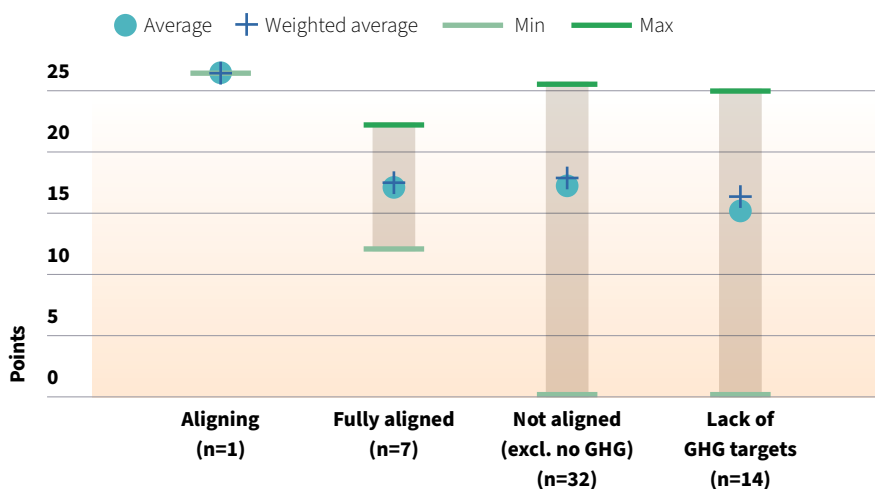
of alignment. However, this difference was considerably greater among non-aligned bonds, indicating that issuers with better transition plans in the non-aligned group are more likely to be large than in the aligned group.

Issuers of SLBs with no GHG targets show a wide score dispersion and the lowest average of all groups.

The range is similar between SLBs not aligned due to a lack of GHG targets and those not aligned due to other factors (see page 16-17), but the average score is 2.5 points higher in the latter. This supports the conclusion that SLBs lacking GHG targets are more likely to come from issuers with weaker transition plans, part of which is simply due to them being less likely to have set entity-level GHG targets.

Holcim is the only issuer in the aligning group.

Lack of SLB GHG targets predicts weaker transition plan



NB: No strongly-aligned SLBs in the sample. Repeat issuers can have bonds achieving different levels of alignment – in such cases, the most common alignment level was used (e.g., Enel, classified as not aligned).

Best practice examples

The three issuers highlighted here scored towards the top of the range in the assessment of transition plan disclosure, achieving at least 22 points.

Orbia (Mexico)

demonstrates excellent disclosure in many ways. Its Reporting Hub is an extremely clear and helpful tool, with easy navigation and limited overlap between different sections. It is also an effective 'one-stop-shop' which seems to include a summary of all sustainability-related information or at least point to where more detail exists (impact report).⁶¹



Granular information is provided under what seems to be a fully transparent approach, e.g., 'scope 3 goal covers categories 11 (use phase) and 12 (end of life), which represent around 87% of our scope 3 footprint' or 'baseline year established for SOx emissions is 2018, as 2019 was an atypical year in terms of operations at our main contributing site, due to a one-month planned shutdown for maintenance'. Scope 3 targets and a materiality assessment are included, as well as useful index tables for each reporting standard used.

Telus Corporation (Canada)

has high-quality disclosure overall, with documents easily found and clearly structured; for example, all companion documents are helpfully listed on page 4 of its latest sustainability report.⁶⁴ A very clear summary of targets by topic is provided along with quantitative progress in each one. A progress report specifically for SLB KPIs is included in the sustainability report, as well as an explanation of calculation methodologies. Its governance disclosure is also clear, with seemingly robust measures implemented (e.g., responsibilities at different levels and for different teams, and remuneration linked to sustainability performance across the organisation). A complementary resource is an ESG datasheet with indicators split by topic in



a granular way, including a rarely seen split of vendors (supply chain) by country and many social indicators.⁶⁵ Other positive aspects include a materiality assessment conducted and targets and plans around various social topics, including for example indigenous peoples and customer surveys.

Telus could improve its disclosure by clarifying some points. No sensitivity/scenario analysis was found. The alignment with SBTi only reportedly covers scopes 1 and 2 in the SLB framework, but all three scopes in the sustainability report. As now a regular issuer, a list of SLBs (and any other thematic bonds – or even all bonds) should also be provided on its website and more clearly in its reports. The main recommendation, however, is for Telus to include scope 3 targets in its SLBs given these represent the lion's share of GHG emissions and targets already for them already exist (they are even mentioned in the SLB framework, but no SLBs have used them yet).

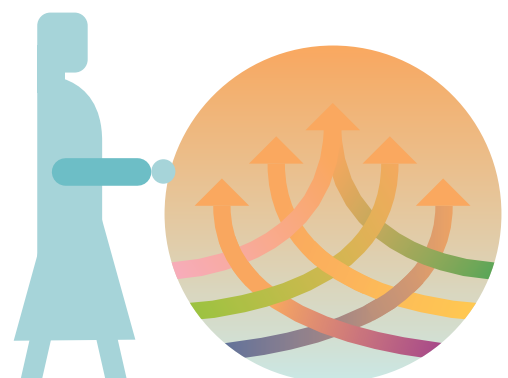
Holcim (Switzerland)

achieved the highest score in the transition plan scoring (27 points). Its reporting is very good overall, with the company showing leadership in the construction/cement sector as one of the largest producers globally.



Performance data for a huge number of KPIs is provided in a dedicated 'sustainability performance' document, with definitions and methodology also clearly explained.⁶² Its 'climate report' is also good and focuses on (future) plans more than backward-looking performance, including an interesting list of partnerships/innovation initiatives and a comprehensive scenario analysis which was one of the best seen.⁶³ Restatements due to reconsolidation/M&A are also clearly explained and disclosed in line with GCCA guidelines.

The main negative aspect of Holcim's plans is that carbon capture, utilisation, and storage (CCUS) is expected to deliver significant GHG emission reductions, especially to reach the 2050 target. CCUS is an unproven and costly technology which Climate Bonds recommends only to be used for residual emission reductions – however, this could change as the technology develops.



Summary transition plan chart

To further support market participants, an example of a summary (climate) transition plan chart is displayed below. It consists of the planned decarbonisation path, its alignment with a 1.5°C trajectory (e.g. SBTi, Climate Bonds), the short-, medium-, and long-term targets along the path, levers and expected quantitative contributions to meet each target, and links to the financing plan including issuance of SLBs and GSS bonds.

