

Deforestation Debt Universe: update

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In January 2025 we published our Deforestation Debt Universe, a comprehensive universe of significant fixed income issuers which have substantial deforestation exposure.[1] In this paper we refresh the analysis, to ensure the most relevant issuers are captured.

The three-step methodology for creating the Deforestation Debt Universe is as follows:

- To identify a **comprehensive universe**, we used Forest IQ,[2] a consolidated dataset that enables the comparison of deforestation exposure across different commodities. For inclusion we have considered companies assessed as exposed by either Forest 500 or ZSL SPOTT, two NGOs focused on identifying the most significant contributors to deforestation.
- The analysis has focused on six relevant commodities: soy, palm, beef, leather, timber, and pulp & paper. This universe captures **substantial deforestation exposure** both through concentrated exposure to a single commodity or broad exposure across commodities.
- The final group of companies have debt in G7-currencies (either directly or via their parent entities). This allows us to focus on entities that are **significant for fixed income investors**.

This update expands the Deforestation Debt Universe from 101 to 119 issuers, who collectively have issued over USD1.6trn of hard currency debt. This will form the backbone of our continued work on supporting fixed income investors in driving better deforestation outcomes. So far, these efforts have included the following applications:

- We monitor issuance activity, analysing significant deals and the syndication fees earned by banks.[3]
- We use this universe to conduct comparisons between portfolios and ETFs, helping investors better identify their exposure.[4]
- This monitoring also identifies case studies showing both financial materiality and engagement opportunities.[5]
- The issuers feature in our 'Bond Horizon' tool, where we rank the likelihood of imminent primary market activity for investors to focus their engagement works.[6]

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[1] "Deforestation Debt Universe", AFII, 7 Jan 2025.
[2] This data is at 7 Jan 2026 and was obtained under license from Global Canopy as part of its proprietary Forest IQ project https://forestiq.com. More up-to-date data may be available from Forest IQ.
[3] "Deforestation exposure: Q2 & Q3 2024 issuance review", AFII, 8 Oct 2024.
[4] "Deforestation exposure in corporate bond ETFs", AFII, 3 Apr 2025.
[5] For example see "Mars: Raising standards", AFII, 5 Mar 2025 and "Marubeni benchmark issuance: engagement opportunity", AFII, 14 Mar 2025.
[6] "Bond Horizon", AFII, accessed 21 Jan 2026.

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Introduction

Forests are a global carbon sink, on a net basis absorbing about twice as much carbon as they emit each year.[7] They also hold the majority of the Earth's terrestrial biodiversity; including 80% of amphibian species, 75% of bird species, and 68% of mammal species.[8] Unfortunately, the rate of human-induced forest destruction continues to increase, with reports warning that the Amazon is close to the dieback tipping point, beyond which recovery may not be possible.[9]

Investor exposure to deforestation risk comes from several sources. There are direct physical risks through extreme weather events. There are litigation and reputation risks originating from the treatment of Indigenous communities.[10] And despite ongoing delays to the EU's Deforestation Regulation,[11] there are regulatory risks facing companies and investors in several jurisdictions.[12]

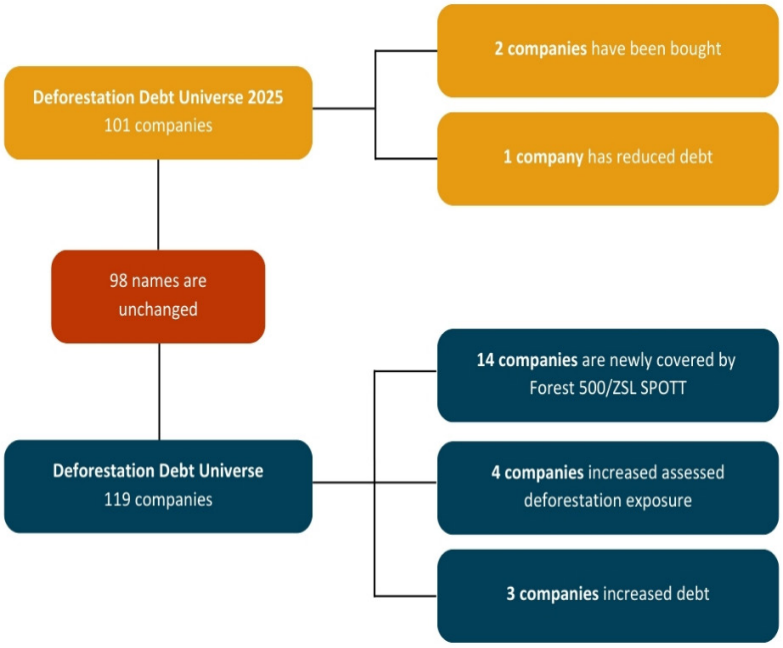
In January 2025, AFII launched the Deforestation Debt Universe, itself a development from work on the Representative Deforestation Credit Portfolio (RDCP).[13]

This paper offers an annual update to ensure the Deforestation Debt Universe remains relevant for fixed income investors.[14] The full methodology details are included in the Appendix.

Universe update

The Deforestation Debt Universe now comprises 119 names, an increase on the 101 issuers included in the 2025 iteration. The changes are visualised in Figure 1.

Figure 1. Illustration of changes in Deforestation Debt Universe. Source: AFII.



