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Do sustainability-linked bonds affect issuer companies' sustainability performance?

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Introduction

Sustainability-linked bonds (SLBs) answer to the growing interest of financial institutions and retail investors in accounting for sustainability concerns through financial instruments. Increasingly, both private and government sector actors have turned to financial markets to finance sustainable efforts. Thus, sustainable finance has become a key trend in the debt finance market in recent years. The first Green bond, the predecessor of SLBs, was issued in 2007 by the European Investment bank with proceeds dedicated to renewable energy and energy efficiency projects. However, it was in 2019 and 2020 that debtors started massively issuing Green, Social and Sustainable (GSS) bonds.

At the same time, the structure of GSS bonds has continued to evolve with the inaugural issuance of sustainability-linked bonds in 2019. Sometimes also called Key Performance Indicator (KPI) bonds, the success of SLBs lie in their lenient covenants. Contrarily to GSS bonds, sustainability-linked bonds', proceeds are not tied to a specific project, but rather to a broader sustainability goal. Thus, they provide issuers and investors an interesting and more flexible alternative for future financing. However, sustainability-linked bonds have also proved to be a disruptive green innovation in finance. Indeed, green washing forms a potentially dangerous principal-agent problem for Sustainability-linked bonds as their flexibility may lead to asymmetric information between the issuer company and its investors. Unlike GSS bonds, investors have no insights into where the proceeds of the SLBs go towards, issuer companies can take advantage of this, and without external control, use the proceeds for goals not related to sustainability. To prevent this, second-party opinions track and evaluate the reliability of SLBs based on characteristics such as the strength of the KPIs or the ambitiousness of the Sustainability Performance Targets (SPTs).

In light of this controversy, we wonder if the issuer company's performance in terms of sustainability is affected by the issuance of SLBs. Thus, through this report we investigate if there is a connection between SLBs' quality and a number of company-specific sustainability performance indicators. More specifically, we focus on three performance indicators and answer the following research question:

Are Sustainability-linked bonds' quality correlated to the issuer company's ESG rating, implied temperature rise, or carbon emissions?

Before answering this research question, we will define the key characteristics of sustainability-linked bonds as well as the performance indicators we investigate. We then outline the methodology used for our research as well as its limitations. Next, we present and discuss our findings, and finally conclude on the relationship of SLB quality with each of the sustainability performance indicators.

Definitions

Sustainability-linked bonds or Key Performance Indicator bonds are bonds for which the proceeds do not go to a specific project (or are used in a pre-defined way), unlike GSS bonds. Instead, they are linked to the issuer's performance on a pre-defined sustainability indicator through a Sustainability Performance Target (SPT). SLBs are linked to this indicator over a certain period of time through their coupon rate. This means that if the SPT is not met within this period, there is a "coupon step-up" - an increase in the coupon rate. This acts as an incentive for the issuer to meet their sustainability goals and assures investors that their investment will go towards reaching sustainable goals by attaching a "collateral" to the bond. To define whether the SPT has been met within the time frame, and thus if a coupon step-up is necessary, the SPT should be measurable and verifiable by external parties. The most common KPIs are reduction of carbon or greenhouse gas emissions, but in our sample SLBs' KPIs also include decreasing food waste, increasing renewable energy use, or reaching 0 operational waste to landfills. Nevertheless, we expect an increasingly broad range of KPIs in the future as companies' focus more on reaching social and sustainable goals such as diversity and inclusion.

Generally, the issuer commits to provide reports carried out by external parties, such as environmental consultants or auditors, on an annual basis. This ensures the tracking of performance with respect to the relevant KPIs. If the issuer does not meet its SPTs, there is a coupon step-up for the remaining maturity of the bond. All the aspects and characteristics of SLBs we have described are regulated by the Sustainability-Linked Bond Principles, published by the International Capital Market Association (ICMA, 2020). These principles outline (1) the selection of KPIs, (2) the calibration of the SPTs, (3) the financial and/or structural impact tied to the KPI target, (4) reporting, and (5) external verification. Finally, we would like to note that the coupon step-up rate mechanism is a potential moral hazard for investors. Indeed, it could be argued that investors will purposefully invest in SLBs for which it is not likely the issuer company will reach its SPTs in the hopes of an increased coupon rate. This would defeat the entire purpose of SLBs.

In what follows, we define the three performance indicators mentioned in our research question: ESG risk rating, implied temperature rise, and carbon emissions.