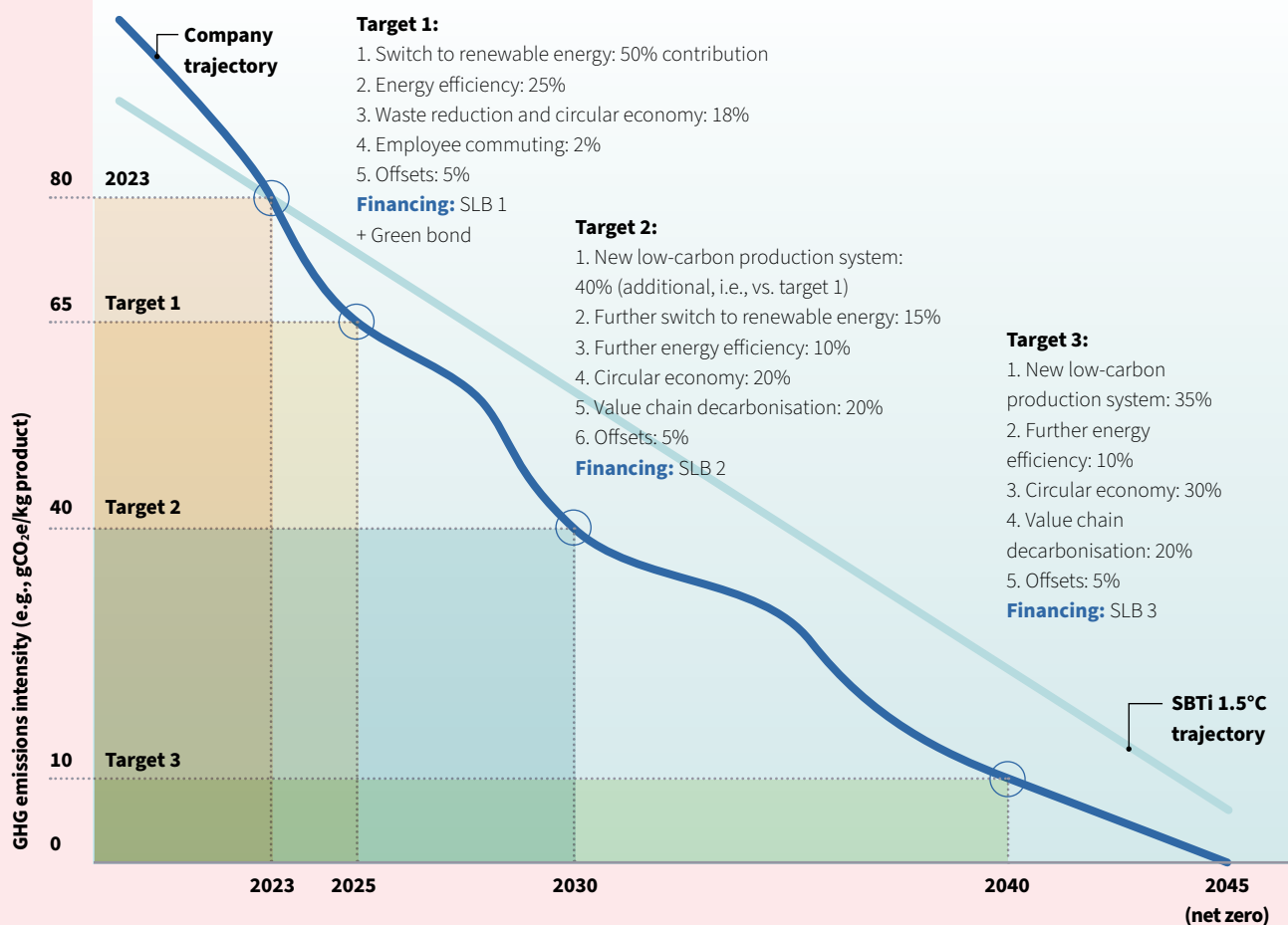
Supporting information would include a detailed inventory of current and expected GHG emissions (by scopes, including a breakdown of

scope 3 emissions), current and estimated future production volumes (GHG emissions are based on production intensity), and more details on other transition plan elements (see appendix, e.g., lever details and implementation plans, interdependencies and action plan regarding other environmental and social dimensions (e.g., biodiversity, measures to ensure a just transition), governance mechanisms, scenario analysis, confidence levels and key risks, etc. This disclosure can be based on Climate Bonds and other related guidance. Some could be added or directly linked to the chart, e.g., scenarios or confidence intervals.

This exercise is naturally complicated for companies producing multiple products or operating across different sectors. If so, separate charts can exist for each one (at least for those with material GHG emissions), or a combined chart with absolute emissions and intensities for each product/segment shown separately.

A handful of the issuers sampled included a similar chart (e.g., **Nemak**), but none with the range of information and detail suggested below. Including this can help issuers to clarify the link between transition plans and SLBs, increasing transparency and investor appeal.

Summary transition plan chart (example)



Sustainable finance

- **SLB 1:** USD500m 10-year, 2025 and 2030 targets
- **Green bond:** USD200m to fund 100% of energy efficiency improvements and 50% of waste reduction and circular economy initiatives
- **SLB 2:** expected in 2027, ≈USD500m, 2030 and 2040 targets
- **SLB 3:** expected in 2030, ≈USD1bn, 2040 and 2045 targets

Annual production volume (to assess absolute emissions)

- 2023:** 0.9m tonnes
- 2025:** 1m tonnes
- 2030:** 1.2m tonnes
- 2040:** 1.6m tonnes
- 2050:** 2.2m tonnes

Other transition plan elements

- GHG inventory (including breakdown of scopes and link with production) + other sustainability metrics
- Detail around implementation plan (backward- and forward-looking)
- Impact/dependencies on other sustainability dimensions
- Finance plan, including sustainable debt instruments
- Risks/opportunities and scenario/sensitivity analysis
- Governance structures and processes
- Assurance

7. Discussion and recommendations

The core objective of this paper is to facilitate the growth of a credible SLB market by highlighting the issues that exist and recommending ways to avoid them.



Low-quality SLBs threaten the market's ability to deliver meaningful improvements in sustainability performance. The main critiques have included lack of ambition in target-setting, failure to include material impact scopes, immaterial financial mechanisms, and call option misuse, which as the analysis in this report shows are largely valid concerns (except for call options).⁶⁶

The recommendations included below translate many of the key findings of this paper into a general **best practice checklist** for high-quality SLB issuance.⁶⁷ The recommendations complement and build on existing market principles. The elements included are those where the most visible issues exist in the market (there may be others) and/or where the guidance under the SLBP and the ELFA/ICMA High-Yield Recommendations (HYR) seems most limited.

To add credibility and unlock market scale and diversity, the core recommendation is for issuers to use the guidance below to issue ambitious and impactful SLBs.

For regulators and standard-setters, the recommendation is to develop guidance/rules for SLB structuring and disclosures based on this guidance.

The ultimate goal is for all financing to be tied to sustainability performance. Greater standardisation and quality of SLB structures would facilitate the introduction of supportive policies and the acceptance of such instruments for regulatory classifications, widening the pool of investors. Investor interest in the quality of SLBs will also necessarily increase as disclosure regulations emerge (e.g., EU SFDR, UK SDR). Issuers of credible, high-quality SLBs stand to benefit the most from these trends.

