Planet Tracker

Changing Markets Foundation

HOT MONEY

40 financial institutions are funding a climate-changing **agri-methane footprint**

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Appendix

EXECUTIVE SUMMARY

20 INVESTORS and 20 BANKS are funding the methane generating activities of 15 of the leading meat and dairy companies worldwide.

This report focuses on the 20 investors and 20 banks that are funding the methane generating activities of 15 of the leading meat and dairy companies worldwide. Collectively these financial institutions fund a methane footprint that could exceed 503 Mt CO_2e[1] – nearly as big as the CO_2 emissions of Saudi Arabia[2].

The **policy frameworks** disclosed by these financial institutions are **weak or non-existent. Not only are they at odds with the Global Methane Pledge signed by their home countries, the financial institutions do not disclose the methane emissions that their funding supports**.

The **aggregate agri-methane footprint attributable to the top 20 equity investors in these 15 meat and dairy companies is 68 Mt CO_2e of methane – more than the CO_2 emissions of Austria. Vanguard** takes first place, with **BlackRock** second and **State Street** third. The following asset managers rank outside the top 50 globally[i] in terms of their size but feature in our top 20 equity holders: **Zürcher Kantonalbank (Asset Management), Hohhot Investment Company Ltd., Artisan Partners Asset Management Inc., Pictet & Group SCA Cie,** and **First Eagle Holdings Inc.**

The **agri-methane footprint attributable to the top 20 banks funding these 15 meat and dairy companies is 202.5 Mt CO_2e** – roughly three times the investors' footprint and **nearly as large as the CO_2 footprint of countries like Spain**. Because of its focus on meat, **Morgan Stanley** takes the top slot, followed by **JP Morgan** and **HSBC**.

The **more conservative 'equal responsibility' estimation method would suggest a footprint for the banks of 434.9 Mt CO_2e**.

[1] Carbon dioxide equivalent – a measure that converts different greenhouse gases into tonnes of CO_2 based on their different warming potentials.

[2] We compared to CO_2 rather than methane because methane calculations vary so CO_2 provides a simpler benchmark. All our country CO_2 emissions data comes from the World Bank https://data.worldbank.org/indicator/EN.ATM.CO2E.KT?most_recent_value_desc=true

Why methane is a problem... and an opportunity

Methane is a powerful but short-lived climate pollutant that over a twenty-year period has a **global warming potential 80 times worse** than an equivalent amount of CO_2 emissions.[ii] In 2021, atmospheric methane concentrations reached 262% above pre-industrial levels.[iii] Livestock agriculture is the single largest contributor, responsible for around 32% of anthropogenic methane emissions.[iv]

Methane's short-lived and very potent profile means that **action taken now can have an amplified positive impact** in slowing global warming between now and 2050.

The methane footprint of 15 meat & dairy companies

The Changing Markets Foundation (CMF) and the Institute for Agriculture and Trade Policy (IATP) estimate[v] that the 15 meat and dairy companies have a **combined methane footprint 52% higher than the livestock-related methane emissions of the EU** and **47% higher than those of the US**.

Methane makes their overall GhG footprints greater than oil majors such as Exxon Mobil and BP.

On a Global Warming Potential (GWP20) basis[3], **methane emissions for the 15 meat and dairy companies** amount to **1.0 gigatonnes CO_2e**. 52% of these emissions come from just two companies: **JBS** (382 Mt CO_2e) and **Marfrig** (149 Mt CO_2e).[vi]

[3] Global Warming Potential (GWP) is a measure of how much energy the emissions of one ton of a gas will absorb over a given period of time, relative to the emissions of one ton of carbon dioxide (CO_2). The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period. The period usually used for GWPs (particularly for comparing countries) is 100 years, however we have used 20 years since this more closely matches the period to 2050 and thus the period over which companies and financial institutions need to achieve the required change.

[4] Bond holdings are often not disclosed so we believe this figure is likely to be an underestimate – it could be as high as USD 50 billion, implying the methane footprint of investors is likely to be higher than the figure we calculate.

Which financial institutions fund these companies?

Planet Tracker has identified the **top financial institutions** (FIs) – 20 investors and 20 providers of bank financing – that are linked to these meat & dairy companies (typically supporting multiple companies – see pages 7 & 8).

The combined **investment** totals **USD 115 billion in equities** and **USD 3 billion in bonds**[4]; BlackRock, Capital and Vanguard rank 1–3 among investors. **Bank financing** over the past ten years totals **USD 400 billion**; JP Morgan, Morgan Stanley and BNP Paribas rank 1–3 among banks.

Attributing a methane footprint to investors and financers

We **calculate attributable methane footprints** on a CO_2e GWP20 basis for the top 20 financial institutions using a **kilo of methane CO_2e per dollar of capital**. This measure ranges from 13.9 CO_2e kg/USD for JBS to 0.1 CO_2e kg/USD for Nestlé[5].

Vanguard has the largest attributable methane footprint (21 Mt CO_2e) followed by Blackrock (16 Mt CO_2e). **The top 20 investors** have a **combined attributable methane footprint of 68 Mt** CO_2e – similar to the CO_2 footprint of **Austria**.[vii]

Applying a similar process to the **top 20 banks** we calculate a **combined attributable methane footprint of 202.5 Mt** CO_2e – significantly higher than the equity investor footprint and close to the CO_2 footprint of countries like **Spain**.[viii]

We have also calculated an '**equal responsibility**' methane footprint for the top 20 banks[6]. The result is a **combined attributable methane footprint of 434.9 Mt** CO_2e – higher than the **CO_2 footprint of the UK, Australia or Turkey**.

On the equal responsibility basis, **JP Morgan Chase** has an attributable banking **methane footprint of 68 Mt** CO_2e – almost as much as all the equity and bond investors combined.

[5] Our methane footprint methodology is discussed later in this report.

[6] This method produces a higher methane footprint; the methodology is discussed later in this report.

[7] BNP's Swiss Foundation is a signatory to methane commitments organized by Ceres and the IIGCC but the bank itself is not – see discussion later in this report

Financial institutions' methane-linked policies

More than 100 countries signed the **Global Methane Pledge** ('the Pledge'). The Pledge was launched at COP26 and agreed to **reduce global methane emissions by at least 30 percent from 2020 levels by 2030**. All but one of the forty financial institutions in this report are domiciled in a country that is a signatory to the Pledge, but **none of them have signed a specific methane reduction commitment** or campaign[7].

Only nine of the 40 FIs have a **policy** that **specifically covers methane** emissions from funded companies and these policies focus on methane related to oil & gas linked emissions – **not livestock**.

However, **15** of the **FIs have a policy that covers land use or sustainable agriculture**. Yet again the **focus is not on livestock methane emissions**, with only three referencing it.

Planet Tracker has scored the FIs on whether they have a **policy** a) on financing **sustainable agriculture** and/or land use, b) that covers **methane emissions** from funded companies, and c) that covers **GhG emissions** from funded companies, along with a series of follow-on questions.

No FI scores over half marks and **ten – 25% of the forty – score zero**. These results are largely in line with the low **World Benchmark Alliance scores** for respecting planetary boundaries awarded to the same institutions, highlighting the extent to which FIs are failing to address this issue.

