

This S&P Global Ratings Second Party Opinion (SPO) represents our opinion on whether the documentation of a sustainable finance framework or program and whether the documentation of a sustainable finance transaction aligns with certain third-party published sustainable finance principles, guidelines, and standards ("Principles"). For more details please refer to the Analytical Approach and Analytical Supplement, available at [spglobal.com](https://www.spglobal.com) under [Sustainable Financing Opinions](#). An SPO provides a point-in-time opinion, reflecting the information provided to us at the time the SPO was created and published, and is not surveilled. We assume no obligation to update or supplement the SPO to reflect any facts or circumstances that may come to our attention in the future. An SPO is not a credit rating, and does not consider credit quality or factor into our credit ratings.

Second Party Opinion

Knorr-Bremse's Sustainability-Linked Bond Framework

Aug. 11, 2023

Knorr-Bremse is the world's leading manufacturer of braking systems and a supplier of additional subsystems for rail and commercial vehicles. The Munich-based group operates across two segments: Rail vehicle systems (49% of total revenue), which offers braking systems, heating, ventilation, air conditioning systems, auxiliary power systems, control components, and technology for mass transit vehicles (for example, metro cars and freight trains); and commercial vehicle systems (51%), which offers braking systems, electronic controls, and driver assistance systems for trucks, buses, and trailers.

In our view, Knorr-Bremse's Sustainability-Linked Bond Framework, published on Aug. 11, 2023, is aligned with:

- ✓ Sustainability-Linked Bond Principles, ICMA, 2023
- ✓ Sustainability-Linked Loan Principles, LMA/LSTA/APLMA, 2023

Issuer's Sustainability Objectives

The company, as a provider of systems and solutions for rail transportation and commercial vehicles, aims to make mobility more reliable, safe, and efficient, facilitating the transition toward a low-carbon and more sustainable economy.

Knorr-Bremse cites two specific goals in this context: climate protection and reduced carbon emissions. Through its Climate Strategy 2030, the company aims to contribute to the 2015 U.N. Paris Agreement's goals in limiting global warming. In addition, through its EcoDesign approach, Knorr-Bremse contributes to introducing sustainability across the life cycle of its products.

The group has developed the sustainability-linked bond framework to align its financing and sustainability strategy.

Primary Analyst

Rafael Heim
Paris
+33 634 39 72 53
Rafael.Heim
@spglobal.com

Secondary Analyst

Luisina Berberian
Madrid
+ 34 91 788 7200
Luisina.Berberian
@spglobal.com

Francesca Pisaroni
Milan
+39 347 24 27 60 6
Francesca.Pisaroni
@spglobal.com

Research Contributor

Prashant Singh
Mumbai

Selected Key Performance Indicators (KPIs) And Sustainability Performance Targets (SPTs)

KPI	SPT	Baseline	2022 performance
Scope 1 and 2 greenhouse gas (GHG) emissions (market-based) in absolute thousand metric tons	Reduction of scope 1 and 2 GHG emissions (KPI 1) by 75% by 2030 versus the 2018 baseline	167.49 kilotons of carbon dioxide-equivalent (ktCO ₂ e; year-end 2018)	58 ktCO ₂ e
Key scope 3 GHG emissions in absolute thousand metric tons	Reduction of key scope 3 GHG emissions (KPI 2) by 25% by 2030 versus the 2021 baseline	29,782 ktCO ₂ e (year-end 2021)	28,287 ktCO ₂ e

Second Party Opinion Summary

Selection of key performance indicators (KPIs)

Alignment	 Knorr Bremse's Sustainability-Linked Bond Framework is aligned with this component of the Sustainability-Linked Bond and Loan Principles.				
KPI 1	Scope 1 and 2 GHG emissions (market-based) in absolute thousand metric tons	Not aligned	Aligned	Strong	Advanced
KPI 2	Scope 3 GHG emissions in absolute thousand metric tons (upstream and downstream)	Not aligned	Aligned	Strong	Advanced

Calibration of sustainability performance targets (SPTs)

Alignment	 Knorr Bremse's Sustainability-Linked Bond Framework is aligned with this component of the Sustainability-Linked Bond and Loan Principles.				
SPT 1	Reduction of scope 1 and 2 GHG emissions by 75% to 41,872 tCO ₂ e by 2030 from the 2018 baseline	Not aligned	Aligned	Strong	Advanced
SPT 2	Reduction of scope 3 GHG emissions by 25% to 22,336 ktCO ₂ e by 2030 from the 2021 baseline	Not aligned	Aligned	Strong	Advanced

Instrument characteristics

Alignment  Knorr Bremse's Sustainability-Linked Bond Framework is aligned with this component of the Sustainability-Linked Bond and Loan Principles.

