

A review of Carrefour's Sustainability-Linked Bonds

Josephine Richardson (*)

On 10 September Carrefour SA (ticker CAFP), a French multinational retail company, priced its sixth Sustainability-Linked Bond (SLB), linked to a reduction in Scope 1 + 2 emissions and a reduction in food waste.[1] Indeed, all Carrefour debt issued since Mar 2022 has been in SLB format, although vanilla debt has been issued by two subsidiaries.

As Table 1 shows, Carrefour is the sixth-largest issuer of SLBs, and the only retailer in the top ten.

Table 1. Top SLB issuers. Source: Bloomberg, accessed 12 Sep 2024. Note Chile issuance has been consolidated, and JBS bond exchanges have been removed.

Rank	Ticker	Issuer	Count of SLBs	Total SLB Issued ($ bn)
1	ENELIM	ENEL FINANCE INTL NV	34	35.0
2	CHILE	REPUBLIC OF CHILE	6	10.2
3	TEVA	TEVA PHARM FNC NL II	8	7.5
4	ENIIM	ENI SPA	4	5.2
5	ENBCN	ENBRIDGE INC	5	5.1
6	CAFP	CARREFOUR SA	6	4.7
7	TCN	TELUS CORP	6	3.7
8	ATIM	ASTM SPA	3	3.4
9	EOFP	FORVIA SE	3	3.2
10	SRGIM	SNAM SPA	3	2.8

With repeat issuers like Carrefour, bond structures can vary. It is therefore importance to scrutinise all specific bond details, to to understand the relative ambition and materiality.[2]

In this note we will present the issuance, and review recent KPI performance to analyse the pricing of the Carrefour bond curve. We offer the following conclusions:

- Carrefour has used all four of its KPIs, each with two different observation dates, in a variety of combinations. **According to historic performance, the food waste KPI, linked to four SLBs, looks the least likely to be achieved**.
- Another key input into SLB option pricing is the materiality of the step-up coupon, which is both the magnitude but also the length of time over which is will potentially be paid. Carrefour's SLBs vary in materiality, which will affect the value of the SLB option. **Most material are two bonds which may pay 25bps for four years.**
- Current pricing of Carrefour bonds does not seem to differentiate between bonds of varying materialities and different probabilities of target achievement. **In particular, the 2.375% 29s has a high model option price which seems to be undervalued by the market,** compared to the closest maturity bonds.

[1] "Success of a 750 million euro 8-year Sustainability-Linked Bond", Carrefour, 10 Sep 2024.
[2] For full details of the AFII option pricing approach plus case studies please see "Sustainability-Linked Bond Handbook: a practitioner's guide", AFII, May 2024.

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(*) Anthropocene Fixed Income Institute (www.anthropocenefii.org). Author for contacts: jor@anthropocenefii.org

Bond details

Carrefour's Sustainability-Linked Financing Framework has four KPIs (named 1A, 1B, 2, and 3).[3] Despite being published shortly after the first issuance, all bonds seem to reference this framework.

KPI details

KPI 1.A is total Scope 1 + 2 emissions relative to a 2019 baseline.

KPI 1.B is avoided Scope 3 emissions for suppliers who report on the 20megatons.com platform, relative to a 2019 baseline.

KPI 2 is cumulative tonnes of packaging avoided since 2017.

KPI 3 is food waste generated in stores relative to a 2016 baseline.

Table 2 gives details of which KPIs are used in which bonds. The first three securities focused on the two circular economy KPIs (KPI 2 and 3), the next two were linked to the emissions KPIs, and the most recent bond uses KPI 1.A and KPI 3.

Table 2. Carrefour SLB details. Source: Bloomberg, accessed 12 Sep 2024.