Sovereign wealth funds should align with the Global Methane Pledge

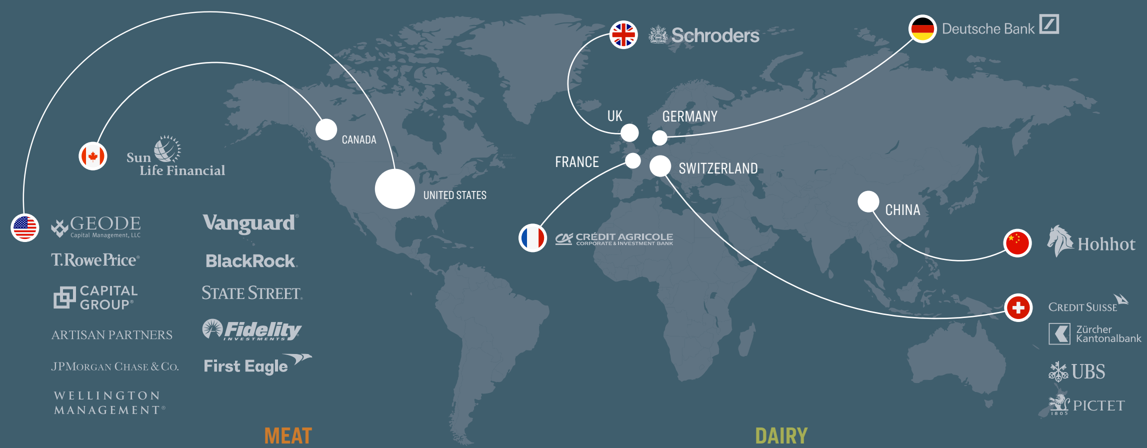
This report does not specifically cover sovereign wealth funds (SWFs) but two funds (relating to Brazil and Norway) are significant investors in the 15 meat and dairy companies. However, in spite of the fact that their sponsoring countries are Global Methane Pledge signatories, these SWFs do not have specific methane reduction policies.

[5] Our methane footprint methodology is discussed later in this report.

[6] This method produces a higher methane footprint; the methodology is discussed later in this report.

[7] BNP's Swiss Foundation is a signatory to methane commitments organized by Ceres and the IIGCC but the bank itself is not – see discussion later in this report

Top 20 investors methane footprint and company support



✔ YES
✖ NO
⊖ NOT INVOLVED
$ INVOLVED

Investor	TOTAL METHANE FOOTPRINT (Kt CO2e, GWP20)	HAVE A METHANE POLICY	POLICY APPLIES TO MEAT OR DAIRY: MEAT	POLICY APPLIES TO MEAT OR DAIRY: DAIRY	MEAT: JBS	MEAT: Marfrig	MEAT: Tyson	MEAT: WH Group	MEAT: Danish Crown	DAIRY: DFA	DAIRY: Lactalis	DAIRY: Fonterra	DAIRY: Yili	DAIRY: Saputo	DAIRY: Arla	DAIRY: Nestlé	DAIRY: FrieslandCampina	DAIRY: Danone	DAIRY: dmk Group
Vanguard	20.793	✖	✖	✖	$	$	$	$	⊖	⊖	⊖	$	$	$	⊖	$	⊖	$	⊖
BlackRock	15.780	✖	✖	✖	$	$	$	$	⊖	⊖	⊖	⊖	$	$	⊖	$	⊖	$	⊖
State Street	5.821	✖	✖	✖	$	$	$	$	⊖	⊖	⊖	$	$	$	⊖	$	⊖	$	⊖
Fidelity	5.358	✖	✖	✖	$	$	$	$	⊖	⊖	⊖	$	$	$	⊖	$	⊖	$	⊖
Hohhot	3.392	✖	✖	✖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	$	⊖	⊖	⊖	⊖	⊖	⊖
GEODE	2.744	✖	✖	✖	$	$	$	$	⊖	⊖	⊖	⊖	$	$	⊖	$	⊖	$	⊖
Capital Group	2.370	✖	✖	✖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	$	⊖	⊖	$	⊖	$	⊖
T.RowePrice	1.979	✖	✖	✖	⊖	⊖	$	$	⊖	⊖	⊖	⊖	$	$	⊖	$	⊖	$	⊖
UBS	1.645	✖	✖	✖	$	$	$	$	⊖	⊖	⊖	$	$	$	⊖	$	⊖	$	⊖
Sun Life Financial	1.453	✖	✖	✖	$	⊖	$	$	⊖	⊖	⊖	⊖	$	$	⊖	$	⊖	$	⊖
Credit Agricole	1.315	✖	✖	✖	$	$	$	$	⊖	⊖	⊖	$	$	$	⊖	$	⊖	$	⊖
Artisan Partners	1.139	✖	✖	✖	⊖	⊖	$	$	⊖	⊖	⊖	⊖	⊖	$	⊖	$	⊖	$	⊖
JPMorgan Chase & Co.	1.146	✖	✖	✖	$	$	$	$	⊖	⊖	⊖	⊖	$	$	⊖	$	⊖	$	⊖
Deutsche Bank	1.018	✖	✖	✖	$	⊖	$	$	⊖	⊖	⊖	⊖	$	$	⊖	$	⊖	$	⊖
Credit Suisse	700	✖	✖	✖	$	$	$	$	⊖	⊖	⊖	⊖	$	$	⊖	$	⊖	$	⊖
First Eagle	519	✖	✖	✖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	$	⊖	$	⊖
Pictet	314	✖	✖	✖	$	$	$	$	⊖	⊖	⊖	⊖	$	$	⊖	$	⊖	$	⊖
Zürcher Kantonalbank	287	✖	✖	✖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	$	$	⊖	$	⊖	$	⊖
Wellington Management	358	✖	✖	✖	$	$	$	$	⊖	⊖	⊖	⊖	$	$	⊖	$	⊖	$	⊖
Schroders	231	✖	✖	✖	⊖	$	$	$	⊖	⊖	⊖	⊖	⊖	$	⊖	$	⊖	$	⊖

Top 20 banks methane footprint and company support

- ✓ YES
- ✗ NO
- N NOT SPECIFIED
- – NOT INVOLVED
- $ INVOLVED

Bank	Total methane footprint (Kt CO2e, GWP20)	Have a methane policy	Policy applies to meat or dairy: Meat	Policy applies to meat or dairy: Dairy	MEAT: JBS	MEAT: Marfrig	MEAT: Tyson	MEAT: WH Group	MEAT: Danish Crown	DAIRY: DFA (Dairy Farmers of America)	DAIRY: Lactalis	DAIRY: Fonterra	DAIRY: Yili	DAIRY: Saputo	DAIRY: Arla	DAIRY: Nestlé	DAIRY: FrieslandCampina	DAIRY: Danone	DAIRY: dmk Group
Morgan Stanley	39.689	✗	✗	✗	–	$	$	$	–	–	–	–	–	–	–	–	–	–	–
JPMorgan Chase & Co.	31.448	✗	✗	✗	$	$	$	$	–	$	–	$	–	–	–	$	–	$	–
HSBC	19.197	✗	✗	✗	–	$	$	$	–	–	$	$	–	–	–	$	–	$	–
Societe Generale	17.920	✗	✗	✗	–	–	–	–	–	–	$	$	–	–	–	$	–	$	–
Crédit Agricole Corporate & Investment Bank	17.391	✗	✗	✗	–	–	–	$	–	–	$	–	–	–	$	$	–	$	–
BNP Paribas	14.121	✓	N	N	–	–	–	$	–	–	$	–	–	–	–	$	–	$	–
Natixis	12.765	✗	✗	✗	–	–	–	$	–	–	$	–	–	–	–	–	–	$	–
UniCredit	10.178	✗	✗	✗	–	–	–	–	–	–	$	–	–	–	–	–	–	–	$
BMO Bank of Montreal	8.012	✓	N	N	–	–	–	–	–	–	–	–	–	$	–	–	–	–	–
National Bank of Canada	7.803	✗	✗	✗	–	–	–	–	–	–	–	–	–	$	–	–	–	–	–
Bank of America	7.339	✗	✗	✗	–	$	$	$	–	$	–	$	–	–	–	$	–	–	–
RBC Royal Bank®	4.076	✗	✗	✗	–	–	$	–	–	–	–	–	–	$	–	$	–	–	–
Barclays	3.105	✓	N	N	–	–	$	$	–	–	–	–	–	–	–	$	–	$	–
MUFG Bank of Tokyo-Mitsubishi UFJ	2.550	✗	✗	✗	–	–	–	–	–	–	$	–	–	–	–	$	–	$	–
Santander	2.398	✗	✗	✗	$	$	–	–	–	–	–	–	–	–	–	$	–	$	–
ING	2.392	✗	✗	✗	–	–	–	$	–	–	$	–	–	–	–	$	–	$	–
citigroup	1.154	✗	✗	✗	–	–	–	$	–	–	–	$	–	–	–	$	–	$	–
Deutsche Bank	582	✗	✗	✗	–	$	–	$	–	–	–	$	–	–	–	$	–	–	–
Credit Suisse	218	✗	✗	✗	–	–	–	$	–	–	–	–	–	–	–	$	–	–	–
UBS	218	✗	✗	✗	–	–	–	$	–	–	–	–	–	–	–	$	–	–	–