In this report we use the Morgan Stanley Capital International (MSCI) ESG ranking to assess the ESG score of the issuer companies of the Sustainability-linked bonds analyzed. The ESG score is determined by considering 35 key ESG issues, focusing on the intersection between a company's core business and the industry issues that can create significant risks and opportunities for the company. The ranking ranges from industry laggards to industry leaders passing through industry average. Table 1 denotes the ESG ranking system as used by MSCI. ESG scores are designed to quantify economic, social and governance risks and integrate them in portfolio decisions.

Table 1: Letter rating according to the final industry adjusted company score.

Letter Rating	Leader/Laggard	Final Industry-Adjusted Company Score
AAA	Leader	8.571 - 10.0
AA	Leader	7.143 – 8.571
A	Average	5.714 – 7.143
BBB	Average	4.286 – 5.714
BB	Average	2.857 – 4.286
B	Laggard	1.429 – 2.857
CCC	Laggard	0.0 – 1.429

Next, we analyse the implied temperature rise as measured by MSCI. The implied temperature rise measure allows investors to align their financial decisions with the global goal of keeping temperature rise by 2050 to below 2 degrees Celsius – in line with the Paris Agreement. Implied temperature rise compares a company's current and projected greenhouse gas emission to its share of the remaining global carbon budget. The remaining global carbon budget is estimated assuming that global warming this century stays below 2°C. A company projected to emit carbon within its budget is said to "undershoot", while a company projected to emit above its budget is said to "overshoot". These two categories are then converted into the implied rise in average global temperatures. To illustrate, an implied temperature rise of 1.75°C indicates that the company is within its carbon budget. The table below shows the MSCI categories of implied temperature rise.

Table 2: Alignment with global temperature targets according to a company's implied temperature rise.

Alignment with global temperature targets	Implied temperature rise
2°C aligned	< 2°C
Misaligned	Between 2°C and 3.85°C
Lagging	> 3.85°C

Our remaining performance indicators are tied to carbon emissions. We first consider absolute carbon emissions of the company by 2050, as predicted by MSCI. These are calculated using a company's historical indicators and whatever carbon targets they have released – and considers scope 1, 2, and 3 emissions. Our second carbon emission related performance indicator considers a company's relative carbon emissions. We take the projected carbon emissions of a company relative to other companies' projected carbon emissions in the industry. In this way, it ranks industries' companies into ESG laggards, ESG average and leaders, in terms of their carbon footprint.

Methodology

To source all our second opinion reports we used a singular rating agency: Sustainalytics. This was done to increase the comparability and internal coherence of our bond ratings – as many rating agencies use their own formats, prioritize various aspects, and follow individual methodologies. Sustainalytics was chosen as it was one of the most prolific rating agencies for sustainability linked bonds, having written a large part of the reports available on SLBs. In addition, Sustainalytics is considered one of the highest quality rating agencies in the eyes of investors and experts, according to Rate the Raters 2020 (Sustainability ERM Group, 2020).

We used these second opinion reports to create a bond rating for each SLB. Sustainalytics gives an opinion on the quality of the sustainability linked bond according to three factors: reporting standards, ambitiousness of SPTs, and strength of KPIs. As all sustainability linked bonds analyzed were classified as having reporting standards aligned with market expectations (and thus all fulfilled the same level of reporting standard), we did not further consider this metric in our ratings. The two remaining insights related to quality outlined in their report (ambitiousness of SPTs and strength of KPIs) were included in the creation of our bond rating. The table below outlines the various rankings Sustainalytics identified for both these metrics and how we quantified them.

Table 3: Quantifier for Strength of KPI and Ambitiousness of SPTs.

Strength of KPI	Ambitiousness of SPT	Quantifier
Very Strong	Highly Ambitious	4
Strong	Ambitious	3
Adequate	Moderately Ambitious	2
Not Aligned	Not Aligned	1

The scores to rate the bonds according to insights provided by Sustainalytics averaged the quantifier score for ambitiousness of SPT and Strength of KPI. Furthermore, some SLBs had more than one SPT. To account for the added SDG value of the inclusion of multiple SPTs, we added 0.5 points per additional SPT. For example, if a SLB had 2 targets, and both were rated as having very strong KPIs and highly ambitious SPTs, their score would be calculated as follows: (4+4)/2 + 0.5. A table with the ratings per company bond can be found in the appendix.