ISIN	Issue Date	Maturity Date	Currency	Size (mnm)	KPI 1.A Observation Date	KPI 1.B Observation Date	KPI 2 Observation Date	KPI 3 Observation Date
FR0014009DZ6	30-Mar-22	30-Oct-26	EUR	750			Dec-25	Dec-25
FR0014009E07	30-Mar-22	30-Oct-29	EUR	750			Dec-25	Dec-25
FR001400D0F9	12-Oct-22	12-Oct-28	EUR	850			Dec-27	Dec-27
FR001400HU68	10-May-23	10-Oct-30	EUR	500	Dec-27	Dec-27		
FR001400LUK3	14-Nov-23	14-Nov-31	EUR	750	Dec-30	Dec-30		
FR001400SID8	17-Sep-24	17-Oct-32	EUR	750	Dec-30			Dec-27

By issuing bonds referencing all KPIs in varying combinations and with different target dates, Carrefour could build up an interesting pricing curve, which we will analyse later in this paper.

Carrefour Scope 3 commitments

In 2022 the Science Based Targets Initiative (SBTi) released a methodology for companies to measure the emissions from land use change (a category of Scope 3 emissions).[4] Since 1 May 2023 accounting for these emissions and setting specific targets is required for key sectors (which includes Carrefour).[5]

Carrefour is clear that its current Scope 3 reporting excludes these Forest Land and Agriculture (FLAG) emissions. As of 2023, its disclosed Scope 3 emissions totaled 100,477,661 tons.[6]

An indicative emissions roadmap is provided, which includes "a preliminary estimate of FLAG emissions related to land use change" which is described as "conservative in its assumptions."

[3] "Carrefour Group Sustainability-Linked Bond Framework", Carrefour, May 2022.
[4] "Forest, Land and Agriculture Science-Based Target-Setting Guidance", SBTi, Dec 2023.
[5] "Forest, Land and Agriculture (FLAG): State of play", SBTi, accessed 18 Sep 2024.
[6] "Climate Plan 2023 Carrefour Group", Carrefour, May 2024.

Comparing the total for 2019 with CDP data for the same year implies FLAG emissions of around 29 million tons in 2019,[7] or nearly 30% of its reported Scope 3 emissions.

Carrefour has a Scope 3 reduction commitment which is referenced in its SLBs documentation. This seems to focus on emissions belonging to Category 1 Purchased Goods and Services,[8] a category which should include FLAG emissions as reporting improves. However, the target set is absolute (a 5mt reduction by 2027 and 20mt by 2030). This means increasing the scope of reporting will likely make this target easier to achieve; it could adjust the 2030 objective down from a 21% reduction to a 16% cut.

Despite FLAG emissions being a live and evolving issue, there are supermarket issuers of SLBs that have taken a more comprehensive approach, integrating specific relative targets even on these yet uncalculated categories of emissions.[9]

Summary

Carrefour is a significant user of SLBs. Having issued a variety of structures using different KPIs and target dates, it is important for investors to understand the specifics of each bond.

Recent KPI performance

We will now review Carrefour's most recent reporting to understand performance on each KPI.

KPI 1.A – Scope 1 + Scope 2 emissions

Carrefour's 2023 universal registration document clarifies that the 2022 and 2023 absolute figures use non-comparable business units, and that the 2019 baseline was subject to an adjustment.[10] For this analysis, we will show the reported relative adjustments, rather than the absolute emissions.

Table 3. Carrefour Scope 1 + 2 emissions reductions. Source: Carrefour.

Date	Reduction
2019	0.00%
2022	-29.10%
2023	-38.30%
2026 (target)	-30.00%
2027 (target)	-39.50%
2030 (target)	-50.00%
2040 (target)	-70.00%

As shown in Table 4, the 2026 target has already been achieved, and only 1.2% further reduction is needed for the 2027 target to be met.

This KPI uses market-based Scope 2 emissions, and so the company has additional flexibility to reduce this number through purchasing of renewable energy contracts. Carrefour's 2023 CDP reporting (which doesn't completely agree with its universal registration document), shows that in 2022 the difference between its market-based and location-based Scope 2 emissions was 109,547 tons, or just over 9% of its total Scope 1 + Scope 2 market-based emissions.[11] This shows Carrefour is already using some methods to reduce its market-based emissions.