INVESTOR CALL TO ACTION

- FIs should require the companies they fund to have clear policies and procedures to cut methane emissions, particularly those arising from agriculture (including Scope 3). Banks should include this requirement within their lending agreements.
- FIs should demand that energy, meat and dairy companies publish quantified, independently verified, full methane emission disclosure (scope 1, 2, 3) by product line and geography, on a timely basis.
- FIs should require funded companies to publish production data, by product line and geography, in their annual reports.
- FIs should set an investment policy linked to quantitative, time-framed and science-based methane reduction targets. These need to extend to agriculture and in particular livestock and should be integrated into their net zero strategy.
- FIs should report annually on their progress with respect to limiting methane emissions, including those from agriculture.

WHY READ THIS REPORT

This report estimates an attributable methane footprint for the key financial institutions that fund 15 of the main methane-emitting meat and dairy companies and sets out the actions that financial institutions need to take to address the agri-methane issue.

WHY IS METHANE A PROBLEM?

Methane (CH_4) is a powerful but short-lived climate pollutant. Depending on which study you reference, methane accounts for between a quarter[ix] and half[x] of the net rise in global average temperature since the pre-industrial era.

Over a twenty year period, methane emissions have a global warming impact that is 80 times worse than an equivalent amount of CO_2 emissions.[xi] However, unlike CO_2, methane breaks down in the atmosphere, reducing to half its level in around 11 years[xii] – see Figure 1.

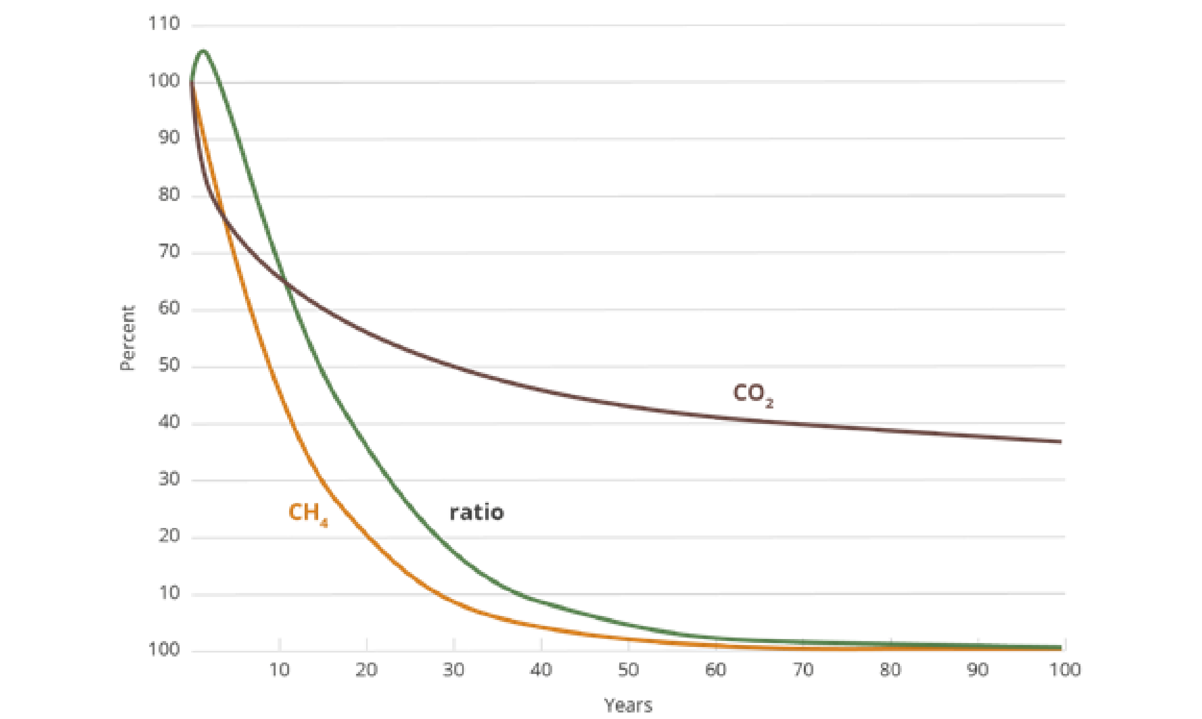


Figure 1: The persistence of CO_2 and methane (CH_4) in the atmosphere over time. Source: Muller RA, Muller EA (2017), Fugitive Methane and the Role of Atmospheric Half-Life. Geoinfor Geostat: An Overview 5:3).[xiii]

Because of this, taking positive action now to reduce methane emissions has an amplified impact. UNEP's Global Methane Assessment estimates that **reducing human-caused methane emissions by as much as 45 per cent by 2030 would avoid nearly 0.3°C of global warming by the 2040s** and complement all long-term climate change mitigation efforts. It would also prevent on an annual basis '*255 000 premature deaths, 775 000 asthma related hospital visits, 73 billion hours of lost labour from extreme heat, and 26 million tonnes of crop losses globally*'.[xiv]

Measures to slow the rate of global warming and related roadmaps tend to focus on two key timeframes: between the present day and 2030 and between 2030 and 2050. In the context of a twenty-year time horizon, methane emissions reductions are particularly important given the speed with which they would be effective.

"cows are the new coal"

Jeremy Coller, FAIRR

Methane is emitted from a variety of anthropogenic (human-influenced) and natural sources. In the USA, methane accounted for 11% of greenhouse gas emissions in 2020. Agriculture accounts for 48% of the total methane emissions – larger than natural gas and petroleum systems – see Figure 2.

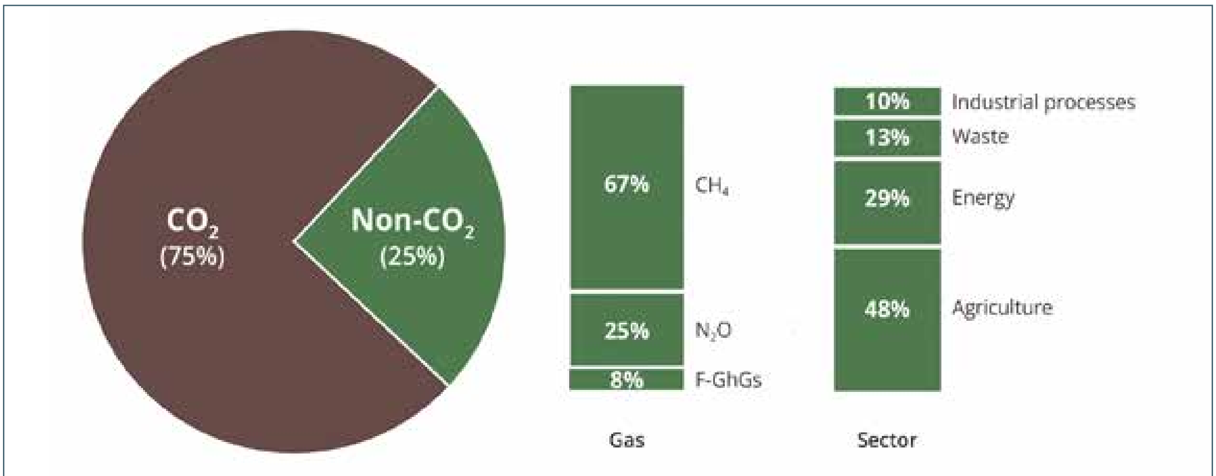


Figure 2: Global non-CO_2 emissions by gas and sector in 2015.
Source: Global Non-CO_2 Greenhouse Gas Emission Projections & Mitigation, 2015-2050, EPA.[xv]
CH_4: methane; N_20: nitrous oxide; F-GhGs: fluorinated greenhouse gases.