Under our methodology, there are four potential reasons for changes in the Universe. First, entity changes: issuers may be newly created or may no longer exist. Second, coverage changes: our Universe is based on Forest 500 and ZSL SPOTT, so updates to their focus lists can affect which entities are

[7] "Forests Absorb Twice As Much Carbon As They Emit Each Year", WRI, 21 Jan 2021.
[8] "Earth's Biodiversity depends on the World's Forests", UNEP, May 2020.
[9] "Critical transitions in the Amazon forest system", Nature, Feb 2024.
[10] "Explainer: Why deforestation matters for investors", IIGCC, 16 Sep 2024.
[11] "EU Deforestation Regulation application postponed to 30 December 2026", EY, 20 Jan 2026.
[12] "Recent developments in deforestation legislation", Ropes & Gray, accessed 9 Dec 2024.
[13] "RDCP: Deforestation exposure in liquid credit portfolios", AFII, 22 Dec 2023.
[14] For our comprehensive primer covering this topic please see "Deforestation and fixed income markets: A primer", AFII, accessed 21 Jan 2026.

included. Third, reassessments of deforestation exposure can alter an issuer's inclusion status. Finally, since we only include issuers with debt above a certain threshold, changes in outstanding debt levels can also impact eligibility.

Three names were removed. Two were purchased by other names in the Deforestation Debt Universe, and so remain effectively included. Three reduced their debt and were considered for exclusion — but due to the likelihood of new issuance, two of these were retained.

21 new names were added. The primary reason was an extension of Forest 500's powerbroker list, which has increased from 350 to 500 corporates. This added 12 names to the Deforestation Debt Universe. Two names were added due to new coverage by SPOTT. Four names increased their deforestation exposure and are now included, while three increased debt.

We will now cover each adjustment in more details.

Removals

Five issuers have left the Deforestation Debt Universe. Below is a breakdown of the reasons for each issuer.

Entity changes

Two issuers no longer exist as standalone companies.

- Kellanova (ticker K) was bought by Mars (ticker MARS).[15]
- BRF (ticker BRFSBZ) was bought by Marfrig (ticker MRFGBZ), which renamed MBRF Global Foods.[16]

Both acquirers were already in, and remain in, the Deforestation Debt Universe.

Coverage changes

No issuers lost coverage from Forest 500 or ZSL SPOTT in this period.

Deforestation exposure changes

No issuers reduced their deforestation exposure beneath the inclusion threshold in this period.[17]

Debt level changes

Three issuers reduced their debt levels below the inclusion threshold[18] and so are considered for exclusion.

- Beidahuang Group is an issuer covered by Forest 500. The ISIN mapping of this entity has changed from a state-owned entity (Heilongiang Agriculture Co - ticker 600598 CH Equity)

[15] "Mars: Raising standards", AFII, 5 Mar 2025.
[16] "Marfrig-BRF merger and PIF green bond deforestation engagement opportunity", AFII, 6 Oct 2025.
[17] The threshold is to have either one score of very high / critical, or two scores of high across the six in-scope commodities which are Palm oil, Soy, Pulp & Paper, Beef, Timber and Leather.
[18] The threshold is USD2.5bn equivalent of hard-currency bonds and loans outstanding within the credit family.

to a non-state owned entity (China Beidahuang Industry Group – ticker 39 HK Equity) which has no debt, so is no longer included.

- Minerva (ticker BEEFBZ) debt has also slightly reduced; the company has completed two partial buy-back of its 2031s in 2025.
- Tapestry Inc (ticker TPR) debt has reduced; two bonds have matured with no new issuance.

Debt reductions at Minerva and Tapestry highlight the changing nature of outstanding debt, and due to a perceived chance of new issuance, we will retain these two companies for monitoring.

Additions

21 issuers have joined the Deforestation Debt Universe. Below is a breakdown of the new joiners.

Entity changes

No new issuers entered the Universe due to corporate activity.

Coverage changes

Forest 500 has expanded its coverage from 350 to 500 companies, prompting a change to the data used in our original Deforestation Debt Universe.[19] 12 issuers now included were not covered in the dataset used for our earlier publication.

Four additional names have also been included in ZSL SPOTT assessments, but two were already covered by Forest 500. Full details of the additions due to coverage changes are shown in Table 1.

Table 1. Deforestation Debt Universe additions due to new coverage. Source: AFII.

Entity Name	Equity ticker	Credit ticker	Country of Risk	Coverage	Exposed Commodities
Boustead Plantations Bhd	BPLANT MK Equity	MALAYS	MY	ZSL SPOTT	Palm oil
Builders FirstSource Inc	BLDR US Equity	BLDR	US	Forest 500	Timber
Celulosa Arauco y Constitucion	1029Z CI Equity	CELARA	CL	ZSL SPOTT	Pulp & Paper, Timber
CHS Inc	7165Z US Equity	CHSINC	US	Forest 500	Soy
Cie Generale des Etablissement	ML FP Equity	MLFP	FR	Forest 500 & ZSL SPOTT	Timber
Coca-Cola Co/The	KO US Equity	KO	US	Forest 500	Palm oil, Soy, Pulp & Paper
General Motors Co	GM US Equity	GM	US	Forest 500	Pulp & Paper, Leather
Indomobil Sukses Internasional	IMAS IJ Equity	IMASIJ	ID	Forest 500	Palm oil, Soy, Beef, Leather
ITOCHU Corp	8001 JP Equity	CITOH	JP	Forest 500 & ZSL SPOTT	Palm oil, Soy, Pulp & Paper, Beef, Timber
Masco Corp	MAS US Equity	MAS	US	Forest 500	Timber, Leather
McCormick & Co Inc/MD	MKC US Equity	MKC	US	Forest 500	Palm oil, Soy, Pulp & Paper
Mercedes-Benz Group AG	MBG GR Equity	MBGGR	DE	Forest 500	Pulp & Paper, Timber, Leather
TJX Cos Inc/The	TJX US Equity	TJX	US	Forest 500	Pulp & Paper, Timber, Leather
Weyerhaeuser Co	WY US Equity	WY	US	Forest 500	Timber

[19] "Forest 500 assesses finance sector across more commodities, forest types in a key year for deforestation action", Forest 500, 25 Feb 2025.