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[7] CDP data gives a total Scope 3 for 2019 of 93.7 million tons in "Carrefour Climate Change Disclosure 2023", CDP, accessed 16 Sep 2024.
[8] "Carrefour Food Transition Pact – 20Megatons Project, Calculation Protocol V1.0", Carrefour, 2021.
[9] For example Belgian-Dutch retailer Ahold issued an SLB in 2024 with a specific target on reducing FLAG emissions as described in "Relative Value is in the eye of the Ahold-er", AFII, 18 Mar 2024. In 2023 Elo Group, the owner of French supermarket Auchan, issued an SLB with a commitment to integrate specific FLAG targets once the emissions had been calculated, see "Le SLB d'Auchan, il change la vie?", AFII, 22 Sep 2023.
[10] "Universal Registration Document 2023", Carrefour, accessed 16 Sep 2024.
[11] "Carrefour Climate Change Disclosure 2023", CDP, accessed 16 Sep 2024.

KPI 1.B – Scope 3 emissions avoided

2023 is the first year Carrefour has reported on this metric, announcing that 947,000 tons of emissions have been avoided.[10]

Limited information is available to understand the trajectory of avoided emissions, although as highlighted above, this number seems unambitious compared to the total size of Carrefour's Scope 3 emissions, and so appears relatively achievable.

Table 4. Carrefour Scope 3 emissions avoided. Source: Carrefour, CDP.

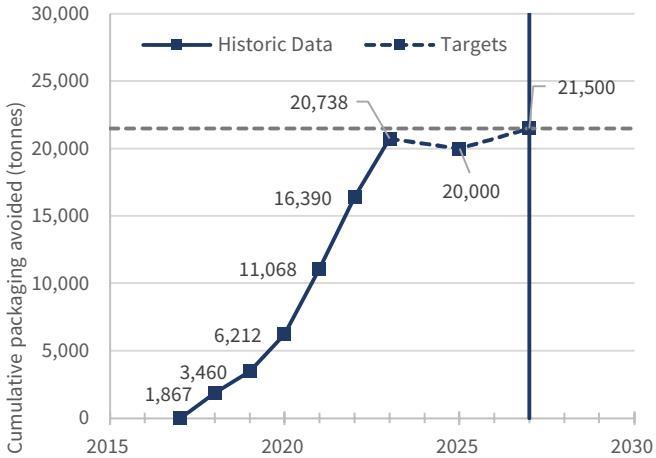
Date	Mega tons avoided	Mega tons avoided as percentage of 2023 Scope 3 emissions
2023	0.95	1%
2027 (target)	5.00	5%
2030 (target	20.00	20%

KPI 2 – Cumulative tons of packaging avoided

Figure 1 shows the cumulative packaging avoided. As this is a cumulative measure, it increases over time even if the rate of packaging avoidance remains the same.

The 2025 target was met two years early, and Carrefour needs to reduce only an additional 762 tonnes in order to meet the 2027 target, an amount equivalent to 17.5% of the packaging saved within 2023. This target seems therefore virtually achieved.

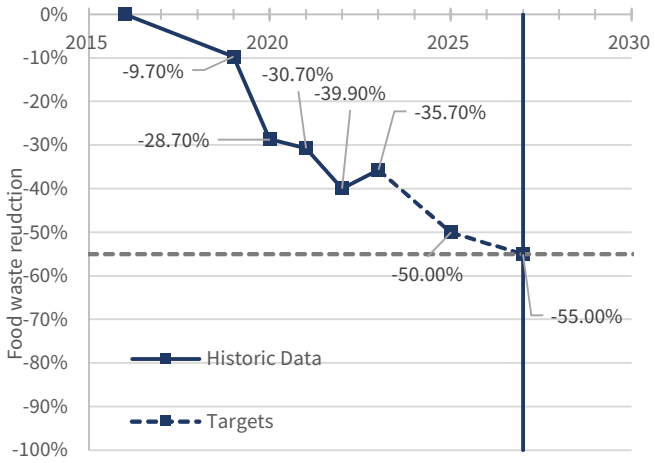
Figure 1. Historic and target levels for KPI2. Source: Carrefour.



KPI 3 – Food waste reduction

Figure 2 shows historic and target levels for KPI 3. Of all Carrefour's KPIs, this one seems the hardest to achieve. In the last year to 2023, packaging increased over 4% relative to the baseline, and substantial improvements are needed to achieve both the 2025 and 2027 targets.