Methane emitted by livestock (enteric fermentation and manure) accounted for 25% of the non-CO_2 total. Croplands accounted for 16% and over 5% related to rice cultivation.[xvi]

Methane emissions have continued to grow since 2015 so this is consistent with estimates that **livestock accounts for a third of global methane emissions**.[xvii] In the words of Jeremy Coller, Chair of FAIRR investor network, "**cows are the new coal**".[xviii]

While CO_2 has been front and centre of climate discussion and policy measures, governments have only recently woken up to methane. It wasn't until COP26 in November 2021 that the Global Methane Pledge was launched.

The countries that have signed the Pledge agreed to take voluntary actions to contribute to a collective effort to reduce global methane emissions by at least 30 percent from 2020 levels by 2030, which could eliminate over 0.2°C warming by 2050. In November 2022, at COP27, the US and EU announced the launch of the 'GMP Food and Agriculture Pathway' which includes a focus on reducing agri-methane emissions supported by a variety of new initiatives.[xix]

At the moment there is little sign that financial institutions are following the lead set by their host countries. None of the financial institutions covered in this report has a policy that specifically covers methane emissions from livestock.

THE METHANE FOOTPRINT OF 15 MEAT & DAIRY COMPANIES

The Changing Markets Foundation (CMF) and the Institute for Agriculture and Trade Policy (IATP) have calculated the GhG and methane-specific emissions for a geographically diverse sample of five meat and 10 dairy companies using the U.N. Food and Agriculture Organization (FAO)'s Global Livestock Environmental Assessment Model (GLEAM).[viii]

The GhG emissions for each company were calculated by combining regional production estimates with regional average GhG emissions intensity data for meat (cattle, pigs and chickens) and milk production from GLEAM 2.0.

Figure 3 depicts the 'absolute' estimated methane emissions of the 15 companies[8].

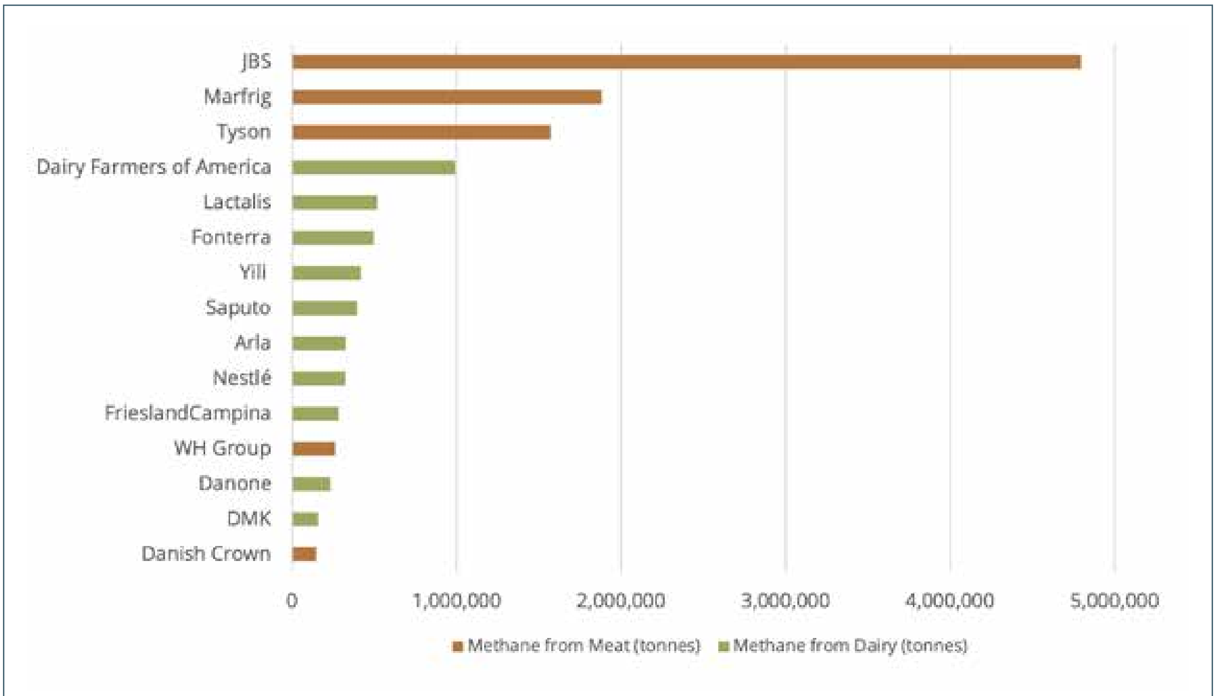


Figure 3: Methane emissions (tonnes) of 15 companies – 5 meat and 10 dairy. Source: CMF and IATP.[xx]

The significant divergence in levels for two of the meat companies, Danish Crown and WH Group, can be explained by their focus on pigs, which produce less methane per kilo of food product than beef.[xxi] In contrast, the three largest methane emitters, JBS, Marfrig and Tyson, are predominantly cattle-based, which (unlike pigs) generate large quantities of methane from enteric fermentation as well as manure.

The GLEAM emissions factors are disaggregated by emissions source and by GhG, allowing emissions of carbon dioxide, methane and nitrous oxide to be estimated and expressed in terms of tonnes of carbon dioxide equivalent (CO_2e) emissions.

[8] Nestlé's methane emissions were only calculated for their dairy business due to limited disclosures and so may not capture all their methane emissions but we believe their meat inputs are not material when compared to other companies in this list. Because we are comparing the companies to each other, we have not converted their methane emissions into CO_2 equivalent units.

Methane emissions mean that the overall GhG impact (on a GWP100 basis[9]) of the 15 meat and dairy companies is greater than that of oil majors like PetroChina and ExxonMobil and major countries like Germany.

As shown in Figure 4, the GhG impact of the largest emitter, Brazil's JBS, is more than half that of oil major BP or the country GhG emissions of Australia, and exceeds the GhG emissions of oil majors such as Occidental and Conoco Philips.