Deforestation exposure changes

Four new entities are included due to increased deforestation exposure.

- Kimberly-Clark Group (ticker KMB) previously was rated 3 for pulp & paper, but now also has a 5 score for palm oil.
- Mondi PLC (ticker MDNILN) previously was rated 3 for pulp & paper, but now also has a 3 score for timber.
- Pentland Capital Ltd (ticker JDLN) previously was rated 3 for pulp & paper, but now also has a 3 score for leather.
- Perkebunan Nusantara (ticker INDON) is exposed to deforestation through palm oil, and is also rated 5 for its role as a Producer and 3 for its role as a Trader. In the earlier Universe, it was erroneously not included as only the Trader score was used.

Debt level changes

Three issuers increased their debt levels above the inclusion threshold.

- H&M Hennes & Mauritz AB (ticker HMBSS) issued a new bond of EUR0.5bn in 2025, increasing its debt above the threshold.
- The parent company of Skechers USA Inc (ticker SKX) issued over USD6bn of new debt in a buyout financing in 2025, a combination of bonds and loans.[20]
- Nomad Foods Ltd (ticker IGBOND) issued a new loan in 2025 which increased its debt over the threshold.

Analysis of Universe

Sector breakdown

Table 2 (overleaf) shows the number of entities in each sector, together with the exposure by commodity.

The most common sector is consumer staple products, the largest three issuers in which are Nestle, PepsiCo, and Mars. The key commodities driving exposure in this sector are palm oil and pulp & paper.

The second-most common sector is retail & wholesale staples. These are the downstream retailers for many consumer staple products. The significant exposures for this sector are palm oil and soy.

Conversely, Leather exposure is predominantly concentrated in the consumer discretionary products sector, which includes luxury goods manufacturers Kering and LVMH.

[20] "Skechers Prices Over $6 Billion of Debt in Rare Buyout Financing", Bloomberg, 26 Jun 2025.

Table 2. Analysis of Deforestation Debt Universe entities by sector and commodity exposure. Source: Bloomberg, AFII.

Sector	DDU 2025	DDU 2026	Count exposed to each commodity					
			Palm oil	Soy	Pulp & Paper	Beef	Timber	Leather
Consumer Discretionary Products	9	14	1	1	12	0	6	11
Consumer Discretionary Services	6	6	6	5	5	5	0	0
Consumer Staple Products	39	43	41	36	40	21	0	6
Financial Services	0	0	0	0	0	0	0	0
Health Care	2	2	2	2	2	0	0	0
Industrial Products	0	0	0	0	0	0	0	0
Industrial Services	1	2	0	0	2	0	1	1
Insurance	0	0	0	0	0	0	0	0
Materials	11	13	5	5	12	1	9	0
Oil & Gas	4	4	3	2	1	0	1	0
Real Estate	1	2	1	1	1	1	1	0
Retail & Wholesale - Staples	23	24	24	24	23	19	17	8
Retail & Whsle - Discretionary	5	9	4	3	6	3	8	7

Regional breakdown

Table 4 shows the number of entities by region, identifying how many major deforestation-exposed debt issuers come from developed markets. Nearly half are from the US and Canada (52 are from the US, and Restaurant Brands International is Canadian), and a further 232 are from Europe. This highlights the important role international investors play in financing deforestation, and the significant influence they could wield through active engagement to drive better outcomes. These are also the two regions where most of the new issuers are based, with LATAM unchanged and APAC adding just one.

Only nine issuers are located in LATAM, four in Brazil (down one YoY due to the consolidation of BRF and Marfrig), four in Chile (the new entrant is Arauco), and one in Mexico. These issuers are listed in Table 3.

Table 3. Deforestation Debt Universe issuers from LATAM region. Source: Bloomberg, AFII.

Entity Name	Country of Risk
Celulosa Arauco y Constitucion	CL
Cencosud SA	CL
Empresas CMPC SA	CL
Empresas Copec SA	CL
Grupo Bimbo SAB de CV	MX
Klabin SA	BR
MBRF Global Foods Co SA	BR
Minerva SA/Brazil	BR
Suzano SA	BR

Table 4. Analysis of Deforestation Debt Universe entities by region. Source: Bloomberg, AFII.

Region	DDU 2025	DDU 2026
APAC	23	24
Europe	25	31
LATAM	8	9
Oceania	0	1
North America	45	54

Outstanding debt

Table 5 shows the currency breakdown of the outstanding debt issued by the credit families in the Deforestation Debt Universe. This shows the magnitude of investment in these companies.

Note this includes bonds and loans, as well as revolving credit facilities which may not be fully drawn. These are included to maximise the engagement footprint of the Universe.

Last year, the Universe covered nearly USD1.3trn of debt. This has increased to just over USD1.6trn.

These securities represent the engagement investment universe.

Table 5. Outstanding debt from Deforestation Debt Universe issuance families. Source: Bloomberg Finance L.P., AFII, accessed 15 Jan 2026.

Currency	Outstanding Debt (USDbn)
USD	1,101
EUR	449
GBP	52
JPY	37
CAD	11
TOTAL	1,650

Conclusions

Deforestation and land-use change cause often-irreversible reductions in biodiversity, and harm climate mitigation efforts. These risks are therefore coming under increasing scrutiny from regulators and investors.

The Deforestation Debt Universe identifies a comprehensive universe of significant fixed income issuers which have substantial deforestation exposures.

It uses a consolidated dataset from Forest IQ, which provides consistent risk exposure scoring for 11 commodities. This dataset has been used to identify those companies exposed to the most relevant commodities. We have then reduced this initial Universe to include only those companies with significant hard-currency debt outstanding. This results in an update Deforestation Debt Universe of 119 issuers.