SLB issues and recommendations: a best practice checklist for issuance

SLB element	DESCRIPTION OF ISSUE	RECOMMENDATIONS
Overall disclosure	Lack of SLB disclosure in general (targets, framework etc), as well as inconsistencies.	<ul style="list-style-type: none"> Align with SLBP and regional standards/principles if these exist, and use Climate Bonds guidance. Ensure disclosure covers all the information required.⁶⁸ Make this available publicly and clearly.
GHG emission targets and alignment with SLBDB Methodology	A high share of the market does not meet the requirements for alignment with Climate Bonds' SLBDB Methodology.	<ul style="list-style-type: none"> Meet the SLBDB alignment requirements, including providing public disclosure.⁶⁹ Include scope 3 if it is material. Do not use economic intensity. Align GHG targets with relevant science-based pathways. <p>Targets should be feasible as well as ambitious. If meeting the requirements for fully aligned SLBs is too ambitious, issuers can still use targets that are strong aligned or aligning. Full alignment is best, but all three categories are considered aligned.</p> <ul style="list-style-type: none"> For non-GHG KPIs, set targets aligned with relevant standards if these exist, and ensure substantial improvement versus the status quo.
Target and trigger dates	Some SLBs set inadequate target and trigger dates.	<ul style="list-style-type: none"> Set target observation and trigger dates considerably before the bond's maturity. Set trigger dates as soon as possible after observation dates.
KPI selection	<p>All KPI themes other than climate are used sparsely, with some such as biodiversity rarely observed overall and others lacking any use.</p> <p>Within GHG-related KPIs, scope 3 is often not included despite a high level of materiality in many sectors.</p> <p>The use of economic intensity in targets is also an issue but does not happen often.</p>	<ul style="list-style-type: none"> Link KPIs to relevant reporting standards and regulations, and refer to ICMA's KPI Registry for consistency. Do not use ESG ratings/scores or other opaque KPIs.⁷⁰ Use at least one KPI related to climate mitigation, including absolute GHG emissions and GHG emissions production intensity where relevant. Include Scope 3 if material. (Not all bonds from the issuer must include this.) Express KPIs and targets in absolute terms as well as production intensities. Do not use economic intensities (e.g., per unit of revenue). KPIs related to an impact can differ in the short- versus long-term. For example, to address scope 3 emissions, issuers could set a short-term KPI/target to increase value chain engagement, plus a medium-term KPI/target for scope 3 emissions (when emissions are expected to fall). Disclose methodologies to assess KPIs. Regulators could enforce rules around KPI selection, possibly on a comply-or-explain basis at first. Materiality assessment guidance for each sector should be provided given region-specific contexts, with rules linked to this. Monitoring mechanisms should be implemented.

SLB issues and recommendations: a best practice checklist for issuance (continued)

SLB ELEMENT	DESCRIPTION OF ISSUE	RECOMMENDATIONS
Multiple KPIs/ targets	Multiple KPIs/targets can be used in each SLB but there is a lack of guidance around this, including the recommended approach for financial mechanisms and trigger events.	<ul style="list-style-type: none"> • Use multiple KPIs to reflect different material impacts, including related to social dimensions (e.g., just transition). • Use multiple target dates for a given KPI to reflect different time horizons (can also help to spread risk). • Multiple targets are also encouraged to reflect different levels of ambition (with a single observation date).⁷¹ Combining step-ups with step-downs often makes sense in this case. • NB: not all of these must apply in each SLB. • Bonus tip: to increase transparency and impact attribution, issuers should consider using baseline years as close as possible to the issue date rather than baselines far in the past.
Call options and legal clauses	<p>Call dates that precede target and/or trigger dates give issuers the option to call the bond if they predict/ know the targets will not be met, thus avoiding or reducing financial penalties.</p> <p>Legal clauses can also be misused.</p>	<ul style="list-style-type: none"> • Be transparent about call structures and legal clauses, and do not use them in bad faith. • Call dates should come after at least the first target and trigger date. If call dates precede target and/or trigger dates, the call price should reflect an assumption that the target has not been met (i.e., redemption premium). • Regulators and/or other market participants: monitor misuse of callable structures, especially in periods of falling interest rates which increase the incentive to exercise call options. Monitor the proportion of call options among SLBs, and especially the extent to which they are exercised. Legal clauses should also be monitored to ensure they are not used in bad faith.
Post-issuance SLB reporting	Almost all issuers provide public post-issuance reporting, but the quality of reporting varies (this mirrors the green bond market).	<ul style="list-style-type: none"> • Disclose reasons for changes in performance, including issuer's actions to improve performance: <ul style="list-style-type: none"> • Quantitative contributions for each reason are highly recommended where possible. • Corrective action plan if targets are missed. • Disclose restatements of data/performance and clearly explain their impact on baselines and targets. • Ensure consistent information across website, entity-level reports, and SLB documents. • Confirm that methodologies to calculate KPI performance disclosed at issuance remain valid, or provide updated methodologies.
Transition plan and link with SLBs	<p>The quality of transition plans varies widely, although there is a positive correlation between SLB issuance and the quality of climate-related disclosure.</p> <p>Clarifying the links between transition plans and SLB issuance is also important and often not included in disclosure.</p>	<ul style="list-style-type: none"> • Provide all relevant transition plan disclosure in one document or in a dedicated section of annual reports. • Display information clearly and sectioned in parts (e.g., following the elements of the Climate Bonds Standard). Downloadable data files are also useful. • Ensure disclosure is easy to reach on the issuer's website. • Clearly articulate the link between SLB issuance and transition plans, ensuring consistency. • Use guidance from Climate Bonds and others to ensure credibility and ambition of transition plans. The previous section covers examples of this along with a summary transition plan chart, but check CBS V4.0 (including sector criteria) for more detail.⁷²
Assurance	Assurance is important to ensure (or increase) transparency and reliability. While not a big issue in the SLB market given the vast majority of issuers obtain it, the level and scope of assurance can still improve.	<ul style="list-style-type: none"> • Obtain external review at issuance (e.g., SPO, Climate Bonds Certification). • Post-issuance: <ul style="list-style-type: none"> • Minimum: assurance should cover at least KPI data (relevant to SLBs) at the target date. • Best practice: assure KPI performance annually before and after the target date, as well as the entirety of sustainability reporting (e.g., all KPIs and sustainability-related investments). Reasonable assurance can add reliability.

Other ideas for market development

Supportive and coherent policy

The EU Green Bond

Standard (GBS), which will apply as of December 2024, provides optional disclosure templates for SLBs in the EU.

Implementing measures, including the details of the templates, need to be put forward by European regulators in 2024 or 2025. The EU GBS regulation also states that the Commission should produce a report assessing the need to regulate SLBs in 2026, which could incorporate many of the findings and recommendations in this paper.⁷³ A likely challenge is that SLB KPIs and targets are forward-looking, while the EU Taxonomy criteria are static and do not contain transition pathways.

To complement their guidance/rules and reduce the burden of compliance, regulators, policymakers, and potentially others should consider introducing incentives to support issuance and build capacity, contingent on compliance with these higher standards. For example, Singapore's Green and Sustainability-Linked Loan Grant Scheme covers the cost of assessment and verification and up to 60% of the cost of framework development.⁷⁴ Support for SLB issuance is rarer than for green bonds.