If Knorr-Bremse does not achieve the SPTs by the target observation date or fails to report on the applicable KPI of the respective sustainability-linked financing Instrument, a so-called trigger event will occur, resulting in a change in the instrument's financial characteristics. In that case, any instrument the company issues under this framework will be subject to coupon step-up(s), coupon step-down(s), or a higher or a lower redemption price payable.

Reporting

Alignment  Knorr Bremse's Sustainability-Linked Bond Framework is aligned with this component of the Sustainability-Linked Bond and Loan Principles.

Score Not aligned Aligned Strong **Advanced**

Knorr-Bremse commits to publish annually the absolute performance of each relevant KPI, any recalculations, and the measures it is taking to progress toward its SPT, within the nonfinancial section of its annual report (or similar). The reporting will also disclose information on material potential changes to the corporate and sustainability strategy, changes in calculation methodologies, and changes in the relevant governance. Moreover, the company will illustrate the KPIs' progression toward the SPTs and whether these have achieved a positive sustainable impact.

Post-issuance review

Alignment



Knorr Bremse's Sustainability-Linked Bond Framework is aligned with this component of the Sustainability-Linked Bond and Loan Principles.

Knorr-Bremse commits to annual independent and external verification to verify its performance against the KPIs, and whether the relevant SPTs have been achieved. The issuer will integrate this in its annual report, which is publicly available.

Framework Assessment

Selection of key performance indicators (KPIs)

The Principles make optional recommendations for stronger structuring practices, which inform our relevancy opinion as aligned, strong, or advanced. For each KPI, we consider how relevant the KPI is for sustainability by exploring the clarity and characteristics of the defined KPI; its significance for the issuer’s sustainability disclosures; and how material it is to the issuer’s industry and strategy.

 Knorr Bremse’s Sustainability-Linked Bond Framework is aligned with this component of the Sustainability-Linked Bond and Loan Principles.

KPI 1	Scope 1 and 2 GHG emissions (market-based) in absolute thousand metric tons	Not aligned	Aligned	Strong	Advanced
--------------	---	-------------	----------------	--------	----------

We consider the selected KPI aligned with the principles given that the scope, objective, and calculation methodology are clearly articulated in the framework. The KPI, aimed at an absolute reduction in scope 1 and 2 emissions from the company’s operations, contributes to the global effort to address climate change, which is a topic we consider material for the capital goods and auto sector.

We view favorably that the selected KPI is directly linked to the issuer’s sustainability strategy and the group’s overarching goal of reducing emissions in line with the 2015 U.N. Paris Agreement. It is one of the most frequently used KPIs in the market, allowing for external benchmarking. Furthermore, the KPI has been calculated in line with the GHG protocol, the most widely used international standard.

Scope 1 emissions result from Knorr-Bremse’s own emissions sources, while indirect scope 2 emissions stem from the generation of purchased electricity, taking a market-based approach. In our view, with market-based accounting, a reduction in a company’s scope 2 emissions may not necessarily indicate improvements in national or global emissions, however. This is because the market-based approach allows companies to report emissions based on contracted agreements with energy suppliers for any procured renewable energy. Nevertheless, we note that taking this approach is in line with market practice.

We view favorably that the KPI is expressed as a sustainability outcome rather than a financial proxy and covers 97% of Knorr-Bremse employees. Reducing scope 1 and 2 emissions is necessary for the company to achieve its sustainability objectives; however, this KPI represents less than 1% of total emissions, with scope 3 emissions accounting for 99%, in line with the industry. The issuer does not commit to combining KPIs 1 and 2 for all financing instruments issued under the framework, so we view KPI 1 as weaker than KPI 2.

KPI 2	Scope 3 GHG emissions in absolute thousand metric tons (upstream and downstream)	Not aligned	Aligned	Strong	Advanced
--------------	--	-------------	---------	--------	-----------------

We consider the second KPI selected by Knorr-Bremse advanced, considering the scope, objective, and calculation, which are clearly articulated; and given that the KPI addresses a highly relevant matter for the sector, which is also embedded in the company’s sustainability strategy.