Figure 2. Historic and target levels for KPI3. Source: Carrefour.



Summary

Carrefour's most recent reporting suggests two KPIs are virtually achieved. KPI1.A uses market-based Scope 2 emissions which Carrefour has already been using to reduce its footprint, and KPI2 which is a cumulative measure will be achieved this year even if the rate of reduction slows significantly.

KPI1.B has very limited information, and KPI3 will require substantial improvements to be met.

Interestingly, this means that each SLB has one KPI which our analysis suggests is close to being achieved, and one KPI on which there is more uncertainty.

Step-up structures

As well as using a selection of different KPIs and targets, the Carrefour SLBs also use a variety of step-up structures, as displayed in Table 3 below.

Five bonds pay a step-up coupon if any Sustainability Performance Targets (SPTs) are missed, while the bond issued in Oct 2022 pays a step-up for each SPT missed, thus doubling the materiality. Three bonds pay the step-up only for one year, making this effectively a single premium payment. However, the Nov 2023 bond pays a 0.75% step-up, and therefore has a higher degree of materiality.[12]

The most recently issued bond (the payment dates for which have been estimated), could potentially pay a step-up for four years, given the first observation date is in 2027, only half way through the bond's tenor.

The option value in an SLB is directly proportional to its maximum potential payout, which itself is a purely structural characteristic of the bond. Without a minimum degree of materiality, the option value may not be observable, meaning ambitious issuers may not be able to achieve attractive funding rates.

This example shows that even when bonds come from the same issuer, their materiality can vary, and needs to be understood for SLB investors.

Table 5. Carrefour step-up coupon details. Source: Bloomberg, AFII, accessed 16 Sep 2024.

ISIN	Issue Date	Maturity Date	Step-up coupon	Max number of years step-up is paid for	KPI relationship	Max payout
FR0014009DZ6	30-Mar-22	30-Oct-26	0.25%	1	Any	0.25%
FR0014009E07	30-Mar-22	30-Oct-29	0.25%	4	Any	1.00%
FR001400D0F9	12-Oct-22	12-Oct-28	0.25%	1	Each	0.50%
FR001400HU68	10-May-23	10-Oct-30	0.25%	2	Any	0.50%
FR001400LUK3	14-Nov-23	14-Nov-31	0.75%	1	Any	0.75%
FR001400SID8	17-Sep-24	17-Oct-32	0.25%	4*	Any	1.00%

** Note data is from Bloomberg and could not be verified independently. For the most recent bond, coupon payment details were not published, so this was estimated by AFII using the market standard which is the first full coupon after observation date.*

Summary

Payout structures and KPIs vary across Carrefour's issued SLBs. These differences can have a significant impact on each bond's step-up materiality, and directly impact its option price. Carrefour has varied the size of its step-ups, the amount of time over which the step-ups are paid, and the relationship between step-ups and missed KPIs. This demonstrates how much complexity there can be in SLB structures, something that should be analysed by investors.

[12] Premium payments is a structure we often see from Japanese issuers as described in "Sustainability-Linked Bond usage in Japan", AFII, 16 Sep 2023.

Market pricing

Figure 3 shows market pricing for Carrefour's bonds, with the SLBs labelled in terms of the KPIs that they reference.

The 2.375% 29s optically look tightest to the best-fit line, suggesting the market pricing is implying the highest value of receiving a step-up coupon (the SLB option value). This bond references the food waste KPI with a target observation in 2025, which is the target needing most improvement to be met, and it potentially pays the step-up coupon for four years.