Incentives present the greatest benefits when markets are under-developed.

Once the market begins to mature, issuance/investment becomes appealing in its own right, and the incentive can be phased out – this can also limit the cost of such measures. Clearly communicating phaseout dates and/or conditions provides market participants with confidence.

Broader policy development is also critical to bring more issuers and sectors to the market.

Climate Bonds published a list of 101 sustainable finance policies for 1.5°C last year, many of which can play positive roles for the SLB market.

Consistent and high-quality standards can be particularly powerful if embodied by data platforms or tools. Facilitating access to reliable and comparable data increases transparency and is vital to progress.



SLB Facility to manage penalties and ensure standards

SLB rewards and penalties are based on achieving or missing targets linked to sustainability impacts which primarily provide public (not private) value. Conceptually it makes little sense for penalties to be paid to investors, which also means the financial interests of bondholders are misaligned with the issuer's sustainability performance..

Instead of rewards or penalties being exchanged with bondholders, an **SLB Facility** could be created to manage rewards/penalties centrally and exogenously in each jurisdiction, with full transparency. Among various other benefits, this would remove the perverse incentive/dynamic that investors benefit most financially when issuers miss their targets.

Penalties would be paid into the facility, with the funds raised if issuers miss their targets used directly to address the most material sustainability issues in their region and/or sector – e.g., incentives for sustainable investment, infrastructure investment, just transition funds, etc. (offsets/credits should not count). Another potential use could be to offer premiums at issuance, since SLBs with penalty mechanisms can be expected to carry a premium versus vanilla bonds which should cease if penalties are no longer paid to investors.⁷⁵ Such a facility could also require minimum standards around SLB structures and disclosure.

Green Bond Transparency Platform: facilitating and standardising disclosure

A growing SLB market would benefit from increased transparency and access to disclosure, including to attract more investors. The **Green Bond Transparency Platform (GBTP)** is a free and public tool launched in 2021 by the Inter-American Development Bank (IDB) to support the harmonisation and standardisation of sustainable debt reporting, enabling first-hand and comparable data for evidence-based decisions.

With about 70% of the Latin America and Caribbean green bond market volume already reported by more than 100 local issuers, the platform is responding to market demands by expanding its scope to include SLBs. This is currently being tested with issuers from the region.



The GBTP's planned globalisation has also recently been announced, to be accomplished through a collaboration with other DFIs looking to enhance accountability and transparency in emerging markets. This will contribute to credible SLB market growth by promoting disclosure best practices, facilitating data access and comparability, and encouraging issuance under international standards.⁷⁶

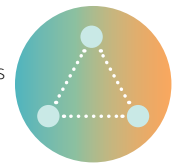
Financial mechanisms reinforce credibility

The choice of financial mechanisms matters for both issuers and investors. Step-ups and redemption premiums should imply a discount at issuance versus vanilla bonds due to the potential penalty, with issuers benefitting from this throughout the bond's term if targets are met. Redemption premiums only apply once however, while step-ups generally apply to several coupon payments.

Step-downs present problems for both sides since issuers may have to accept a higher coupon at issuance and many investors are unwilling or unable to pay for a step-down, e.g., due to fiduciary duty. Contingent resilience-linked (CORL) bonds, proposed by AFII, could nullify the higher coupon at issuance but may be hard to implement (including finding effective resilience metrics).⁷⁷ The main use of step-downs is expected to continue being in combination with step-ups, i.e., multiple targets to reflect different ambition levels.

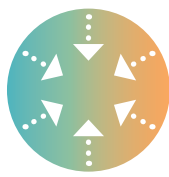
Alternative penalty structures, such as charitable donations and purchases of carbon offsets/credits and renewable energy certificates, typically reduce the option value for investors but may present benefits in some cases – AFII highlights Sukuk (Islamic bonds), hybrid debt/equity structures, and accountancy reasons as three such cases.⁷⁸

Finally, the size of financial mechanisms should be material. The 25bps average and modal step-up currently observed may be too small. Some issuers demonstrate best practice by setting much higher step-ups, although several other factors also matter, namely the ambition of targets, number of coupons, coupon amount, issuer size and credit rating.



Accounting for exogenous factors adds value

SLB sustainability performance is measured over time and depends on several factors. Some issuers may meet their targets supported by such factors, while others miss them despite taking more actions to improve their performance. Issuers may thus be rewarded or penalised for factors outside their control, which principal-agent theory predicts dilutes the instrument's performance-based incentives.



Ideally, performance under sustainability-linked instruments would be assessed only in terms of the issuer's own contribution with respect to targets. The ability to estimate this reliably would be a welcome development and may become more important as the market grows. By increasing confidence in performance attribution, this could reduce risk for issuers which may also lead to indirect benefits (e.g., supporting more use of scope 3 and multiple targets to reflect different ambition levels for a given KPI).

While it may be hard to effectively adjust for exogenous factors at scale through a single approach, specific methodologies could be applied depending on context (e.g., regions, sectors).

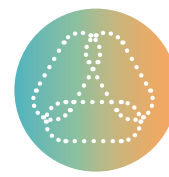
A recent World Bank Policy Research paper has estimated policy impacts in the context of Brazil's Legal Amazon through a Relative Evaluation And benchmarking (REACH) framework, along with proposing the use of an ambition/feasibility matrix to assess and set targets.⁷⁹ The results show that policy efforts helped to lower deforestation in the 2000s after accounting for external factors.

The IDB and World Bank signed a memorandum of understanding in August 2023 to combine expertise and provide technical assistance and credit enhancement mechanisms to issuers of **Amazonia Bonds**, with coupon rates linked to rainforest preservation and clean energy targets.⁸⁰ The benchmarking analysis described above could potentially be applied to Amazonia Bonds in a standardised way, helping to test its use while supporting issuance.

More monitoring and research into issuer attribution and exogenous factors is encouraged as the market develops. This could include assessing the correlation between the market's performance against targets and large exogenous shocks.

Similar application is possible in SLLs

Much of the discussion and many of the recommendations included throughout this report can also help to answer questions and promote development in the SLL market.



Loans generally have weaker disclosure (pre- and post-issuance) but should still adhere to principles of credibility and ambition. The Green Loan Principles attempt this among green loans, but SLL guidance is critically lacking. Promoting higher standards and greater consistency among SLLs is possible, with lenders being the main stakeholders needed to achieve this.

As long as issuers agree, perhaps a tagging system to identify high-quality SLLs that meet similar SLB standards could help SLL issuers showcase their credibility and ambition, without requiring public disclosure of specific features (e.g., baselines, targets, financial mechanisms). These could be kept private (along with company names, if necessary) and reviewed by approved verifiers such as audit firms.