In line with the GHG Protocol, the group’s scope 3 emissions are to be measured for all Knorr-Bremse’s value chain. Knorr-Bremse only started to measure scope 3 emissions in 2021, so there

Second Party Opinion

is a lack of comprehensive historical data on this KPI, which we view as a limitation. However, we believe this KPI will allow the company to measure its progress toward its strategic goal of reducing its environmental footprint. Scope 3 emissions accounted for more than 99% of the group's total GHG emissions in the past two years, making it a highly material indicator to address. The emissions mainly relate to the GHG Protocol categories of purchased goods and services (3.1), upstream transportation and distribution (3.4), and use of sold products (3.11). These account for roughly 6%, 1%, and 93% respectively. We view favorably that in particular category 11--the use of sold products--is included in the KPI's scope, because it represents the most material category for the capital goods and transport equipment manufacturers (OEM) sector as per the 2022 CDP technical note on the relevance of the scope 3 categories across sectors. The issuer measures its use of sold products emissions using a model that estimates emissions profiles for 19 different product groups. We note that roughly 80% of such emissions are tied to its commercial vehicles systems (CVS) segment, while the rest is attributed to rail vehicle systems (RVS). While the use of primary data would be unpractical for this KPI, we note the model's assumptions are not fully disclosed, which we would consider as more advanced practice, although not standard in the market. Indeed, such assumptions could potentially be restated, thus limiting investors' ability to evaluate performance consistently. Nonetheless, we view favorably that the company received limited assurance external verification on this KPI for the first time in 2022.

Calibration of sustainability performance targets (SPTs)

The Principles make optional recommendations for stronger structuring practices, which inform our ambition opinion as aligned, strong, or advanced. We consider the level of ambition for each target by assessing its clarity and characteristics, how the issuer defines the target with reference either to its past performance, or to external or competitor benchmarks, and how it explains what factors could influence performance.

 Knorr Bremse's Sustainability-Linked Bond Framework is aligned with this component of the Sustainability-Linked Bond and Loan Principles.

SPT 1 Reduction of scope 1 and 2 GHG emissions (KPI 1) by 75% by 2030 versus the 2018 baseline

Not aligned

Aligned

Strong

Advanced

We consider the ambition, clarity, and characteristics of SPT 1 aligned with the principles' requirements. Specifically, the framework outlines the strategy to reach the target and presents relevant information on future projects. The framework clearly mentions the expected observation date and trigger events. Specifically, a 75% reduction of absolute scope 1 and 2 GHG emissions will be observed by Dec. 31, 2030. Furthermore, the issuer commits to providing annual SPTs (if required) in the context of loan transactions.

We view positively that the issuer conducted a benchmarking exercise with peers in the auto parts and industrial sector, which shows the target to be more ambitious than most of its competitors. With respect to historical performance, the quantitative trajectory of reaching the target is lower than the issuer's past performance, reducing the target's ambition, in our view. Knorr-Bremse achieved 65% of the reduction in scope 1 and 2 emissions by 2022 with respect to the 2018 baseline of SPT 1. The company links this to its efforts on improving energy efficiency, fuel switching, the own generation of renewable energy and, specifically, the purchasing of renewable energy certificates.

Second Party Opinion

Therefore, most of its remaining scope 1 and 2 emission are from scope 1, which are difficult to reduce further, according to the company. To achieve the stated target, the company needs to reduce emissions by an additional net 10% compared with the baseline. We note that the group's growth expectations by 2030, and the target being set in absolute terms, require Knorr-Bremse to effectively decouple the production increases from its GHG emissions. The company aims to adopt a variety of measures, including further improving energy efficiency, generating onsite electricity (specifically photovoltaic), fuel switching, the inclusion of incentive schemes, and the implementation of an internal carbon price for capital allocation decisions.

With respect to reducing scope 2 emissions, Knorr-Bremse relies heavily on energy attributed certificates (EACs), which we view less favorably compared to other measures such as on-site generation because they may not lead to additional renewable energy production. However, where feasible, the company aims to implement high quality standards for EACs, such as the year of consumption and origin being the same, a preference for the generation of energy from wind and solar power, and the maximum age of electricity plants being five years.

In June 2023, the Science-Based Targets initiative (SBTi) validated the target for scope 1 and 2 GHG emission as being in line with the 1.5 degrees Celsius(C) scenario, which we view favorably. According to the SBTi, as of July 2023, of the 94 companies in Knorr-Bremse's sector that have a public commitment to set science-based targets, only 48 obtained validations; and 39 (including Knorr-Bremse) have targets in line with the near-term 1.5 C scenario for combined scope 1, 2, and 3 emissions.

SPT 2 Reduction of scope 3 GHG emissions (KPI 2) by 25% to 22,336 ktCO₂e by 2030 from the 2021 baseline

Not aligned

Aligned

Strong

Advanced

We consider the SPT 2's ambition, clarity, and characteristics aligned with the requirements of the principles, given that the issuer clearly outlines the timeline for achieving the target (expressed in absolute values), the target observation date, trigger events, and the strategy to reach the target.