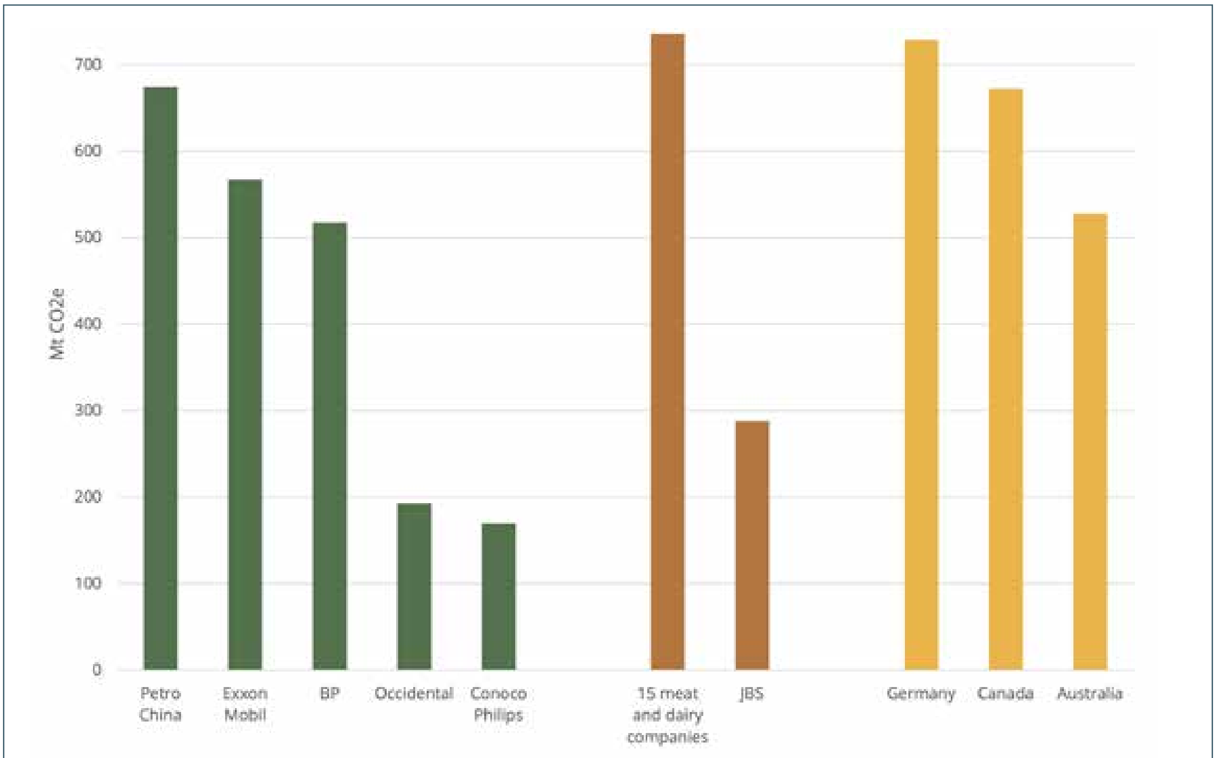


Figure 4: GhG comparison on a CO_2 equivalent 100-year basis (Mt). Source: CMF and IATP.[xxii]

OVERALL GhG IMPACT of the 15 meat and dairy companies is greater than that of oil majors and major countries.

[8] GWP (Global Warming Potential) is a measure of how much energy the emissions of one ton of a gas will absorb over a given period of time, relative to the emissions of one ton of carbon dioxide (CO_2). The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period. The time period usually used for GWPs (particularly for comparing countries) is 100 years, however we have used 20 years for most of our analysis since this more closely matches the period to 2050 and thus the period over which companies and financial institutions need to achieve the required change.

As shown in Table 1, methane emissions of the 15 companies are estimated to be 345 Mt CO_2e per annum (GWP100) and around 1.0 Gt on the higher GWP20 basis. On the more relevant GWP20 measure, methane on average accounts for 72% of the GhG footprint (1.4 Gt CO_2e) for the 15 companies.

Table 1: Total Methane and GhG emissions (Mt) of 15 companies. Source: CMF and IATP.[xxiii]

Methane and GhG emissions	MEAT					DAIRY										
	JBS	Marfrig	Tyson	WH Group	Danish Crown	Dairy Farmers of America	Lactalis	Fonterra	Yili	Saputo	Arla	Nestlé	Feiesland Campina	Danone	DMK	Total
CH_4 emissions	4.8	1.9	1.6	0.3	0.1	1.0	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2	**12.8**
Total GhG emissions CO_2e, GWP100 basis	287.9	102.6	83.8	23.9	14.4	45.6	30.0	30.9	22.2	18.1	18.9	18.8	16.3	11.2	9.1	**734.0**
CH_4 emissions CO_2e, GWP100 basis	129.4	50.8	42.5	7.1	4.0	26.7	14.0	13.4	11.3	10.6	8.8	8.7	7.6	6.3	4.2	**345.3**
Total GhG emissions CO_2e, GWP20 basis	540.6	201.8	166.7	37.7	22.2	97.8	57.2	57.0	44.2	38.8	36.1	35.9	31.1	23.4	17.4	**1408.0**
CH_4 emissions CO_2e, GWP20 basis	382.1	150.0	125.3	20.8	11.7	78.9	41.2	39.4	33.2	31.3	26.0	25.8	22.4	18.5	12.5	**1019.4**
CH_4 / GhG, CO_2e GWP20 basis	71%	74%	75%	55%	53%	81%	72%	69%	75%	81%	72%	72%	72%	79%	72%	**72%**

WHICH FINANCIAL INSTITUTIONS FUND THESE COMPANIES?

For the 15 meat and dairy companies analysed by CMF and IATP, Planet Tracker has identified the top 20 financial institutions (FIs) in terms of a) equity ownership, b) bond ownership and c) bank funding. These funders are predominately large well-known entities with five (UBS, Credit Suisse, Deutsche Bank, Crédit Agricole and JP Morgan) featuring as top 20 participants in all three funding strands – see Table 2.

Table 2: Funding of 15 meat and dairy companies by top 20 equity owners. Source: Planet Tracker.

Top 20 financial institutions	Country	Equity investment USD billion	Equity owner	Bond holder	Financier
BlackRock Inc	USA	30.3	•	•	-
Capital Group	USA	18.1	•	-	-
Vanguard Group Inc	USA	14.3	•	•	-
Sun Life Financial Inc	Canada	7.3	•	•	-
UBS Group AG	Switzerland	6.5	•	•	•
Credit Suisse Group AG	Switzerland	4.5	•	•	•
Fidelity	US & UK	4.2	•	-	-
Zürcher Kantonalbank (Asset Mgt)	Switzerland	3.7	•	-	-
Hohhot Investment Company Ltd	China	3.1	•	-	-
Deutsche Bank AG	Germany	2.9	•	•	•
State Street Corp	USA	2.6	•	•	-
Geode Capital Holdings LLC	USA	2.5	•	-	-
Crédit Agricole SA	France	2.5	•	•	•
JPMorgan Chase & Co	USA	2.2	•	•	•
Artisan Partners Asset Mgt Inc	USA	2.0	•	-	-
Pictet & Group SCA Cie	Switzerland	2.0	•	•	-
First Eagle Holdings Inc	USA	1.8	•	-	-
T Rowe Price Group Inc	USA	1.7	•	•	-
Wellington Management Group LLP	USA	1.4	•	•	-
Schroders PLC	UK	1.2	•	•	-

A number of asset managers rank higher in terms of their investments in the meat and dairy companies when compared to their size vs. their peers, implying they are more exposed. We discuss this in the following section.

Equity

Seven of the 15 meat and dairy companies are private, often with co-operative/farmer linked ownership structures. One of these, Fonterra, does however have a fund structure which is listed and allows the public to invest. The remaining eight are publicly listed entities. All are widely held with over half the FI's owning all eight. Unsurprisingly, 19 of the 20 FIs own Nestlé and Danone. Possibly more surprising, 13 of the 20 own JBS, the largest methane emitter by some margin – see Table 3.

Table 3: Equity Ownership of 15 Meat and Dairy Companies by Financial Institutions. Source: Planet Tracker.

Top 20 financial institutions	MEAT					DAIRY										Total number owned
	JBS	Marfrig	Tyson	WH Group	Danish Crown	Dairy Farmers of America	Lactalis	Fonterra	Yili	Saputo	Arla	Nestlé	Feiesland Campina	Danone	DMK	
BlackRock Inc	3	x	2	4	-	-	-	-	x	x	-	1	-	1	-	9
Capital Group	-	-	-	-	-	-	-	-	x	-	-	2	-	4	-	4
Vanguard Group Inc	2	x	1	x	-	-	-	-	x	4	-	3	-	x	-	9
Sun Life Financial Inc	x		x	x	-	-	-	-	x	x	-	5	-	2	-	8
UBS Group AG	x	x	x	x	-	-	-	-	x	x	-	4	-	x	-	9
Credit Suisse Group AG	x	x	x	x	-	-	-	-	x	x	-	x	-	x	-	9
Fidelity	4	x	5	x	-	-	-	-	-	x	-	x	-	x	-	8
Zürcher Kantonalbank (Asset Mgt)	-	-	-	-	-	-	-	-	x	x	-	x	-	x	-	5
Hohhot Investment Company Ltd	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	2
Deutsche Bank AG	x	-	x	x	-	-	-	-	x	x	-	x	-	x	-	8
State Street Corp	x	x	3	x	-	-	-	-	x	x	-	x	-	x	-	9
Geode Capital Holdings LLC	x	x	x	x	-	-	-	-	x	x	-	x	-	x	-	9
Crédit Agricole SA	x	x	x	x	-	-	-	-	x	x	-	x	-	5	-	9
JPMorgan Chase & Co	x	x	x	x	-	-	-	-	x	x	-	x	-	x	-	9
Artisan Partners Asset Mgt Inc	-	-	x	x	-	-	-	-	-	x	-	x	-	3	-	6
Pictet & Group SCA Cie	x	x	x	x	-	-	-	-	x	x	-	x	-	x	-	9
First Eagle Holdings Inc	-	-	-	-	-	-	-	-	-	-	-	x	-	x	-	3
T Rowe Price Group Inc	-	-	x	x	-	-	-	-	x	x	-	x	-	x	-	7
Wellington Management Group LLP	x	x	x	x	-	-	-	-	x	x	-	x	-	x	-	9
Schroders PLC	-	x	x	x	-	-	-	-	-	x	-	x	-	x	-	7
Total	**13**	**12**	**16**	**16**					**16**	**17**		**19**		**19**		