Finally, there are examples of bonds issued by financial institutions to finance a portfolio of SLLs, sometimes referred to as sustainability-linked loan bonds (SLLBs). **Bank of China** issued one such deal in 2021, while **Nordea** issued two in 2022 and one in 2023 (structurally as a UoP bond financing an underlying SLL portfolio). This innovation can also help to improve transparency in the SLL market and would equally benefit from more guidance.

Appendix 1 - Definitions & acronyms

ACT: Assessing low-Carbon Transition	GSS: green, social, and sustainability	SLBP: Sustainability-Linked Bond Principles (ICMA)
AFII: Anthropocene Fixed Income Institute	HYR: High Yield Recommendations (ELFA/ICMA)	SLL: sustainability-linked loan
Baseline: starting level of KPI performance, used to set targets	ICMA: International Capital Market Association	SPO: second party opinion
bps: basis points	IDB: Inter-American Development Bank	Target/SPT observation date: date at which the KPI is assessed against the target/SPT
CAGR: compound annual growth rate	ISSB: International Sustainability Standards Board	Target/SPT: sustainability performance target, set for each KPI
CBS: Climate Bonds Standard (V4.0 is the latest version)	KPI: key performance indicator	TCFD: Taskforce on Climate-related Financial Disclosures
Climate Bonds: Climate Bonds Initiative	M&A: mergers and acquisitions	TNFD: Taskforce on Nature-related Financial Disclosures
CSRD: Corporate Sustainability Reporting Directive (EU)	NDC: Nationally Determined Contribution	TPI: Transition Pathway Initiative
DFI: development finance institution	SASB: Sustainability Accounting Standards Board	TPT: UK Transition Plan Taskforce
ELFA: European Leveraged Finance Association	SBTi: Science Based Targets Initiative	Trigger event/date: date at which the financial mechanism may be triggered
ESRS: European Sustainability Reporting Standards	SDR: Sustainability Disclosure Requirements (UK)	UoP: use of proceeds
Financial mechanism: change in SLB's financial characteristics depending on whether targets are met	SFDR: Sustainable Finance Disclosure Regulation (EU)	VOY: year-on-year
GHG: greenhouse gas	SGX Group: Singapore Exchange	
GRI: Global Reporting Initiative	SLB: sustainability-linked bond	
	SLBDB: Climate Bonds SLB Database	
	SLBDB Methodology: document explaining the database process and methodology for determining alignment	

Appendix 2 - Transition plan scoring (detail)

Examples of best practice exist in almost all elements of disclosure, but so do zero scores

Transition plan / disclosure element*	Scoring methodology (summary)	Results			Comments
		Score	Issuers	Amount issued (USDbn)	
C.3.1.1. Climate mitigation performance targets	5 points max: 1 for having any target, 2 for covering all material scopes, 1 for short- or medium-term targets (up to 2035) plus long-term targets (2035 onwards, or net zero), 1 if targets expressed using production intensity	1	3	3.8	3 (out of 5) is by far the most common score, especially looking at amount issued. Five issuers achieved the maximum points for target-setting. The most common reason for points deduction is a lack of production intensity targets, closely followed by targets not covering all material GHG scopes. Since a net-zero target implies reaching zero emissions in both absolute and intensity terms, the 'intensity point' was awarded for absolute targets as long as only the net zero target exists (i.e., not if there was an interim target only in absolute terms). Issuers should take care to ensure consistency in target disclosure. In several cases, targets in annual/sustainability reports and other documents (or on websites) did not match SLB targets, for unexplained reasons. GHG emission targets were not found for some companies. These scored zero even if they had other climate-related targets, e.g., energy use, renewable energy generation and capacity, EV shares, etc.
		2	7	10.5	
		3	19	66.6	
		4	11	18.8	
		5	5	7.6	
		N/A	2	2.5	
GHG emission pathway / benchmark (as disclosed by issuer)	3 points max: 2 if against 1.5°C trajectory / 1 if 2°C, 1 if all targets covered (i.e., all GHG scopes and timeframes, if applicable) <i>NB: 2 points max if uses SBTi pathway but not validated; 1 point max if only generic information about pathway provided</i>	0	15	25.7	Most issuers claim to have set science-based targets, of which almost all refer to alignment with SBTi. Alignment with TPI is used occasionally, as well as a few references to niche or consultancy-based assessments. If the temperature alignment of pathways was undisclosed (quite often), it was assumed to be 2°C, not 1.5°C. The score reflects the ambition of targets against relevant science-based pathways, as disclosed by companies – not Climate Bonds' assessment of this. ⁸¹
		1	9	15.7	
		2	19	36.5	
		3	5	34.6	
		N/A	2	2.5	

Transition plan / disclosure element*	Scoring methodology (summary)	Results			Comments
		Score	Issuers	Amount issued (USDbn)	
C.3.2.2.1. Foundations of the delivery strategy – vision	2 points max: 1 if decarbonisation levers disclosed, 1 if offsets play no major role (only residual) <i>NB: 1 point max if either of following apply: levers not credible to deliver substantial reductions considering material GHG Scopes in given sector (e.g., only energy efficiency for financial institutions), or role of offsets not clear</i>	0	2	3.3	As a basic transition plan element, the disclosure around transition levers almost always exists, but the information can still be patchy or incomplete. Further, it is hard to assess credibility because the expected quantitative contribution of levers (to achieve the targets) is often not provided. Carbon offsets/credits typically do not appear to play a large role in transition plans (although there are several exceptions, e.g., Eni), nor do divestments of assets with higher GHG emissions (M&A linked to low-carbon assets is more common). However, it is difficult to be sure due to the frequent lack of quantitative lever contributions.
		1	23	70.8	
		2	23	38.4	
		N/A	2	2.5	
C.3.2.3.1. Implementation plans – action plan for scope 1 & 2 emissions:	3 points max: 1 for forward- plus backward-looking information on implementation plan, 1 if metrics to track performance exist (beyond just GHG emissions, e.g., % renewable energy, % of EV fleet, etc.), 1 for quantitative contribution of measures towards performance/targets	0	2	2.4	The key finding among implementation plans is the considerably greater extent and granularity of scope 1 and 2 disclosures versus scope 3, often even when scope 3 represents most or almost all GHG emissions. Scope 3 disclosure is obviously less likely if not material, but a) many issuers with material scope 3 still lack appropriate level of disclosure, b) some issuers with immaterial scope 3 still include related disclosure. No issuers scored 3 points in the disclosure of scope 3 implementation plans. Further, implementation of measures to address scope ½ is usually more advanced along the plan, and there is more confidence in their positive outcomes – with scope 3, there is less detail of measures (e.g., simply ‘we will work with suppliers/value chain’) and less confidence around how much impact they can/will achieve. Milestones to track the progress of implementation plans in both the short- and long-term are also often lacking.
		1	26	75.7	
		2	16	29.3	
		3	4	5.0	
		N/A	2	2.5	
C.3.2.3.2. Implementation plans – action plan for scope 3 emissions	3 points max: 1 for forward- plus backward-looking information on implementation plan, 1 if metrics to track performance exist (beyond just GHG emissions, e.g., % of suppliers assessed or meeting criteria, end of life/circular economy metrics, etc.), 1 for disclosing quantitative contribution of measures towards performance/targets	0	11	18.9	Another key finding is that few issuers provide a clear quantification of both the achieved (backward-looking) and expected (forward-looking) GHG reduction of different actions/measures, and the extent this will help them achieve their targets – while this is true for all scopes, it affects scope 3 most of all. With a very clear presentation format, Orbia is an excellent example of good, all-round disclosure, including one of the best explanations of implementation plans (case study on page 25). <i>NB: Scope 3 implementation plan scoring was not adjusted for differences in the materiality of scope 3 between sectors, so that the same number of points is available to all issuers (to enable direct comparison).</i>
		1	26	72.2	
		2	11	21.4	
		N/A	2	2.5	
C.3.2.3.3. Implementation plans – finance plan	3 points max: 1 for disclosure of financial needs/implications of transition plan, 1 for disclosure of finance plan to deliver this, 1 for financial metrics/targets used to assess progress in delivery of finance plan	0	21	36.8	The focus is on forward-looking disclosure. Very few issuers have good finance plan disclosure, probably related in part to fear of competitive disadvantage (this can also affect public disclosure of other elements, but financing in particular). A2A was the only issuer to score 3 points, providing the most amount of detail including a detailed breakdown of expected capex.
		1	21	65.7	
		2	5	8.9	
		3	1	1.1	
		N/A	2	2.5	