This universe feed many streams of AFII's work, to support investors in reducing exposure to deforestation, and to ensure capital flows at the right price into sustainable businesses.

Appendix 1 – Deforestation Debt Universe constituents

Note, the credit tickers come directly from Bloomberg field. We have checked and adjusted where needed, to create our best fit tickers for monitoring.

Table 6. Deforestation Debt Universe including commodity exposure and outstanding debt, with best fit credit ticker. Source: Forest IQ, Bloomberg L.P., AFII.

Count	Entity Name	Equity ticker	Credit ticker	Country of Risk	Coverage	Exposed Commodities	Total G7 debt issuer (USD mn)	DDU 2025
1	adidas AG	ADS GR Equity	ADSGR	DE	Forest 500	Pulp & Paper, Leather	2,793	Y
2	Aeon Co Ltd	8267 JP Equity	JUSCO	JP	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Timber	6,581	Y
3	Ajinomoto Co Inc	2802 JP Equity	AJINOM	JP	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	2,821	Y
4	Amazon.com Inc	AMZN US Equity	AMZN	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Timber, Leather	73,604	Y
5	Archer-Daniels-Midland Co	ADM US Equity	ADM	US	Forest 500 & ZSL SPOTT	Palm oil, Soy, Pulp & Paper	9,366	Y
6	Astra International Tbk PT	ASII IJ Equity	ASIIIJ	ID	Forest 500 & ZSL SPOTT	Palm oil, Timber, Leather	5,851	Y
7	Barry Callebaut AG	BARN SW Equity	BARY	CH	Forest 500	Palm oil, Soy, Pulp & Paper	4,044	Y
8	BASF SE	BAS GR Equity	BASGR	DE	Forest 500	Palm oil, Soy, Pulp & Paper	22,370	Y
9	Boustead Plantations Bhd	BPLANT MK Equity	MALAYS	MY	ZSL SPOTT	Palm oil	0	N
10	Builders FirstSource Inc	BLDR US Equity	BLDR	US	Forest 500	Timber	4,300	N
11	Bunge Global SA	BG US Equity	BG	US	Forest 500 & ZSL SPOTT	Palm oil, Soy, Pulp & Paper	22,380	Y
12	Campbell's Company/The	CPB US Equity	CPB	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	7,818	Y
13	Cargill Inc	3091Z US Equity	CARGIL	US	Forest 500 & ZSL SPOTT	Palm oil, Soy, Pulp & Paper, Beef, Leather	20,205	Y
14	Carrefour SA	CA FP Equity	CAFP	FR	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Timber, Leather	16,494	Y
15	Casino Guichard Perrachon SA	CO FP Equity	COFP	FR	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Timber, Leather	5,013	Y
16	Celulosa Arauco y Constitucion	1029Z CI Equity	CELARA	CL	ZSL SPOTT	Pulp & Paper, Timber	3,920	N
17	Cencosud SA	CENCOSUD CI Equity	CENSUD	CL	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Timber, Leather	2,579	Y
18	Charoen Pokphand Foods PCL	CPF TB Equity	CPFTB	TH	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	2,681	Y
19	China Resources Land Ltd	1109 HK Equity	CRHZCH	CN	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	901	Y
20	China State Construction Engin	601668 CH Equity	CHCONS	CN	Forest 500	Pulp & Paper, Timber	4,886	Y
21	CHS Inc	7165Z US Equity	CHSINC	US	Forest 500	Soy	2,788	N

Count	Entity Name	Equity ticker	Credit ticker	Country of Risk	Coverage	Exposed Commodities	Total G7 debt issuer (USD mn)	DDU 2025
22	Cie de Saint-Gobain SA	SGO FP Equity	SGOFP	FR	Forest 500	Pulp & Paper, Timber	16,574	Y
23	Cie Generale des Etablissement	ML FP Equity	MLFP	FR	Forest 500 & ZSL SPOTT	Timber	5,646	N
24	Clorox Co/The	CLX US Equity	CLX	US	Forest 500	Palm oil, Soy, Pulp & Paper	2,500	Y
25	Coca-Cola Co/The	KO US Equity	KO	US	Forest 500	Palm oil, Soy, Pulp & Paper	43,949	N
26	COFCO Corp	1070Z CH Equity	COFCO	CN	Forest 500 & ZSL SPOTT	Palm oil, Soy, Pulp & Paper, Beef, Timber	2,931	Y
27	Colgate-Palmolive Co	CL US Equity	CL	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	10,902	Y
28	Conagra Brands Inc	CAG US Equity	CAG	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	7,022	Y
29	Costco Wholesale Corp	COST US Equity	COST	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Timber, Leather	5,000	Y
30	Coty Inc	COTY US Equity	COTY	US	Forest 500	Palm oil, Soy, Pulp & Paper	25,163	Y
31	Daiwa House Industry Co Ltd	1925 JP Equity	DAIWAH	JP	Forest 500	Pulp & Paper, Timber	6,544	Y
32	Danone SA	BN FP Equity	BNFP	FR	Forest 500	Palm oil, Soy, Pulp & Paper	16,096	Y
33	DSM BV	DSM NA Equity	DSFIR	NL	Forest 500	Palm oil, Soy, Pulp & Paper	8,069	Y
34	Dunkin' Brands Group Inc	DNKN US Equity	ARGIHC	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	8,034	Y
35	Empresas CMPC SA	CMPC CI Equity	CMPCCI	CL	Forest 500 & ZSL SPOTT	Pulp & Paper, Timber	3,531	Y
36	Empresas Copec SA	COPEC CI Equity	COPEC	CL	Forest 500	Pulp & Paper, Timber	3,920	Y
37	Essity AB	ESSITYA SS Equity	ESSITY	SE	Forest 500	Palm oil, Pulp & Paper	6,543	Y
38	FGV Holdings Bhd	FGV MK Equity	MALAYS	MY	Forest 500 & ZSL SPOTT	Palm oil, Pulp & Paper	0	Y
39	General Mills Inc	GIS US Equity	GIS	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	14,033	Y
40	General Motors Co	GM US Equity	GM	US	Forest 500	Pulp & Paper, Leather	73,139	N
41	Genting Bhd	GENT MK Equity	GENTMK	MY	Forest 500	Palm oil	8,498	Y
42	Glencore PLC	GLEN LN Equity	GLENLN	AU	Forest 500	Palm oil, Soy, Beef	30,109	Y
43	Grupo Bimbo SAB de CV	BIMBOA MM Equity	BIMBOA	MX	Forest 500	Palm oil, Soy, Pulp & Paper	6,977	Y
44	GSK PLC	GSK LN Equity	GSK	US	Forest 500	Palm oil, Soy, Pulp & Paper	20,915	Y
45	H & M Hennes & Mauritz AB	HMB SS Equity	HMBSS	SE	Forest 500	Palm oil, Soy, Pulp & Paper, Timber, Leather	3,856	N
46	Henkel AG & Co KGaA	HEN3 GR Equity	HENKEL	DE	Forest 500	Palm oil, Soy, Pulp & Paper	4,385	Y
47	Hershey Co/The	HSY US Equity	HSY	US	Forest 500	Palm oil, Soy, Pulp & Paper	7,019	Y