The SBTi validated the scope 3 GHG target in June 2023 as being in line with the well-below 2.0 C scenario. Moreover, Knorr-Bremse has performed a peer benchmarking exercise to calibrate the SPT, which indicates that the target is more ambitious than those of the company's peer group. In addition, the SPT is benchmarked against Knorr-Bremse's past performance, which shows it decreased its scope 3 emissions by 5% in 2022 compared with 2021 data. In this regard, the company needs to achieve a 21% reduction by 2030 from 2022 levels to meet its target (approximately a 2.9% annual reduction). This demonstrates an improvement compared to a business-as-usual trajectory, which strengthens the target's ambition, in our view. Nevertheless, the group cannot provide three years of historical performance, which limits our assessment of the target.

The framework includes some information on the strategy to achieve the target, which primarily focuses on providing energy-efficient products to the market, increasing resource efficiency throughout the value chain, fostering the circular economy, and optimizing logistics management through its value chain.

Instrument characteristics

The Principles require disclosure of the type of financial and/or structural impact involving trigger event(s), as well as the potential variation of the instrument's financial or structural characteristics.

 Knorr Bremse's Sustainability-Linked Bond Framework is aligned with this component of the Sustainability-Linked Bond and Loan Principles.

The issuer commits to include within the final terms and conditions of each sustainability-linked instrument a description of the trigger event that will take place if the company fails to meet one or more SPTs on the relevant observation dates, or it fails to publicly report information on the performance against the targets for each KPI.

Following a trigger event, the financial characteristics of the relevant sustainability-linked instrument will change. This could occur through, for example, a revision of the interest rate, either up or down. It could also occur through the payment of a higher or lower amount upon redemption of the sustainability-linked instrument. These variations could also become effective upon the avoidance of a trigger event. The possible changes occurring upon a trigger event will be specified within the terms and conditions of each bond/loan issued.

The framework includes target observation dates linked to both KPIs (Dec. 31, 2030). In addition, the issuer commits to have annual targets (if applicable) based on the expected SPT trajectories linked to any loans issued under the framework, in line with the sustainability-linked loan principles' requirements.

The framework includes the possibility to issue convertible bonds, which in case of an earlier conversion to equity than the end of the SPT timeline, could compromise the ability to effect changes to the instrument's financial or structural characteristics at the observation date. However, we would expect additional information on the potential conversion to be addressed in any subsequent issuance.

Reporting

The Principles make optional recommendations for stronger disclosure practices, which inform our disclosure opinion as aligned, strong, or advanced. We consider plans for updates on the issuer's sustainability performance for general purpose funding, or the financed project's sustainability performance over the lifetime of any dedicated funding, including any commitments to post-issuance reporting.

 Knorr Bremse's Sustainability-Linked Bond Framework is aligned with this component of the Sustainability-Linked Bond and Loan Principles.

Disclosure score

Not aligned

Aligned

Strong

Advanced

We consider Knorr-Bremse's overall reporting practices advanced.

The group commits to disclose the performance of the relevant KPI against the respective SPTs, the SPTs' achievement, and any relevant information for the assessment of the KPIs' performance, including the application of any recalculation procedure where applicable and the issuer's measures for progressing the KPI toward its respective SPT annually on its nonfinancial section of the annual report (or similar). Furthermore, the company will disclose information on the sustainability-linked impact and its timing on the instrument's economic characteristics. We view positively that, if deemed relevant, the issuer will provide information on the drivers that could affect KPI performance in the annual report's nonfinancial section.

Knorr-Bremse commits to make the external verification report (limited assurance) that covers the performance of the stated KPI publicly available.

Second Party Opinion

We view positively that the issuer will also disclose the information regarding potential material changes to its corporate and sustainability strategy, as well as show the positive sustainable impact achieved by the KPIs progressing toward the SPTs.

Post-issuance review

The Principles require post-issuance review commitments including the type of post-issuance third-party verification, periodicity and how this will be made available to key stakeholders. Our opinion describes whether the documentation is aligned with these requirements. Our second party opinion is not itself a post-issuance review.

 Knorr Bremse's Sustainability-Linked Bond Framework is aligned with this component of the Sustainability-Linked Bond and Loan Principles.

Knorr-Bremse commits to have the performance against all SPTs verified annually through the verification of the annual report's nonfinancial part. The issuer commits to make the assurance statement readily available to investors. In this regard, an external independent auditor will verify the group's annual report annually, including the performance against the SPTs for each KPI in the framework, on a limited assurance basis.