Transition plan / disclosure element*	Scoring methodology (summary)	Results			Comments	
		Score	Issuers	Amount issued (USDbn)		
C.3.2.3.5. Implementation plans – sensitivity analysis	4 points max: 1 for sensitivity analysis with range of scenarios (at least two, including at least one related to above 2°C), 1 if transition and physical risks/opportunities assessed, 1 if quantitative impacts on revenue/cost (or other financial dimensions) estimated and disclosed, 1 if carbon pricing used or planned	0	14	23.4	<p>While few issuers score highly, many use the TCFD framework to guide their assessment of future risks and opportunities (especially risks – there may be more risk in disclosing opportunities), and to a lesser extent scenario analyses.</p> <p>Many issuers conduct a materiality assessment, although this sometimes covers financial impacts only (i.e., financial materiality), not the materiality of the company's impacts on the rest of the world (impact materiality) which is also critical. The materiality assessment feeds into the selection of KPIs in SLBs, although not perfectly (see pages 10-13).</p> <p>The top reason for points deduction is a lack of quantitative financial impacts disclosed.</p> <p>Novartis was the only issuer to score 4 points, demonstrating best practice through clear financial impacts estimated for each physical and transition risk, and for different time horizons.</p> <p>A related dimension of risks is the risk on other (non-climate) sustainability themes due to the delivery of the transition plan, e.g., ensuring a just transition (this is addressed directly in clause C.3.2.2.3. of CBS V4.0). This was not explicitly scored, but there seems to be very little disclosure around such risks – it could be that no such risks were identified, but almost all issuers lack any information around this, suggesting no risk assessment was done.</p>	
		1	14	52.0		
		2	12	24.6		
		3	7	10.3		
		4	1	2.2		
		N/A	2	2.5		
C.3.3.1. Governance – board and senior executive responsibility	3 points max: 1 if executive(s)/board/committee responsible for climate strategy, 1 if some form of management structure in place for execution of plan (or integrated into regular processes), 1 for alignment of financial remuneration with climate performance (at least at senior level)	0	3	4.5	<p>Almost all issuers have some sort of transition plan responsibility assigned – usually to the Board, often through a specific committee which may inform the Board. Occasionally the responsibility is only at C-Suite level.</p> <p>However, there are wide differences even when there is a body responsible, e.g., some committees cover ESG as a whole, while others only cover climate. Some issuers only include vapid remarks, while others offer much more robust information around individuals, roles, and specific responsibilities, and processes and feedback mechanisms.</p> <p>By contrast, disclosure around management structures in place to deliver the transition plan is more often lacking, and many issuers lack remuneration policies tied to sustainability performance.</p> <p>Enel has very good governance disclosure. A2A has very weak disclosure around governance mechanisms but good disclosure of several other elements, including a strong finance plan.</p>	
		1	20	33.6		
		2	19	34.2		
		3	6	40.2		
		N/A	2	2.5		
		Sector / activity breakdown	2 points max: 1 for revenue breakdown by segment, 1 for breakdown of GHG emissions or other environmental dimension (e.g. alignment with EU Taxonomy, energy use by segment)	0		12
1	22			70.2		
2	14			25.7		
N/A	2			2.5		
Novartis	0			1	1.1	
	1			1	1.1	

Transition plan / disclosure element*	Scoring methodology (summary)	Results			Comments
		Score	Issuers	Amount issued (USDbn)	
Opex / capex breakdown	2 points max: 1 for any type of Opex breakdown, 1 for any type of Capex breakdown	0	23	43.0	The granularity varies a lot again. The information is most often backward-looking (included in accounts/statements, especially for opex), while forward-looking information is typically included in text (related to finance plan) when it exists. Few issuers score 2 points on both the activity (previous element) and opex/capex breakdowns. Vestas Wind Systems is one of the only examples, and its opex/capex data is expressed in terms of EU Taxonomy alignment.
		1	17	57.5	
		2	8	12.0	
		N/A	2	2.5	
Sustainable finance instruments (GSS bonds, SLBs/ SLLs, or other relevant credit facilities)	2 points max: 1 if sustainable finance instruments identified, 1 if disclosure includes most key details of instruments	0	16	26.0	Providing a list of sustainable finance instruments issued seems simple but is surprisingly uncommon, especially including all the key details: type of instrument (SLB, green bond, etc.), deal identifier(s), issue and maturity dates, and amount issued. Providing the KPIs/ targets linked to each bond is also advised. The best way is to provide a list on the sustainable finance or similar page on the website, along with identifying outstanding deals in annual reports or other relevant documents.
		1	14	25.9	
		2	18	60.6	
		N/A	2	2.5	
Assurance	3 points max: 1 for limited assurance level / 2 for reasonable, 1 for assurance covering most non-financial indicators including GHG emissions	0	9	16.8	Assurance is very frequent (81% of issuers, 85% of amount), and almost always limited. Enel and Eni were the only issuers to obtain reasonable assurance; Enel's covers all GHG scopes data, Eni's just scope 1 and 2. Issuers lacking assurance may be neglecting pre-issuance commitments, e.g. JBS said it would obtain assurance but this was not found.
		1	8	11.9	
		2	30	54.4	
		3	1	29.5	
		N/A	2	2.5	
Latest period	1 point max: 1 if latest year of sustainability reporting is 2022 or 2023, 0 if earlier	0	5	6.3	All reporting found was annual. For 43 out of 48 issuers, the latest data was from 2022 and almost always covered GHG emissions.
		1	43	106.2	
		N/A	2	2.5	
Other: reporting standards/ methodologies	Data collected but not scored				<p>SASB and GRI were by far the most used reporting standards, along with TCFD specifically for climate disclosures.</p> <p>References to ISSB were rare, which is understandable since most reports analysed were from early 2023 – many more references can be expected this year and looking ahead. A few issuers used stock exchange and sector-specific reporting guidelines (e.g., Holcim used GCCA – Global Cement and Concrete Association).</p> <p>Among GHG accounting methodologies, the GHG Protocol was used almost always. Various ISO standards were also often referenced, the most common use being for GHG accounting and reporting.</p> <p>About half of the issuers sampled claim to be UN Global Compact participant, aligning with principles on human rights, labour, environment, and anti-corruption. WEF Stakeholder Capitalism metrics were also mentioned several times.</p> <p>Finally, about 80% of issuers reported to CDP. Their climate disclosure scores were generally good (see page 4).</p>

NB: Two issuers classified as N/A throughout the table: State Grid Corporation of China, Picard Groupe SAS. *Elements starting with C.3 refer to clauses in CBS V4.0. Some elements included in CBS V4.0 and other transition plan guidance are not included in the scoring.