Count	Entity Name	Equity ticker	Credit ticker	Country of Risk	Coverage	Exposed Commodities	Total G7 debt issuer (USD mn)	DDU 2025
48	Home Depot Inc/The	HD US Equity	HD	US	Forest 500	Pulp & Paper, Beef, Timber, Leather	49,071	Y
49	Hormel Foods Corp	HRL US Equity	HRL	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	2,850	Y
50	Hutchison Whampoa Ltd	1896850D HK Equity	CKHH	GB	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	36,574	Y
51	Indofood Sukses Makmur Tbk PT	INDF IJ Equity	INDFIJ	ID	Forest 500 & ZSL SPOTT	Palm oil, Soy, Pulp & Paper, Beef, Leather	2,745	Y
52	Indomobil Sukses Internasional	IMAS IJ Equity	IMASIJ	ID	Forest 500	Palm oil, Soy, Beef, Leather	2,603	N
53	International Flavors & Fragra	IFF US Equity	IFF	US	Forest 500	Palm oil, Soy, Pulp & Paper	5,629	Y
54	ITOCHU Corp	8001 JP Equity	CITOH	JP	Forest 500 & ZSL SPOTT	Palm oil, Soy, Pulp & Paper, Beef, Timber	17,904	N
55	J M Smucker Co/The	SJM US Equity	SJM	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	7,103	Y
56	JBS S/A	JBSS3 BZ Equity	JBS	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Leather	18,979	Y
57	Johnson & Johnson	JNJ US Equity	JNJ	US	Forest 500	Palm oil, Soy, Pulp & Paper	42,141	Y
58	Kering SA	KER FP Equity	KERFP	FR	Forest 500	Pulp & Paper, Timber, Leather	16,691	Y
59	Kimberly-Clark Corp	KMB US Equity	KMB	US	Forest 500	Palm oil, Pulp & Paper	8,709	N
60	Klabin SA	KLBN4 BZ Equity	KLAB	BR	Forest 500 & ZSL SPOTT	Pulp & Paper, Timber	4,700	Y
61	Koninklijke Ahold Delhaize NV	AD NA Equity	ADNA	NL	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Timber	6,205	Y
62	Kraft Heinz Co/The	KHC US Equity	KHC	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	21,329	Y
63	Kroger Co/The	KR US Equity	KR	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Timber	14,997	Y
64	Lear Corp	LEA US Equity	LEA	US	Forest 500	Pulp & Paper, Leather	2,700	Y
65	L'Oreal SA	OR FP Equity	ORFP	FR	Forest 500	Palm oil, Soy, Pulp & Paper	20,489	Y
66	Louis Dreyfus Co Finance BV	1915897D NA Equity	LOUDRE	NL	Forest 500	Palm oil, Soy	7,724	Y
67	Lowe's Cos Inc	LOW US Equity	LOW	US	Forest 500	Pulp & Paper, Timber, Leather	37,818	Y
68	LVMH Moet Hennessy Louis Vuitt	MC FP Equity	MCFP	FR	Forest 500	Palm oil, Soy, Pulp & Paper, Leather	27,739	Y
69	Mars Inc	4614Z US Equity	MARS	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	44,524	Y
70	Marubeni Corp	8002 JP Equity	MARUB	JP	Forest 500 & ZSL SPOTT	Palm oil, Soy, Pulp & Paper, Beef, Timber	9,921	Y
71	Masco Corp	MAS US Equity	MAS	US	Forest 500	Timber, Leather	2,940	N
72	MBRF Global Foods Co SA	MBRF3 BZ Equity	MRFGBZ	BR	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Leather	3,935	Y
73	McCormick & Co Inc/MD	MKC US Equity	MKC	US	Forest 500	Palm oil, Soy, Pulp & Paper	5,550	N