*Note: **1** to **5** indicate the top five investors (**1** being largest), while **X** indicates a non-top five investor and **–** indicates non-investor.*

On a combined basis the top 20 FIs have USD 115 billion invested in the nine listed companies. USD 10 billion of this is in the four meat companies and USD 105 billion in the five dairy companies. This represents 23% and 28% respectively of the total market capitalisation of each sub-sector, a material level – see Figure 5.

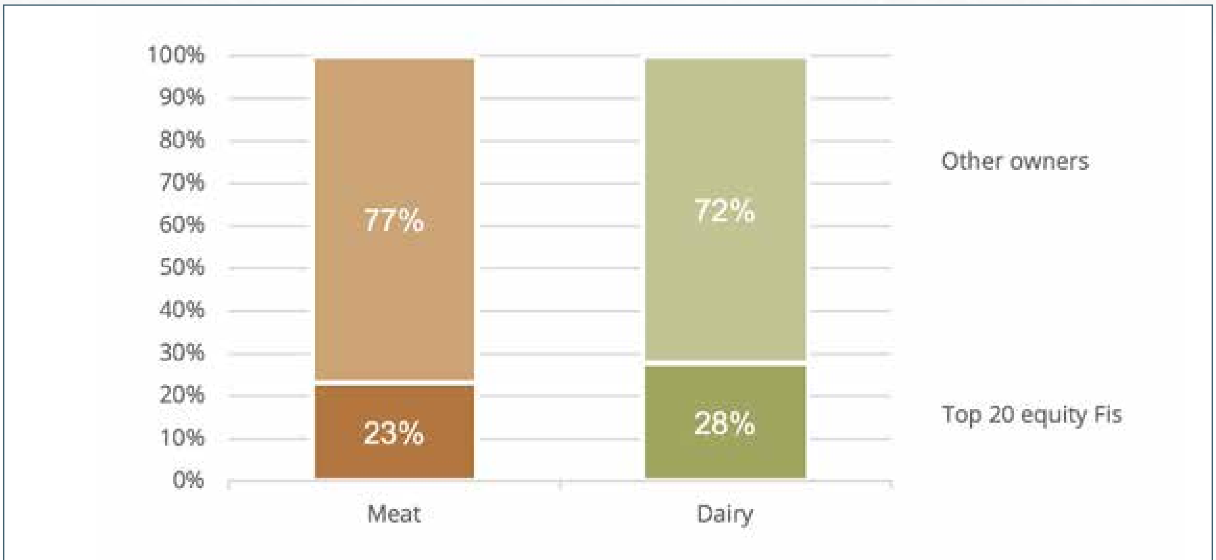


Figure 5: Ownership by top 20 meat and dairy shareholders. Source: Planet Tracker.

Equity investors like meat producers

Only four of the top 20 FIs have no holdings in the higher methane-emitting meat sector: Capital Group, Zürcher Kantonalbank, Hohhot Investment and First Eagle Investments – see Table 4.

We have excluded two types of equity investor

When compiling our list of top equity owners we have omitted two types of entities.

- Financial holding companies of founders/owners since we do not regard these as external funders. This includes J&F Investimentos SA (JBS) and Jolina Capital Inc (Saputo).
- Sovereign Wealth Funds (SWFs). This includes the Federal Republic of Brazil (JBS and Marfrig) and the Kingdom of Norway (USD 11 billion invested in six of the nine listed companies). SWFs are discussed in more detail in the following section.

Table 4: Who owns what? Equity ownership of top 20 financial institutions, USD million. Source: Planet Tracker.

Top 20 financial institutions	MEAT					DAIRY										Total value owned	Over (O) / Under (U)
	JBS	Marfrig	Tyson	WH Group	Danish Crown	Dairy Farmers of America	Lactalis	Fonterra	Yili	Saputo	Arla	Nestlé	Feiesland Campina	Danone	DMK		
BlackRock Inc	165	11	2,013	244	-	-	-	-	161	128	-	24,840	-	2,761	-	30,324	
Capital Group	-	-	-	-	-	-	-	-	401	-	-	15,913	-	1,781	-	18,095	O
Vanguard Group Inc	251	27	3,274	156	-	-	-	-	73	174	-	9,446	-	904	-	14,306	U
Sun Life Financial Inc	0	-	13	3	-	-	-	-	120	4	-	5,345	-	1,822	-	7,306	O
UBS Group AG	8	0	151	16	-	-	-	-	161	10	-	5,737	-	448	-	6,533	O
Credit Suisse Group AG	7	0	47	7	-	-	-	-	8	3	-	4,407	-	69	-	4,548	O
Fidelity	136	3	716	11	-	-	-	-	-	31	-	3,257	-	13	-	4,166	U
Zürcher Kantonalbank (Asset Mgt)	-	-	-	-	-	-	-	-	1	1	-	3,693	-	13	-	3,708	O
Hohhot Investment Company Ltd	-	-	-	-	-	-	-	-	3,132	-	-	-	-	-	-	3,132	O
Deutsche Bank AG	6	-	124	13	-	-	-	-	4	4	-	2,527	-	272	-	2,950	O
State Street Corp	11	5	1,281	83	-	-	-	-	9	14	-	1,095	-	125	-	2,622	U
Geode Capital Holdings LLC	27	0	512	43	-	-	-	-	7	15	-	1,715	-	201	-	2,520	O
Crédit Agricole SA	19	1	54	3	-	-	-	-	12	1	-	718	-	1,682	-	2,491	U
JPMorgan Chase & Co	1	2	50	33	-	-	-	-	557	19	-	1,399	-	92	-	2,153	U
Artisan Partners Asset Mgt Inc	-	-	90	0	-	-	-	-	-	0	-	147	-	1,799	-	2,036	O
Pictet & Group SCA Cie	3	0	24	2	-	-	-	-	2	1	-	1,890	-	71	-	1,991	O
First Eagle Holdings Inc	-	-	-	-	-	-	-	-	-	-	-	691	-	1,093	-	1,784	O
T Rowe Price Group Inc	-	-	470	4	-	-	-	-	2	0	-	1,215	-	5	-	1,695	O
Wellington Management Group LLP	4	1	6	18	-	-	-	-	8	0	-	1,323	-	20	-	1,381	O
Schroders PLC	-	1	14	1	-	-	-	-	-	1	-	1,045	-	156	-	1,217	O
Total	**638**	**52**	**8,838**	**637**	**-**	**-**	**-**	**-**	**4,658**	**405**	**-**	**86,402**	**-**	**13,327**	**-**	**114,958**	

Note: Danish Crown, Dairy Farmers of America, Lactilis, Arla, Friesland Campina and DMK are all private entities with no financial institution equity stake/ownership

Equity investors with high exposure

In broad terms we would expect the ranking in Table 4 to align with the quantity of assets under management (AuM) for each institution. However, there are a number of equity investors that are overweight in the meat and dairy companies versus the market when based on their AuM[10]. These are identified as 'Over' in Table 4 above.