Appendix 3 - KPI mapping methodology

To enable the assessment of KPI materiality, sectors and KPIs from the SLBDB were mapped on a best-efforts basis to those used in ICMA's SLB KPI Registry (which includes the materiality matrix).

Several KPIs were not easy to map to the themes in the matrix, mainly because there are no generic themes but there are generic KPIs (e.g., balance of green loans, cumulative green/sustainable lending, revenue from green/sustainable products, share or amount of sustainable financing, etc.). Most generic KPIs are linked to financial metrics as well as ESG scores – in most cases, both were classified as 'product governance (quality/safety)' as this was considered the least unsuitable

match. Another example is the 'underlying SLL performance' KPI used by Bank of China – since the framework lacks disclosure around the SLL KPIs used, this was classified as 'value chain' since borrowers are bank clients.

If possible, adding a 'general' theme/category would thus be useful for cases with multiple themes addressed.

The materiality assessment is only based on ICMA's matrix. The matrix is good overall but some assessments of materiality may be incomplete, especially within the financial sectors (finance, banking, and insurance). Considering scope 3

(namely financed) GHG emissions, arguably all themes should be considered material for financial companies insofar as they have clients in sectors where those respective themes are material. For instance, just transition is not considered material in any of the three financial sectors, yet, linked to climate change, is certainly material for the industry (from an impact and increasingly financial lens too). The materiality of some themes (especially social) should also be reviewed in other sectors, e.g., just transition is oddly not considered material in food & agriculture. Clarifying the materiality approach (single or double) would also be helpful.

Endnotes

1. ICMA, June 2023, Sustainability-linked Bond Principles. <https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Sustainability-Linked-Bond-Principles-June-2023-220623.pdf>
2. Some projects/assets financed by UoP instruments do require impact assessments over time to confirm continued eligibility (e.g., energy efficiency improvements).
3. Climate Bonds Initiative, May 2021, Post-issuance reporting in the green bond market 2021. https://www.climatebonds.net/files/reports/cbi_post_issuance_2021_02g.pdf
4. Climate Bonds Initiative, June 2023, Sustainability-Linked Bond Database Methodology. https://www.climatebonds.net/files/files/CBI_Method_SLBD.pdf
5. Anthropocene Fixed Income Institute, Erlandsson, U., Richardson, J., May 2023, Greenback SLBs: an impact standardisation proposal. <https://anthropocenefii.org/slb/greenback-slbs-an-impact-standardisation-proposal>
6. Climate Bonds Initiative, April 2023, Climate Bonds Standard V4.0. https://www.climatebonds.net/files/files/CBI_Standard_V4.pdf
7. Three categories of aligned bonds exist: fully aligned, strongly aligned, and aligning (see pages 15-16).
8. https://www.climatebonds.net/files/files/CBI_Method_SLBD.pdf
9. There are examples of deals that combine the two models, i.e., financing specific projects/assets with KPIs, targets, and financial mechanisms linked to these.
10. ICMA, June 2023, Sustainability-linked Bond Principles. <https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Sustainability-Linked-Bond-Principles-June-2023-220623.pdf>
11. Based on deals issued up to end of November 2023. Full-year figures will be available in Climate Bonds' annual Global State of the Market report (planned release in April 2024).
12. ASCOR project (homepage). <https://www.ascorproject.org/>
13. Transition Pathway Initiative, Assessing Sovereign Climate-related Opportunities and Risks (ASCOR), December 2023, Countries' progress on managing climate change: the first ASCOR assessment results. <https://transitionpathwayinitiative.org/publications/uploads/2023-countries-progress-on-managing-climate-change-the-first-ascor-assessment-results>
14. USD100bn in international climate finance pledged, but the total climate finance gap is considerably larger.
15. Transition Pathway Initiative, Assessing Sovereign Climate-related Opportunities and Risks (ASCOR), December 2023, Countries' progress on managing climate change: the first ASCOR assessment results. <https://transitionpathwayinitiative.org/publications/uploads/2023-countries-progress-on-managing-climate-change-the-first-ascor-assessment-results>
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17. Transition Pathway Initiative, Assessing Sovereign Climate-related Opportunities and Risks (ASCOR), December 2023, Countries' progress on managing climate change: the first ASCOR assessment results. <https://transitionpathwayinitiative.org/publications/uploads/2023-countries-progress-on-managing-climate-change-the-first-ascor-assessment-results>
18. Development Bank of Rwanda, September 2023, Investor Presentation. <https://www.brd.rw/wp-content/uploads/2023/09/SLB-Investor-Presentation.pdf>
19. Development Bank of Rwanda, September 2023, Investor Presentation. <https://www.brd.rw/wp-content/uploads/2023/09/SLB-Investor-Presentation.pdf>
20. World Bank Group, 2023, Rwanda Issues First-Ever Sustainability-Linked Bond (SLB) Backed by World Bank's Innovative Financial Structure. <https://thedocs.worldbank.org/en/doc/743272c1bb73c6a91e97ecfcdab2d58-0340012023/original/Case-Study-Rwanda-SLB.pdf>