Count	Entity Name	Equity ticker	Credit ticker	Country of Risk	Coverage	Exposed Commodities	Total G7 debt issuer (USD mn)	DDU 2025
74	McDonald's Corp	MCD US Equity	MCD	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	42,180	Y
75	Mercedes-Benz Group AG	MBG GR Equity	MBGGR	DE	Forest 500	Pulp & Paper, Timber, Leather	61,233	N
76	Minerva SA/Brazil	BEEF3 BZ Equity	BEEFBZ	BR	Forest 500	Soy, Pulp & Paper, Beef, Leather	2,063	Y
77	Mitsubishi Corp	8058 JP Equity	MITCO	JP	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	18,414	Y
78	Mitsui & Co Ltd	8031 JP Equity	MITSCO	JP	Forest 500	Palm oil, Soy, Pulp & Paper, Timber	9,326	Y
79	Mondelez International Inc	MDLZ US Equity	MDLZ	US	Forest 500	Palm oil, Soy, Pulp & Paper	18,476	Y
80	Mondi PLC	MNDI LN Equity	MNDILN	AT	Forest 500	Pulp & Paper, Timber	3,990	N
81	Neste Oyj	NESTE FH Equity	NESVFH	FI	Forest 500	Palm oil, Soy	4,829	Y
82	Nestle SA	NESN SW Equity	NESNVX	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	71,848	Y
83	NIKE Inc	NKE US Equity	NKE	US	Forest 500	Pulp & Paper, Leather	8,000	Y
84	Nomad Foods Ltd	NOMD US Equity	IGBOND	GB	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	2,575	N
85	Olam International Ltd	OLAM SP Equity	OLGPSP	SG	Forest 500 & ZSL SPOTT	Palm oil, Soy, Pulp & Paper, Timber	1,314	Y
86	Pentland Capital Ltd	1323Q LN Equity	JDLN	GB	Forest 500	Pulp & Paper, Leather	2,542	N
87	PepsiCo Inc	PEP US Equity	PEP	US	Forest 500	Palm oil, Soy, Pulp & Paper	46,349	Y
88	Perkebunan Nusantara III PT	0782985D IJ Equity	PTPNIJ	ID	Forest 500 & ZSL SPOTT	Palm oil	390	N
89	Pertamina Persero PT	PERT IJ Equity	PERTIJ	ID	Forest 500	Palm oil	23,358	Y
90	Procter & Gamble Co/The	PG US Equity	PG	US	Forest 500	Palm oil, Pulp & Paper	32,508	Y
91	Reckitt Benckiser Group PLC	RKT LN Equity	RKTLN	GB	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	11,037	Y
92	Restaurant Brands Internationa	QSR CN Equity	BCULC	CA	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	13,577	Y
93	REWE International Finance BV	0750893D GR Equity	REWEEG	NL	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Timber	4,581	Y
94	SC Johnson & Son Inc	3273Z US Equity	SCJOHN	US	Forest 500	Palm oil, Pulp & Paper	2,500	Y
95	Sekisui House Ltd	1928 JP Equity	SEKIS	JP	Forest 500	Pulp & Paper, Timber	6,561	Y
96	Seven & i Holdings Co Ltd	3382 JP Equity	SEVENI	JP	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Timber	15,796	Y
97	Shell PLC	SHEL LN Equity	RDSALN	US	Forest 500	Palm oil, Soy	54,886	Y
98	Sigma Holdco BV	1577926D NA Equity	SIGHCO	NL	Forest 500	Palm oil, Soy, Pulp & Paper	7,181	Y
99	Skechers USA Inc	SKX US Equity	SKX	US	Forest 500	Pulp & Paper, Leather	8,884	N

Count	Entity Name	Equity ticker	Credit ticker	Country of Risk	Coverage	Exposed Commodities	Total G7 debt issuer (USD mn)	DDU 2025
100	Staples Inc	2619871D US Equity	SPLS	US	Forest 500	Pulp & Paper, Timber	7,298	Y
101	Starbucks Corp	SBUX US Equity	SBUX	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	16,200	Y
102	Stora Enso Oyj	STERV FH Equity	STERV	FI	Forest 500	Pulp & Paper, Timber	2,668	Y
103	Suzano SA	SUZB3 BZ Equity	SUZANO	BR	Forest 500 & ZSL SPOTT	Pulp & Paper, Timber	12,355	Y
104	Sysco Corp	SYY US Equity	SYY	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	11,082	Y
105	Tapestry Inc	TPR US Equity	TPR	US	Forest 500	Pulp & Paper, Leather	2,397	Y
106	Target Corp	TGT US Equity	TGT	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Timber, Leather	14,501	Y
107	Tesco PLC	TSCO LN Equity	TSCOLN	GB	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Timber, Leather	7,295	Y
108	TJX Cos Inc/The	TJX US Equity	TJX	US	Forest 500	Pulp & Paper, Timber, Leather	2,881	N
109	Tyson Foods Inc	TSN US Equity	TSN	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Leather	8,820	Y
110	Unilever PLC	ULVR LN Equity	UNANA	GB	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	30,890	Y
111	UPM-Kymmene Oyj	UPM FH Equity	UPMFH	FI	Forest 500	Pulp & Paper, Timber	9,012	Y
112	VF Corp	VFC US Equity	VFC	US	Forest 500	Pulp & Paper, Leather	4,634	Y
113	Walgreens Boots Alliance Inc	WBA US Equity	WBA	US	Forest 500	Palm oil, Soy, Pulp & Paper	95	Y
114	Walmart Inc	WMT US Equity	WMT	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Timber, Leather	38,690	Y
115	Weyerhaeuser Co	WY US Equity	WY	US	Forest 500	Timber	5,056	N
116	WH Group Ltd	288 HK Equity	SFD	HK	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	2,583	Y
117	Wilmar International Ltd	WIL SP Equity	WILSP	CN	Forest 500 & ZSL SPOTT	Palm oil, Soy, Pulp & Paper	2,517	Y
118	WM Morrison Supermarkets Ltd	MRW LN Equity	MRWLN	GB	Forest 500	Palm oil, Soy, Pulp & Paper, Beef, Timber, Leather	4,742	Y
119	Yum! Brands Inc	YUM US Equity	YUM	US	Forest 500	Palm oil, Soy, Pulp & Paper, Beef	7,217	Y
	BRF SA	BRFS3 BZ Equity	BRFSBZ	BR				Y
	China Beidahuang Industry Grou	39 HK Equity	SINODG	CN				Y
	Kellanova	K US Equity	K	US				Y

Appendix 2 – Deforestation Debt Universe methodology

Objective

The objective of our Deforestation Debt Universe methodology is to identify:

(1) A comprehensive universe of issuers;
(2) which have substantial deforestation exposure;
(3) that are significant to fixed income issuers

What follows is more detailed information on each step of the Universe's construction.