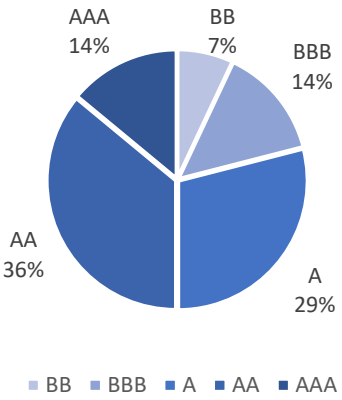
To evaluate how correlated these bond ratings were with other indexes of sustainability, we cross-referenced them against key indicants from another rating agency. For this, MSCI was chosen as they are another high quality rating agency identified by Rate the Raters 2020, and had a variety of sustainability indexes we could analyze, namely: ESG rating, implied temperature rise, and carbon emission evaluations.

Findings

This report counts 14 sustainability-linked bonds (N = 14) issued by different companies in the world, including SLBs issued by H&M, KPN or Ahold Delhaize. Within these Sustainability-Linked Bonds, 14% were rated AAA, 36% AA, 29%A, 7% BB, and 14% BBB, as represented in figure 1.

As stated previously, the aim of this report is to explore the correlation between the issuer company's ESG rating, implied temperature rise, or carbon emissions and the quality of the Sustainability-Linked bond. To do so, several bar charts and scatter plots were made to find plausible correlations between the bond score and our variable of interest. We decided to divide our findings in three parts. First, we looked at the correlation with the ESG ranking. Second, the correlation with the implied temperature rise. Third, the correlation with the carbon emission relative to the industry. Finally, the correlation with the absolute carbon emission.

Figure 1: Distribution of SLB according to their ESG ranking score.



Bond Score and ESG Ranking

Figures 2 & 3 denote a possible pattern between the quality of the sustainability-Linked bond and the ESG ranking of the firm by MSCI. Indeed, it seems that as the firm gets a higher rank, the quality of the bond increases. It is important to note that the trend we observe is relatively weak. When looking at a larger scope (Figure 3), finding such a trend seems logical as we can expect that companies with higher ESG ratings will also have a higher score in the sustainability-linked bond they issue. Indeed, SLBs establish key performance indicators (KPIs) with respect to ESG criteria (Liberadzki, Jaworski, & Liberadzki, 2021). However, these results must be interpreted carefully as the data for this report is small (N = 14), and our bond scores are subjective. This can be seen in the average bond score for BB firms, which received a higher bond score than what one could expect. This is because the firm has outlined several KPIs, resulting in a higher bond score.

Figure 2: Average bond score according to ESG rating.

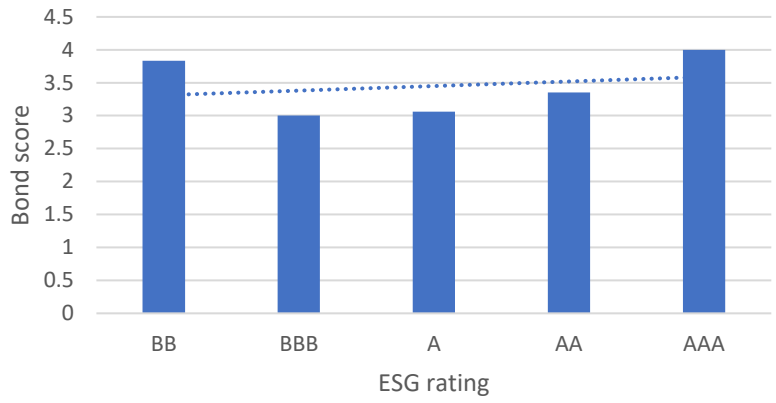
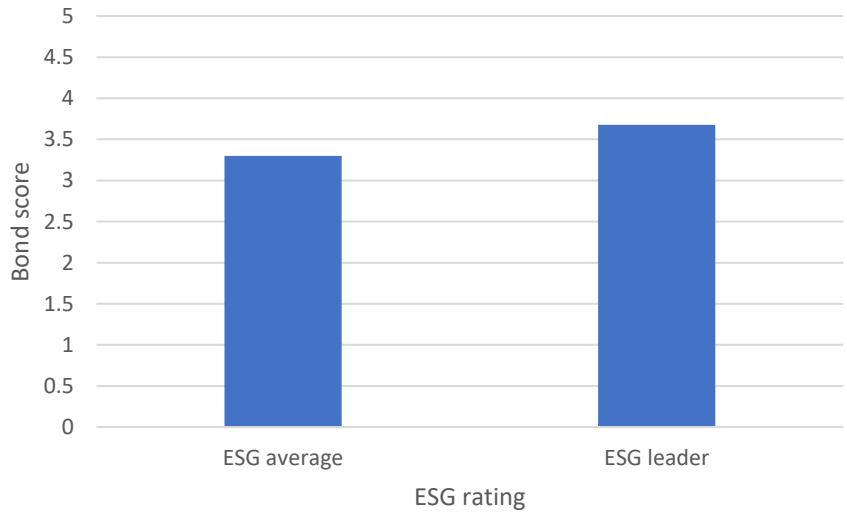