21. OECD, March 2024, Sustainability-Linked Bonds: How to Make Them Work in Developing Countries, and How Donors Can Help. <https://www.oecd.org/dac/sustainability-linked-bonds.pdf>
22. IDB, 2024, Latin America and the Caribbean Facility for Greening Public Development Banks and the Financial Sector. <https://www.iadb.org/en/whats-our-impact/RG-O1720>; <https://www.iadb.org/document.cfm?id=EZIDB0001420-1346114223-15>
23. Environmental Finance, Sustainability-linked bonds and loans – Key Performance Indicators (KPIs). <https://www.environmental-finance.com/assets/files/research/sustainability-linked-bonds-and-loans-kpis.pdf>
24. Issuer can include several KPIs and targets in SLB frameworks with a selection used in each bond.
25. ICMA, June 2023, Illustrative KPIs Registry. <https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Illustrative-KPIs-Registry-June-2023-220623.xlsx>
26. ICMA, June 2023, Illustrative KPIs Registry. <https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Illustrative-KPIs-Registry-June-2023-220623.xlsx>
27. Incomplete scope coverage and unambitious targets could also apply to KPIs related to other themes.
28. As a holistic metric, ESG ratings/scores could not be mapped to any specific theme – product governance seemed the most appropriate (see appendix).
29. ICMA, June 2023, Illustrative KPIs Registry. <https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Illustrative-KPIs-Registry-June-2023-220623.xlsx>
30. Anthropocene Fixed Income Institute, Erlandsson, U., Richardson, J., May 2023, Greenback SLBs: an impact standardisation proposal. <https://anthropocenefii.org/slb/greenback-slbs-an-impact-standardisation-proposal>
31. Higher step-up amounts, longer duration of step-ups / number of coupons post-trigger, and lower likelihood of meeting targets should all result in greater premiums (all else equal).
32. Anthropocene Fixed Income Institute, Erlandsson, U., et al., October 2022, Notes on risk-neutral pricing of SLBs and step-down structures. <https://anthropocenefii.org/slb/notes-on-risk-neutral-pricing-of-slbs-and-step-down-structures>
33. ELFA and ICMA, May 2023, High Yield Sustainability-Linked Bonds – Practical Recommendations. <https://www.icmagroup.org/assets/documents/Sustainable-finance/ELFA-and-ICMA-Practical-Recommendations-for-High-Yield-Sustainability-Linked-Bonds-May-2023-220523.pdf>
34. Anthropocene Fixed Income Institute, Korangi, K., Erlandsson, U., 2023, SLBs: no call(jamity). <https://anthropocenefii.org/slb/slbs-no-calljamity>
35. Climate Bonds Initiative, June 2023, Sustainability-Linked Bond Database Methodology. https://www.climatebonds.net/files/files/CBI_Method_SLBD.pdf
36. Climate Bonds Initiative, SLB Case Studies. <https://www.climatebonds.net/market/slb-case-studies>
37. This caveat only significantly affects the 'not in line with pathway' reason (including 'partially not in line'), which is not only the final requirement (i.e., sits at the bottom of the funnel) but a relatively frequent feature of SLBs. Climate Bonds is currently looking to enhance data collection in the SLBDB to assess each requirement for all screened bonds, which would enable more accurate analysis of this in the future.
38. Partial emission scope coverage is even slightly higher in reality due to the funnel approach described.
39. Related to this, 14 of the 15 SLBs that are partially not in line with the relevant pathway have their scope 1 and 2 targets in line but not scope 3.
40. Compared to other reasons, lacking GHG targets is less a 'fault' of issuers than a current limitation of the SLBDB Methodology, which currently only screens bonds from the perspective of climate mitigation. On the other hand, climate impacts are material for virtually all companies, so while Climate Bonds may not advocate that every SLB should have climate mitigation KPIs/targets, all issuers should have at least one outstanding SLB containing this.

41. Total number of issuers is lower than adding individual issuer counts as some repeat issuers have with different alignment levels.
42. Unlike target dates, baselines are almost always fixed for each KPI (from a given issuer).
43. For example, Climate Bonds does not consider offsets a valid decarbonisation lever/reason. M&A (including divestments) of assets with different impact profiles also leads to inorganic changes in performance – these were adjusted for in the analysis insofar as their quantitative effects are reported by issuers, which is often missing.
44. Responsible Investor, February 2023, SLB issuers 'likely to miss majority of 2022 and 2023 targets'. <https://www.responsible-investor.com/slb-issuers-likely-to-miss-majority-of-2022-and-2023-targets/>
45. SEB Climate & Sustainable Finance Research, September 2023, The Green Bond: your insight into sustainable finance. https://webapp.sebgroup.com/mb/mblib/nsf/alldocsbyunid/A72C69B7FAA199DFC1258A230040C000/SFILE/TheGreenBond_20230907.pdf
46. Enel is the main reason for the small issuer count but high amount and bonds among the 'all KPIs off track' group.
47. Issuers could theoretically choose to use this opportunity to increase the level of ambition, although this would change the likelihood of achieving targets which would have implications for bondholders and secondary market pricing.
48. ICMA, June 2023, Sustainability-linked Bond Principles. <https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Sustainability-Linked-Bond-Principles-June-2023-220623.pdf>
49. Climate Bonds Initiative, April 2023, Climate Bonds Standard V4.0. https://www.climatebonds.net/files/files/CBI_Standard_V4.pdf
50. Climate Bonds Initiative, Transition Finance for Transforming Companies. <https://www.climatebonds.net/transition-finance-transforming-companies>
51. Climate Bonds Initiative, November 2023, Financing the Corporate Climate Transition with bonds. https://www.climatebonds.net/files/reports/cbi_ebrd_gcf_corptranse_23_02g_a.pdf
52. Climate Bonds Initiative, December 2022, Scaling Credible Transition Finance – ASEAN. https://www.climatebonds.net/files/reports/cbi_asean_scalable_22_03b_0.pdf
53. Over time, more specific assessments for individual entities (e.g., implied temperature rise – ITR) are likely to emerge and can potentially be applied to entity-specific target setting.
54. ICMA, February 2024, Transition Finance in the Debt Capital Market. <https://www.icmagroup.org/assets/Transition-Finance-in-the-Debt-Capital-Market-paper-ICMA-14022024.pdf>
55. Climate Bonds Initiative, Transition Finance Consensus Mapping. <https://www.climatebonds.net/transition-finance/mapping>
56. It is also possible that some information was missed, especially when the disclosure is unclear or spread out over several long reports. It is not uncommon for reports to lack clarity and for information to be found where it is not expected.
57. However, these factors can increase the probability and extent of information retrieval, which can lead to a better score.
58. Most SLB issuers in the sample achieved high scores (A or A-) in CDP's latest climate questionnaire, the most common score being A which represented 40% of issuance. This contrasts heavily with CDP's overall climate scores, which are skewed towards the lower and N/A scores; almost half of companies (4,749 out of 10,994) scored F. At the opposite end, issuers with a poor CDP score (F or Not scored) or that did not disclose through CDP (N/A) were much more likely to have weak SLB disclosure (N/A performance due to lack of baseline/target/KPI).
59. CDP scores mapped to numbers to enable assessment of correlation (1-9, with 9, i.e., A, being the highest).
60. Latin America is also the only region to have increased issuance volumes in 2023 versus 2022. This will be explored in more detail in Climate Bonds' annual Global State of the Market report (planned release in April).
61. Orbia, 2023, 2022 Impact Report. <https://sustainability.orbia.com/>
62. Holcim, 2023, Sustainability performance report 2022. <https://www.holcim.com/sites/holcim/files/2023-02/24022023-sustainability-holcim-ly-2022-report-en-3114693266.pdf>

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81. Climate Bonds assesses the ambition of SLB targets to determine alignment under the SLBDB Methodology. An assessment of entity-level targets will be included under Climate Bonds' planned Transition Plan Monitor.



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