The assurance statement included within the annual report will describe the level and type of verification, a description of the procedures conducted, a description of the subject matter of verification and the criteria used, and a confirmation of the auditor's independence and conformance with quality management systems.

Mapping To The U.N.'s Sustainable Development Goals

The SDGs, which the U.N. set up in 2015, form an agenda for achieving sustainable development by 2030.

Knorr-Bremse's sustainability-linked bond framework intends to contribute to the following SDGs:

KPI	SDGs
Scope 1 and 2 GHG emissions (market-based) in absolute thousand metric tons	 13. Climate action*
Scope 3 GHG emissions in absolute thousand metric tons (upstream as well as downstream)	 13. Climate action*

* The KPI is likely to contribute to the SDGs.

Second Party Opinion

Standard & Poor's Financial Services LLC or its affiliates (collectively, S&P) receives compensation for the provision of the Sustainable Financing Opinions product (Product). S&P may also receive compensation for rating the transactions covered by the Product or for rating the issuer of the transactions covered by the Product. The purchaser of the Product may be the issuer.

The Product is not a credit rating, and does not consider credit quality or factor into our credit ratings. The Product does not consider, state or imply the likelihood of completion of any projects covered by a given financing, or the completion of a proposed financing. The Product encompasses Second Party Opinions and Transaction Evaluations. Second Party Opinions consider features of a financing transaction and/or financing framework and provide an opinion regarding alignment with certain third-party published sustainable finance principles and guidelines ("Principles"). For a list of the Principles addressed by our Second Party Opinions, see the Analytical Approach and Analytical Supplement, available at www.spglobal.com. Transaction Evaluations provide an opinion which reflects our assessment of the potential relative environmental benefit of the funded or resilience projects. The Product is a statement of opinion and is neither a verification nor a certification. The Product is a point in time evaluation reflecting the information provided to us at the time that the Product was created and published, and is not surveilled. The Product is not a research report and is not intended as such.

S&P's credit ratings, opinions, analyses, rating acknowledgment decisions, any views reflected in the Product and the output of the Product are not investment advice, recommendations regarding credit decisions, recommendations to purchase, hold, or sell any securities or to make any investment decisions, an offer to buy or sell or the solicitation of an offer to buy or sell any security, endorsements of the suitability of any security, endorsements of the accuracy of any data or conclusions provided in the Product, or independent verification of any information relied upon in the credit rating process. The Product and any associated presentations do not take into account any user's financial objectives, financial situation, needs or means, and should not be relied upon by users for making any investment decisions. The output of the Product is not a substitute for a user's independent judgment and expertise. The output of the Product is not professional financial, tax or legal advice, and users should obtain independent, professional advice as it is determined necessary by users.

While S&P has obtained information from sources it believes to be reliable, S&P does not perform an audit and undertakes no duty of due diligence or independent verification of any information it receives.

S&P and any third-party providers, as well as their directors, officers, shareholders, employees or agents (collectively S&P Parties) do not guarantee the accuracy, completeness, timeliness or availability of the Product. S&P Parties are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, for reliance of use of information in the Product, or for the security or maintenance of any information transmitted via the Internet, or for the accuracy of the information in the Product. The Product is provided on an "AS IS" basis. S&P PARTIES MAKE NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDED BUT NOT LIMITED TO, THE ACCURACY, RESULTS, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE WITH RESPECT TO THE PRODUCT, OR FOR THE SECURITY OF THE WEBSITE FROM WHICH THE PRODUCT IS ACCESSED. S&P Parties have no responsibility to maintain or update the Product or to supply any corrections, updates or releases in connection therewith. S&P Parties have no liability for the accuracy, timeliness, reliability, performance, continued availability, completeness or delays, omissions, or interruptions in the delivery of the Product.

To the extent permitted by law, in no event shall the S&P Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs or losses caused by negligence, loss of data, cost of substitute materials, cost of capital, or claims of any third party) in connection with any use of the Product even if advised of the possibility of such damages.

S&P maintains a separation between commercial and analytic activities. S&P keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P may have information that is not available to other S&P business units. S&P has established policies and procedures to maintain the confidentiality of certain nonpublic information received in connection with each analytical process.

For PRC only: Any "Sustainable Financing Opinions" or "assessment" assigned by S&P Global Ratings: (a) does not constitute a credit rating, rating, sustainable financing framework verification, certification or evaluation as required under any relevant PRC laws or regulations, and (b) is not intended for use within the PRC for any purpose which is not permitted under relevant PRC laws or regulations. For the purpose of this section, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.

Copyright © 2023 by Standard & Poor's Financial Services LLC. All rights reserved.