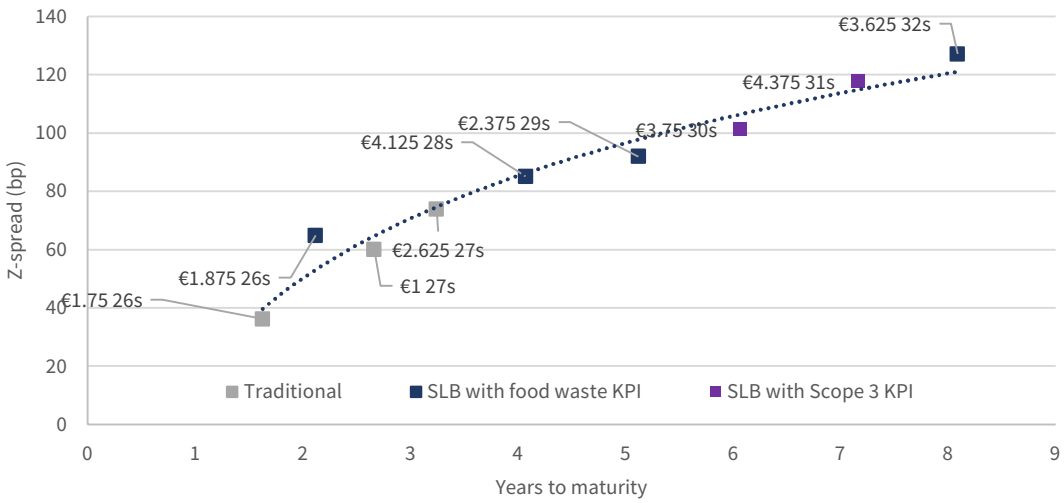
The 1.875% 26s references the same KPIs, but with a step-up coupon only paid for one year. This reduces the potential option value compared to the 2.375% 29s to a quarter. This bond seems to be trading wider than equivalent vanilla bonds, suggesting investors are assigning little to no value to the step-up option.

In particular it is interesting to compare the 2.375% 29s with the 3.75% 30s, both of which seem tighter than the best-fit line. The 29s, which reference the 2025 targets, have the potential to pay the step-up coupon for an extra two years. Even if the SPTs are equally likely to be missed, the option value in the 29s would therefore be double that of the other SLBs.

Moreover, the 29s use the seemingly hard-to-achieve 2025 food waste target, whereas the more difficult target for the 30s is the 2027 Scope 3 emissions target. While it is not certain that this target can be achieved, the target itself seems unambitious compared to peers. Hypothetically, if one considers that the 29s are twice as likely to miss an SPT, this would create an option value four times larger than for the 30s.

Using illustrative probabilities of an SPT being missed of 50% for the 29s, and 25% for the 30s would create an option value of 9.6bps for the 29s compared to 2bps for the 30s (this is in fact more than 4x higher because the 29s have a shorter duration, so the step-up coupons are also discounted less). The bonds are currently trading at a 9bps difference for a year of maturity, but using our models 7.6bps of this is due to option premium, suggesting the market curve between these two bonds is very flat.

Figure 3. Bond z-spreads for Carrefour bonds issued by Carrefour SA of maturity greater than one year. Source: Bloomberg, accessed 17 Sep 2024.



Conclusions

Carrefour, which priced its sixth SLB in early September, is the sixth-largest issuer of SLBs. By referencing different KPIs with a range of observation dates, and also using a variety of step-up structures, there are opportunities for investors to understand the complexities between the different bonds, which may have notably diveregent option prices.[2]

Carrefour uses four KPIs. The first, linked to Scope 1 + 2 emissions, has been reducing significantly, in part through the use of market-based Scope 2 emissions as a metric. The 2027 target is very nearly achieved, and the rate of reduction puts it on track to meet the 2030 target. The second, linked to avoided Scope 3 emissions, has very limited information and reporting available. The third, linked to cumulative packaging avoided, is also virtually achieved. The fourth, linked to reducing food waste, seems the most at risk of being missed. Progress has been reversed over the past reporting period, and meeting the first target in 2025 will require a significant reduction. Across the six bonds, there are five different KPI and SPT date combinations, meaning investors have to be cognisant of the details of each specific KPI at particular times.

Looking also at the bonds' contractual details, we also see a variety of step-up structures. This results in a broad range of materiality for the SLBs, which can further impact their option values.

Current market pricing does not appear to differentiate between the probabilities of different KPIs being achieved. This is particularly true of the 2.375% 29s which reference the 2025 food waste KPIs and potentially pay a step-up for four years, compared to the 3.75% 30s which use only emissions KPIs and observe those in 2027.

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