Figure 3: Average bond score according to ESG category.

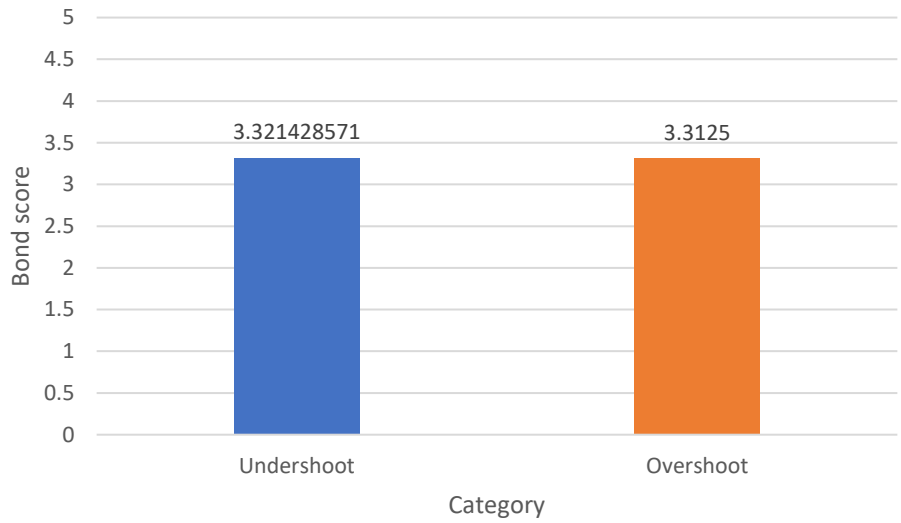


Implied Temperature Rise

The figures 4 and 5 describe the distributions of Sustainability-linked bond quality according to their implied temperature rise, as defined by MSCI. We study SLBs quality by using our estimated bond score, as outlined in the Methodology section.

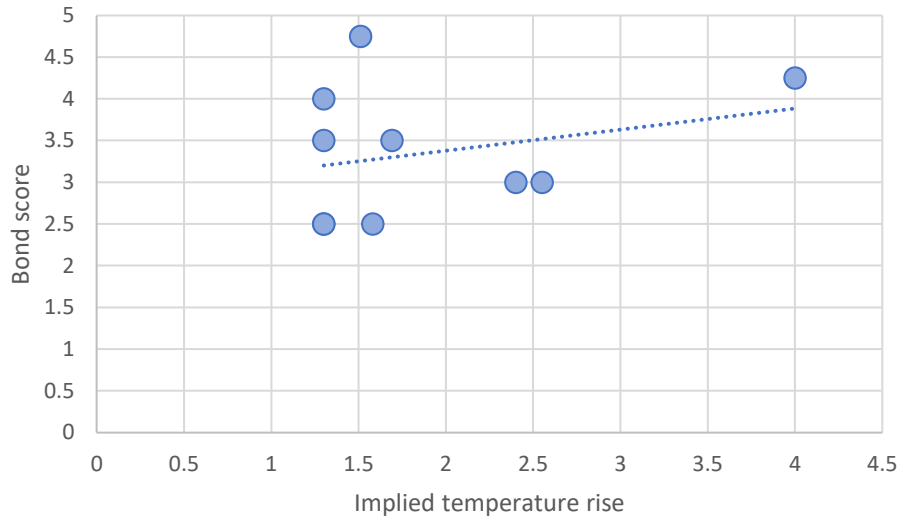
We first compare these bond scores across the implied temperature rise of the issuer company as well as category. Companies can be classified as either “undershooter” or “overshooter”, as defined in the Definitions section. It should be noted that our sample contained only 3 overshooters. Figure 4 displays the average bond score of companies classified as undershooters and companies classified as overshooters. As can be seen, companies classified as undershooters received a slightly higher average bond rating (3.32) than those classified as overshooters (3.31). However, since these results are so close, we do not conclude any significant difference. This is surprising as we would expect that bond scores would decrease as the implied temperature rise increases

Figure 4: Sustainability-linked bonds average score given implied temperature rise category.