In particular, the following asset managers rank outside the top 50 globally[xxiv] in terms of their AuM but feature in our top 20 equity holders: **Zürcher Kantonalbank (Asset Management), Hohhot Investment Company Ltd., Artisan Partners Asset Management Inc., Pictet & Group SCA Cie** and **First Eagle Holdings Inc.**

Fidelity, State Street, Crédit Agricole and JP Morgan Asset Management all hold smaller aggregate stakes in the meat and dairy companies than would be expected simply based on their ranking by AuM implying that their exposure is below their peers in relative terms.

Sovereign wealth funds

While we have omitted SWFs from our top 20 list, we believe that they deserve to be held accountable on the same basis.

- **The Federal Republic of Brazil** (FRoB) has USD 3.6 billion invested in meat companies; nearly all in JBS (USD 3.6 billion) which is the highest methane emitter per dollar of 'capital' (enterprise value). This gives FRoB an estimated GWP20 methane footprint of 50 Mt CO_2e – a colossal level, equivalent to the combined methane footprint of the top five FIs combined.
- **The Norwegian sovereign wealth fund**, managed by Norges Bank Investment Management (NBIM) has USD 11 billion invested; nearly all in dairy companies and predominantly in Nestlé (USD 10 billion). Nestlé has a much lower methane footprint per dollar of capital as a result of its very broad portfolio of business activities, resulting in NBIM having a lower portfolio methane footprint of 1.9 Mt. If Norway's SWF was included in the top 20 list it would rank ninth in terms of methane footprint; just behind T Rowe Price at 2.0 Mt.

The Norwegian SWF's previous comments and actions on hydrocarbon investments have been widely noted. That said, neither The Federal Republic of Brazil nor the Norwegian SWF have a publicly available policy in place to address methane linked investments and in particular methane emissions from livestock. This is disappointing given that both Norway and Brazil have signed the Global Methane Pledge, and we would urge these SWFs to adopt methane policies aligned with the commitment.

Bonds

Poor disclosures may result in bond financing appearing to be much less prevalent in the meat and dairy space, both in terms of number of issuers (one meat and five dairy companies) and absolute amount. As shown in Table 5 the holdings of the top 20 holders amount to a combined total of USD 3.4 billion, with just two companies – Tyson and Danone – accounting for USD 2.9 billion of this (86% of the total).

[10] 'Overweight' meaning they have more invested in meat and dairy companies than their peers relative to the size of their investment funds (smaller fund managers would not normally be expected to appear in the top 20 shareholders lists because they have less to invest).

However, as noted previously, identifying bond holdings is made challenging by a lack of disclosure so these figures are likely to materially understate the actual level of funding being provided by bond investors, and the apparent high ranking of Tyson and Danone is more likely due to poor disclosures relating to the other companies rather than a true reflection of their ranking from a bond funding perspective.

The impression that bond holdings are under-reported is corroborated by the much higher levels of debt disclosed by the various companies. This is discussed in the context of the bank loans we have identified later in this report.

Thirteen of the top 20 equity owners are also bond holders. Six of these – Vanguard, Blackrock, Wellington, Credit Suisse, UBS and Crédit Agricole – are top 20 bond holders. However, relative to equity, the top 20 bond holders' investments that can be identified are worth less than 3% of the equity amount - see Table 5.

Table 5: Who owns what? Bond ownership of top 20 financial institutions. Source: Planet Tracker.

Top 20 financial institutions	MEAT	DAIRY					Total value
	Tyson	Dairy Farmers of America	Fonterra	Saputo	Nestlé	Danone	
Vanguard Group Inc	499	0	3	24	-	65	591
BlackRock Inc	269	1	18	49	15	224	576
Prudential Investments LLC	261	3	1	2	-	52	319
Nationwide Insurance Co (Office of Investments)	235	-	-	-	-	29	263
Allianz SE	122	-	-	-	-	72	194
Macquarie Group Ltd	132	-	-	-	-	31	163
Wellington Management Group LLP	17	0	-	-	-	125	142
State Farm Insurance Companies	-	-	-	-	-	116	116
Credit Suisse Group AG	6	-	-	1	88	15	110
Northwestern Mutual Life Insurance Co	101	-	-	-	-	-	101
Franklin Resources Inc	47	-	0	1	-	52	100
UBS Group AG	10	-	3	0	52	32	97
Toronto-Dominion Bank	3	-	-	91	-	-	94
MetLife Inc	81	-	-	-	-	12	93
Bank of Montreal	5	-	-	87	-	1	93
Tiaa Board Of Overseers	92	-	-	-	-	-	92
United Services Automobile Association	54	-	-	-	-	24	77
Crédit Agricole	-	-	1	-	0	69	70
Goldman Sachs Group Inc	59	-	-	-	-	9	68
Pansolo Holding Inc	17	-	-	51	-	0	68
Total	**2,009**	**3**	**26**	**306**	**155**	**928**	**3,428**

*Note: '**0**' indicates a holding below USD 0.5 million (rounds down to zero); '**-**' indicates no holding at all.*

Banks

The (Brazilian) meat companies – high methane emitters – rely more heavily on debt funding. For JBS and Marfrig non-equity (debt and other) funding accounts for 62% and 91% respectively of their enterprise value[11]. For the dairy companies the average is nearer 30% – see Figure 6.

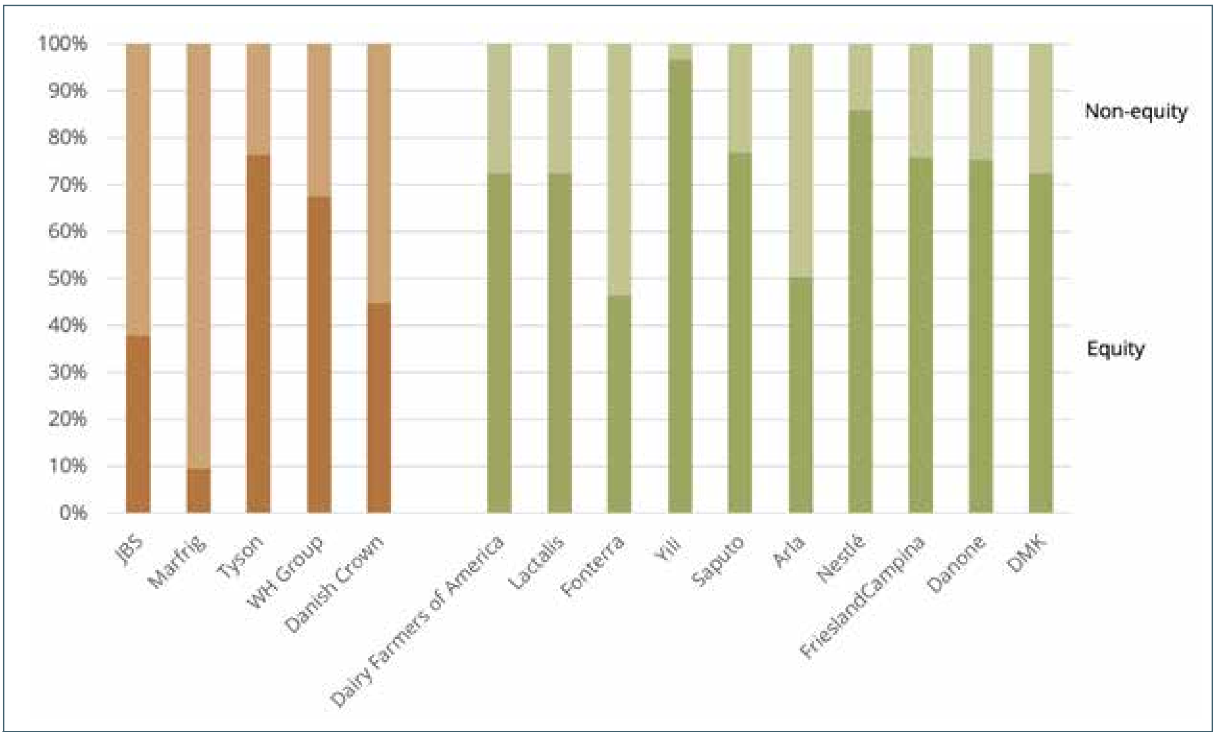


Figure 6: Enterprise value: Equity and non-equity mix. Source: Company accounts/Planet Tracker analysis.