1) Comprehensive Universe

The Deforestation Debt Universe is designed to be comprehensive, which means represents a minimum level of exposure which is consistent. Non-inclusion also represents the absence of such exposure. We source data from Forest IQ.

Forest IQ

Forest IQ is a data platform launched in December 2022,[21] supported by an alliance of non-profit institutions including Global Canopy, the Stockholm Environment Institute (SEI), and the Zoological Society of London (ZSL).[22] The platform collates and sometimes expands data from a selection of providers along consistent fields and scales. It is focused on core metrics covering how companies are managing their exposures, their financial materiality, and reporting on deforestation and conversion of natural ecosystems and associated human rights abuses.

The data providers Forest IQ use include CDP, Deforestation Action Tracker, Forest 500, Stockholm Environmental Institute York (SEI York), Trase, ZSL's Sustainability Policy Transparency Toolkit (ZSL SPOTT) and the Roundtable on Sustainable Palm Oil (RSPO).[21]

Because Forest IQ collates data from a range of sources, including companies' self-disclosed reports, there is not necessarily a set of consistent inclusion criteria, or a fixed boundary for inclusion. This presents some challenges to our methodology.

Fortunately, two datasets used by Forest IQ do have comprehensive inclusion criteria. We have therefore restricted our Universe to entities covered by them. More information is provided below.

1) Forest 500

Forest 500 is a Global Canopy project, created in 2014, which *"identifies the companies and financial institutions with the greatest exposure to deforestation risk, and annually assesses them."* [23]

It has a clear and public methodology for both the country selection and company selection processes,[24] which appears robust, and therefore leads to a comprehensive assessment of the most exposed potential debt issuers.

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[21] "Forest IQ Methodology", Forest IQ, 22 Jan 2025.
[22] "About - Forest IQ", Forest IQ, accessed 23 Jan 2026.
[23] "About – Forest 500", Forest 500, accessed 23 Jan 2026.
[24] "How do we identify the companies and financial institutions?", Forest 500, accessed 23 Jan 2026.

2) ZSL SPOTT

Launched in 2014, ZSL SPOTT — developed by the Zoological Society of London — is a "*free, online platform assessing commodity producers, processors and traders on their public disclosure regarding their organisation, policies, and practices related to environmental, social, and governance (ESG) issues.*"[25]

SPOTT assesses Producers, Processors, and Traders who source from, and operate in, tropical forests across three commodities: palm oil, natural rubber, timber, and pulp. The toolkit covers the companies determined to have the largest impact on tropical forests and with the greatest potential and actual user interest.[26]

Even though scoring is based on self-reported data, the criteria for choosing the covered entities is based on a shortlisting process, discussed with a Technical Advisory Group, and names can be included or removed depending on relative performance.[26] This process gives us comfort around the comprehensiveness of the assessments offered.

Entity mapping

As already mentioned, the process of mapping entity names across data sources is complex. In order to cover outstanding debt, we use Bloomberg tickers as identifiers. Forest IQ provides ISIN identifiers for some of the companies it assesses, often several.

We analysed ISINs where provided, to map companies onto Bloomberg Equity tickers for further analysis.

2) Substantial deforestation exposure

Forest IQ developed its core metrics — focused on company exposure, financial materiality, and reporting on deforestation and conversion of natural ecosystems — to allow for comparisons across different sectors and supply chains, where previously data was hard to combine from different sources.[21]

As we are focused on identifying deforestation exposure, we used Forest IQ's Metric 1 Deforestation Exposure score (hereafter referred to as Metric 1) for company identification.

Metric 1 estimates *"… companies' exposure to deforestation and conversion of natural ecosystems by assessing the volume of a commodity produced, sourced or used with risk of deforestation. Where data is available, companies are assessed on the total annual volume of each commodity produced in or sourced from countries with risk of deforestation."*[27]

Each company is assessed under Metric 1 separately both by commodity and also by supply chain segment.[28]

Companies assessed by Forest IQ on Metric 1 can be given the following scores:

- 5: Critical

[25] "About SPOTT", SPOTT ZSL, accessed 23 Jan 2026.
[26] "SPOTT Methodologies", SPOTT.org, accessed 23 Jan 2026.
[27] P4 "Forest IQ Methodology", Forest IQ, 22 Jan 2025.
[28] Manufacturer, Producer, Trader, or Retailer.

- 4: Very high
- 3: High
- 3: Exposed (assessment pending)
- 2: Moderate
- 0: Not exposed