Secondly, to establish a trend, the corresponding bond rating of each company was plotted against the implied temperature rise in figure 5. As can be seen, an upward trend in rating can be seen as the implied temperature rise increases. These results suggest that bonds with higher ratings (as gathered from Sustainalytics reports) are more likely to increase their carbon emissions by the end of the century beyond their budgeted share. Once again, these results are counter intuitive.

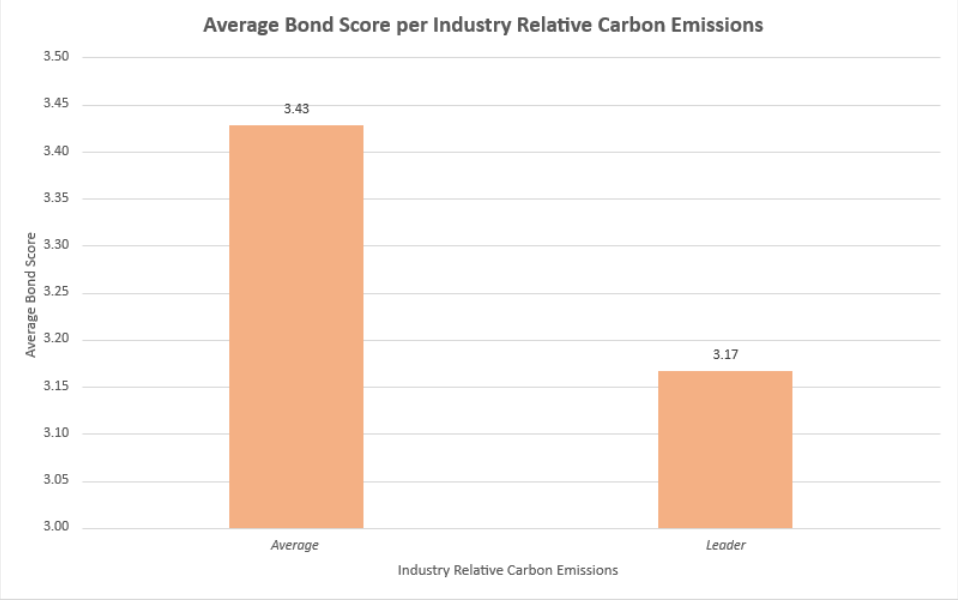
Figure 5: Sustainability-linked bonds scores given implied temperature rise.



Bond Rating and Carbon Emissions

Lastly, the correlation between sustainability-linked bonds and their carbon emissions is analyzed. It should be noted that we only tested SLBs with carbon related targets for this analysis (as some of our sample only had targets related to diversity, for example). Firstly, we compare the Sustainalytics bond score to the MSCI rating of the company's carbon emissions. Companies can either be classified as "laggards", “average", or "leaders” compared to their industry peers. Interestingly, our sample did not include any laggards. As such, figure 6 displays the average bond score of companies that received an industry average MSCI carbon emissions rating compared to leaders. As can be seen, companies with a "leader” industry rating received a lower average bond rating (3.43) than those with “average” industry ratings (3.17).

Figure 6: Average Bond Score per Industry Relative Carbon Emissions.



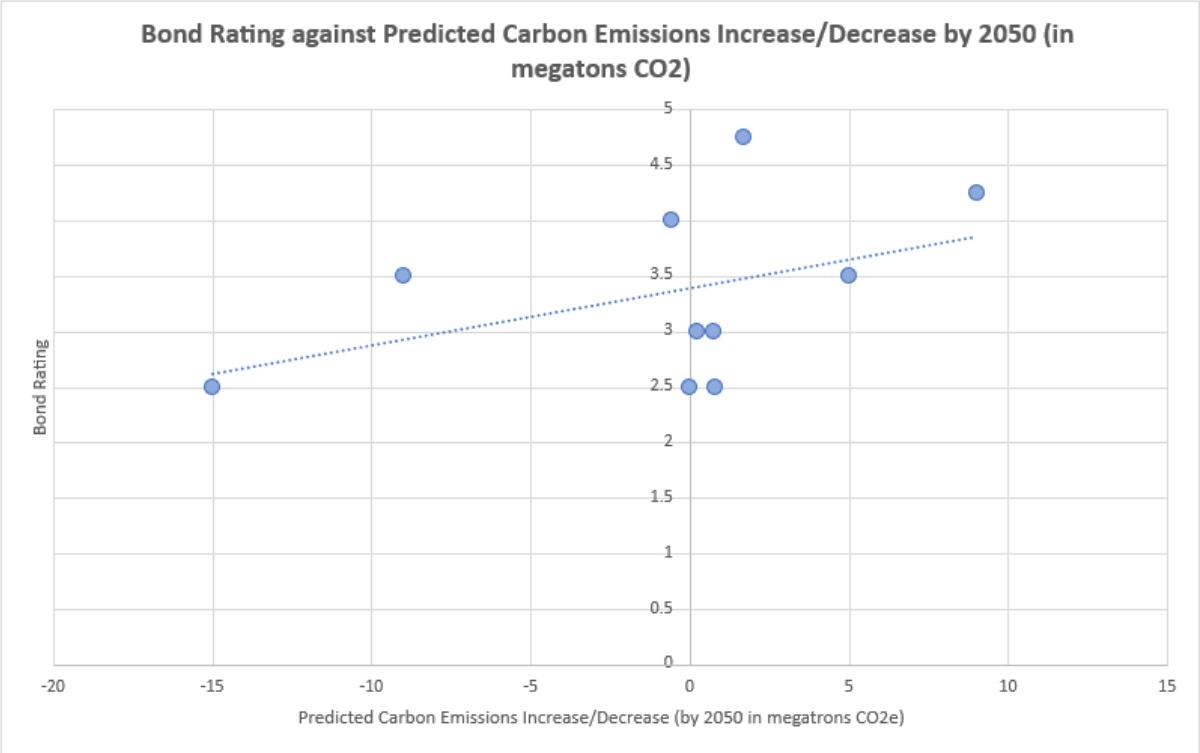
We further analyze whether this trend is continued when looking at absolute carbon emissions. MSCI has made predictions for the expected carbon emission increase/decrease of a company by 2050. Table 4 shows the MSCI expected carbon increase/decrease per company that issued carbon emission related SPTs.

Table 4: MSCI expected carbon emission increase/decrease by 2050 per company.

Company	Predicted 2050 Megaton CO2e Increase/Decrease
Johnson Controls International PLC	9
Koninklijke KPN N.V.	-0.6
Vodafone Group PLC	1.7
H&M Group	-9
Koninklijke Ahold Delhaize N.V.	5
TELUS	0.8
Tesco PLC	-15
Woolworths Group Limited	0
Thai Union Group	0.75
Rumo S.A.	0.2

To establish a trend, the corresponding bond rating of each company was plotted against the predicted 2050 CO2e increase/decrease in figure 7. As can be seen, an upward trend in ratings can be seen as the expected carbon emissions increase. These results suggest that bonds with higher ratings (as gathered from Sustainalytics reports) are more likely to increase their carbon emissions by 2050. Furthermore, this is consistent with our findings in figure 6, which show that industry leaders in carbon emission decrease have, in fact, lower bond scores.

Figure 7: Plotting MSCI Predicted carbon emission increase/decrease by 2050 per Sustainalytics inferred bond rating.



These trends suggest that the MSCI carbon related ratings contradict the carbon related SPTs of the sustainability linked bonds. This is a surprising finding, as we would expect companies with highly rated sustainability linked bonds to be better rated than their industry peers and that their predicted carbon footprint would decrease (in absolute CO2e) by 2050.

A possible reason for this is that MSCI's 2050 carbon emissions take into account scope 1, 2 and 3 emissions – this includes carbon emissions from the company themselves, from their direct energy suppliers, and the carbon emissions of their entire supply chain (MSCI ESG Research, 2021). However, the majority of the SPT's evaluated in the sustainability linked bonds focused exclusively on scope 1 and 2 emissions – omitting their supply chain emissions, and thus considerably overlooking a significant percentage of their total emissions. This suggests that sustainability linked bonds with SPT's focused only on scope 1 and 2 emissions may not be as “ambitious” as Sustainalytics rates them in their report. A second for this is that many sustainable rating metrics are new, not standardized, and often times the necessary data for computing them is lacking – meaning that ratings can be subjective, and that ratings between agencies can sometimes be contradictory.