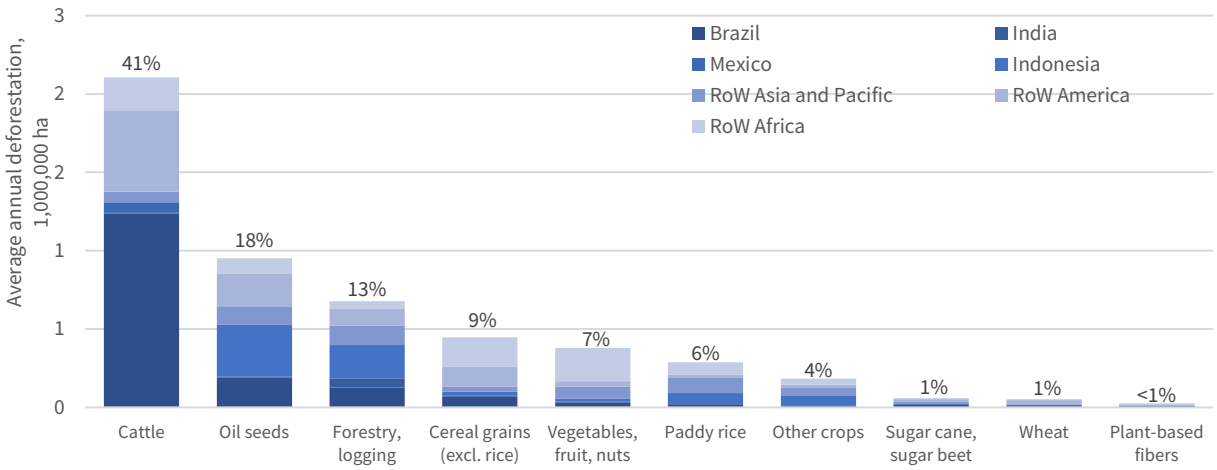
The exact thresholds used to score a company vary by commodity and their position in the supply chain. The scoring methodology uses volume data sourced the from SEI York, RSPO, and Trase.

In-scope commodities

Forest IQ gives scores for 11 commodities; palm oil, soy, pulp & paper, beef, timber, cocoa, coal, natural rubber, leather, coffee, and gold.[21] ZSL SPOTT considers palm oil, timber & pulp, and natural rubber.[26]

Analysis has shown that most global deforestation and land conversion occurs in tropical and subtropical countries, with the greatest portion (41%) being driven by beef, see Figure 2.[29]

Figure 2. Average annual deforestation by driver, 2010-2013. Source: Global Environmental Change (2019).[29]



Our Universe considers a focus list of six commodities: beef, leather, palm oil, soy, timber and pulp & paper. We will now give more details on the deforestation exposure of each.

- **Beef and leather:** Despite broad consensus on beef as a driver of deforestation and land conversion, there is mixed evidence as to the role of leather in this risk ecosystem. From a profitability perspective leather is considered a by-product of cattle, accounting for circa 5% of the total value of a live animal.[30] This would indicate that leather is less likely to be a driver of deforestation risk in and of itself. However, including leather as a commodity would bring companies higher in the value chain, specifically in the fashion industry,[31] into the issuer listing. As these companies are ultimately exposed to deforestation risk, we take

[29] "Agricultural and forestry trade drives large share of tropical deforestation emissions", Global Environmental Change, May 2019.
[30] "Leather – Harmless byproduct or crucial profit component", Material Innovation Initiative, 12 May 2024.
[31] "Nowhere to hide: How the fashion industry is linked to Amazon rainforest destruction", Stand.Earth, 29 Nov 2021.

a systemic risk approach and have included leather as an in-scope commodity because it profits from the processes that drive deforestation.

- **Oilseeds — palm oil and soy:** Brazil is the country most affected by soy-driven deforestation risk. South East Asia is the region most impacted by palm oil-driven deforestation risk,[32] although the Forest 500 finds it is also a threat in several LATAM jurisdictions, including Brazil.[33]
- **Forestry — timber and pulp & paper:** Large-scale logging, small-scale timber extraction, large-scale agriculture, and smallholder farming, are all activities covered by the timber and pulp & paper industry. It also includes the infrastructure related to these activities, such as roads and mills.[34]

Deforestation is an area where the data is evolving. Accordingly, we err on the side of commodity inclusion as this supports the objective of highlighting issuers that undertake activities that drive or contribute to deforestation and land conversion.

Substantial exposure

When considering entities with exposure only to our six in-scope commodities, the universe on this dataset is unchanged. We must now filter for substantial exposure.

We want to balance material concentrated exposure linked to a single commodity with less concentrated but broader exposure to multiple commodities, as this may indicate that a company has cumulative deforestation risk exposure which is substantial.

We select issuers with a maximum score of 'critical' or 'very high' exposure to deforestation risk, in any supply chain segment for any commodity.

We also include issuers with a score 3 for multiple commodities. A 3 score indicates either high deforestation risk, or assessment pending. The score for a given commodity is the maximum score across all supply chain segments.

3) Significant fixed income issuers

The objective is to identify issuers of relevance to fixed income investors. To do this, we have analysed the total debt outstanding of the Universe, and applied thresholds to find the most significant issuers.

The debt analysed is from Bloomberg's DDIS field, which includes bonds and loans across the credit family, and is available in currency of issuance.

Hard currency issuance

In order to focus on international investors, we have limited debt to currencies within the G7: USD, EUR, GBP, CAD, JPY.

[32] "Deforestation linked to agriculture", World Resources Institute, 4 Apr 2024.
[33] "Country Selection Methodology 2024", Forest 500, accessed 23 Jan 2026.
[34] P31-32, "Deforestation fronts: Drivers and responses in a changing world", WWF, 2021.

The original USD 2.5bn threshold was set to strike a balance between keeping the Deforestation Debt Universe a manageable size and including the maximum number of relevant issuers.

This threshold remains unchanged in the current iteration. However, two issuers whose outstanding debt has since fallen below the threshold have been retained, potentially in anticipation of additional debt issuance in the near future.

Issuer versus parent level debt

Corporate issuance structures can sometimes be complex, so to capture the maximum potential number of issuers, where debt from the issuing entity is below the threshold we have considered if there is debt at its parent entity.

This methodology is subject to ongoing review and analysis.

Version Log

Date	Comment
29 Jan 2026	Document published
29 Jan 2026	Universe updated to remove Koninklijke KPN, a mapping error from ForestIQ.
17 Feb 2026	Credit tickers for WBA US Equity, JBS US Equity and 0782985D IJ Equity updated.

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