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Conclusion

In this report, we aimed to have a better understanding of the possible correlation between the quality of a SLB and the issuer company's ESG rating, implied temperature rise, and carbon emissions. Throughout the report we have found slight to no correlation between the SLB score and the three variables of interest. The average bond score seems positively correlated to the firm's ESG ranking by MSCI as well as the implied temperature rise of the firm. Furthermore, companies issuing bonds with a higher score have shown to be rated "average" when it comes to industry-relative carbon emissions, whereas companies with a lower score proved to be industry "leaders". Our findings raise several questions. Despite the limitations of the report, one would expect to see a negative correlation between a higher bond rating and carbon emission, or implied temperature rise of the SLB's issuer - which was not the case in this report. Hence, we consider the possibility that ESG ratings are not always up to date (to reflect new bond targets) or that the SPTs of the sustainability-linked bond are more superficial than anticipated.

These findings highlight the difficulty for retail investors, and particularly less experienced investors, to cross reference when choosing where to invest. Sustainalytics second-opinion reports mention strength and ambitiousness of the KPIs, but do not explicitly consider the issuing companies themselves. Certainly, the SLB itself might have strong KPIs - but from this report, investing in companies that are ambitious and have strong KPIs may not have the positive impact that responsible investors intended when making sustainable investments.

Our findings suggest further research is necessary to investigate the diverse metrics used to assess a company's ESG score. Looking at a particular firm and different ESG scores by different financial institutions would allow us to have a better overview of all the metrics and how they differ. Furthermore, we mostly observed weak correlations and discrepancies between the variables of interest. This could be because SLBs are less rigid in how the funds are spent and the goals of the bond. Hence, it would be interesting to look at a comparison between how sustainable-linked bonds and sustainable bonds compare to the issuer company's ESG rating, implied temperature rise or carbon emissions – to establish whether these conflicting results are only present with SLBs.

Bibliography

Giráldez, J. G., & Fontana, S. F. (2020). Sustainability-Linked Bonds: The Next Frontier in Sovereign Financing.

ICMA. (2020). *Sustainability-linked bond principles*. https://www.icmagroup.org/sustainablefinance/the-principles-guidelines-and-handbooks/sustainability-linked-bond-principles-slbp/

Liberadzki, M., Jaworski, P., & Liberadzki, K. (2021). Spread Analysis of the Sustainability-Linked Bonds Tied to an Issuer's Greenhouse Gases Emissions Reduction Target. *Energies*, *14*(23), 7918.

MSCI ESG Research (2021). Implied Temperature Rise Methodology. *MSCI*. Found at: https://www.msci.com/documents/1296102/27422075/Implied-Temperature-Rise-Methodology-Summary.pdf

Appendix

Table 1: Bond ratings

NAME	Bond Score
Johnson Controls Sustainable Finance Framework Second Party Opinion (2021)	4.25
KPN Sustainability-Linked Finance Framework Second-Party Opinion (2021)	4
Vodafone Sustainable and Sustainability Linked Finance Framework Second-Party Opinion (2021)	4.75
H&M Sustainability-Linked Bonds Second-Party Opinion	3.5
Ahold Delhaize Sustainability-Linked Bond Framework Second-Party Opinion	3.5
TELUS Sustainability-Linked Bond Framework Second-Party Opinion (2021)	2.5
Tesco Sustainability-Linked Bond Second-Party Opinion	2.5
B3 Sustainability-Linked Financing Framework Second-Party Opinion(2021	3
Woolworths Group Sustainability-Linked Bond Framework Second-Party Opinion (2021)	2.5
Coca-Cola FEMSA Sustainability-Linked Bond Framework Second Party Opinion (2021)	3
FEMSA Sustainability-Linked Bond Framework Second-Party Opinion (2021)	3.75
Thai Union Sustainability-Linked Financing Framework Second-Party Opinion (2021)	3
Rumo S.A. Sustainability-Linked Finance Framework Second-Party Opinion (2021)	3
Klabin Sustainability-Linked Bond Framework Second-Party Opinion	3.83