Note: Dairy Farmers of America, Lactalis and DMK do not publish financials – numbers for these companies are based on the average of the six other dairy companies – 72% equity and 28% non-equity.

Analysis of the **banks arranging financing** (see Figure 7) shows a number of features also present in the equity space:

- Global participation: US, French, UK, Canadian, Swiss, Dutch and Japanese banks.
- Blue-chip names: for example, JP Morgan Chase (JPM), BNP Paribas and HSBC.
- Concentrated presence: the top five by USD account for nearly half of the top 20.
- Multi-company participation: JPM and HSBC are banks to eight of the 15 companies.
- Concentrated relationships: 15 of the top 20 finance Nestlé and 13 finance WH Group.
- A bias towards the dairy companies: 79% of financing aimed at these.

[11] 'Enterprise value' is a measure of a company's capital – in simple terms it is the combination of the company's equity and its net debt (total debt less cash).

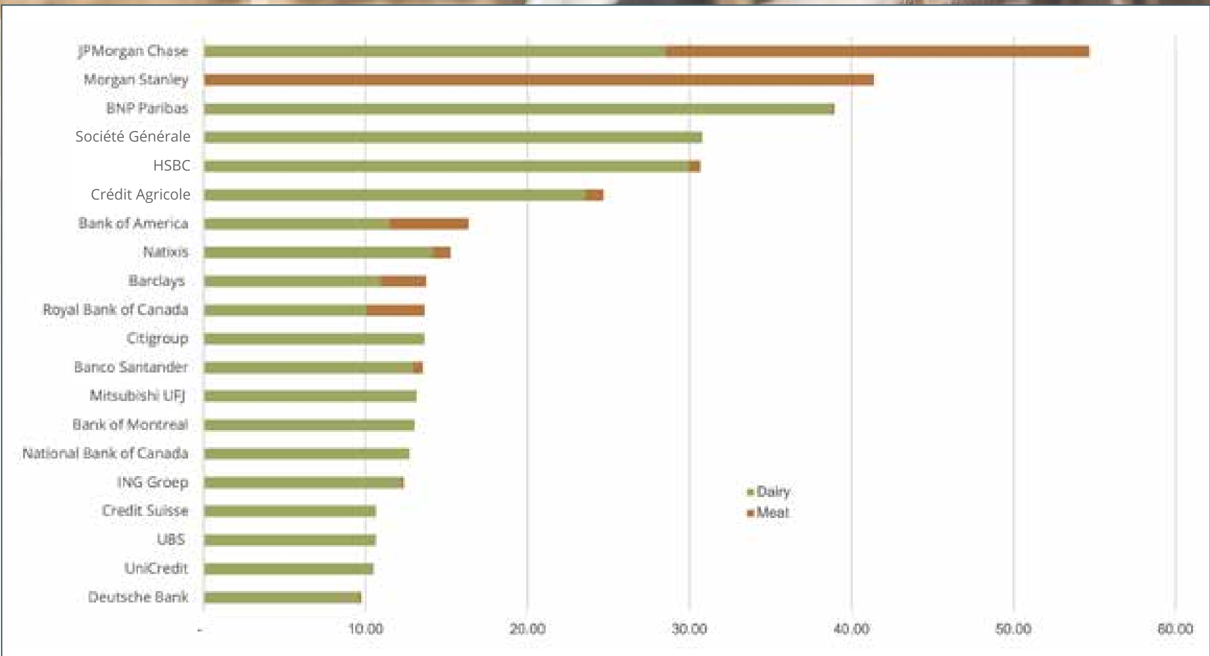


Figure 7: Top 20 banks of 15 meat and dairy companies. Source: Planet Tracker.

Geographic bias: US meat backers and French dairy

On a geographic basis the American banks, which includes JPM (#1) and Morgan Stanley (#2), are the biggest banks as shown in Figure 8. Also noteworthy is their participation in funding the 'methane heavy' meat space: JPM finances all four of the listed meat companies, while Morgan Stanley and Bank of America finance three. Morgan Stanley is the only one of the top 20 investors to finance just meat companies.

French banks are also very active in the space. Of the top eight banks, four are French: BNP Paribas, Société Générale, Crédit Agricole and Natixis – see Figure 8. Their focus is more on the dairy names, particularly the French companies of Lactalis and Danone. It is however noteworthy that three of the four help finance WH Foods, a Chinese pork company.

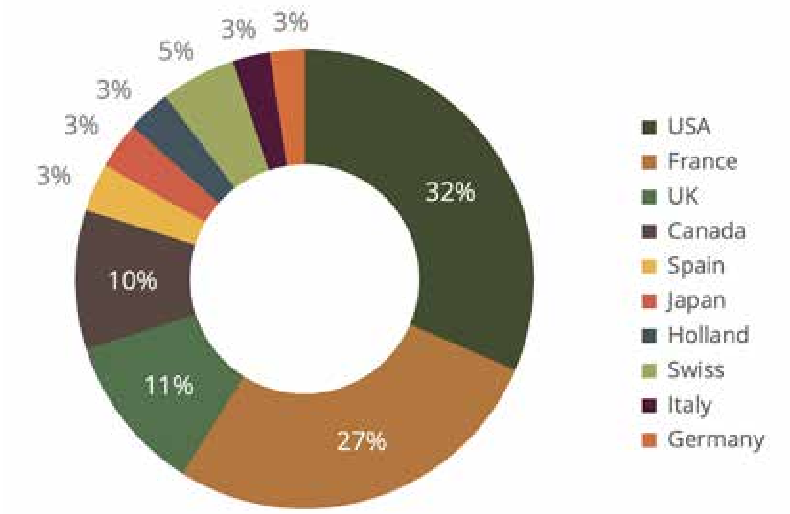


Figure 8: Geographic mix of top 20 banks financing of 15 companies. Source: Planet Tracker.

Compensating for the lack of loan data

Our data is based on publicly available records of financing arrangements (e.g. debt syndication and equity and note issuance/underwriting activity) over a period of ten years. In the main, banks are earning fees from facilitation, although in some instances they may also be investing capital.

Our analysis of the global food system suggests an average debt capital cycle of two and a half years. Applying this to our 10 year total of USD 400 billion – see Table 6 – implies an average 'live' financing amount of USD 100 billion.

Unfortunately, information on a lot of debt-linked funding isn't made public. Debt issued or traded on the public markets can be identified, but privately originated or negotiated investments are not traded on the public markets and are therefore not traceable. The net result is an incomplete dataset. The cumulative balance sheet debt of the nine companies that report figures is USD 116 billion. This is above our calculated amount of USD 100 billion, highlighting the extent to which market reporting of financing transactions understates the aggregate reality.

More telling, however, is the lack of debt information in our dataset for the Brazilian meat companies. Reported balance sheet debt for JBS is USD 18.1 billion compared to our dataset 10-year cumulative financing amount of USD 1.4 billion (8%).

The lack of information regarding debt finance means that our estimate of the methane footprint attributable to the banks funding the meat and dairy companies is likely to significantly understate the extent of that footprint.

Table 6: Top 20 banks of 15 meat and dairy companies, USD million. Source: Planet Tracker.

Top 20 banks	MEAT					DAIRY										Total
	JBS	Marfrig	Tyson	WH Group	Danish Crown	Dairy Farmers of America	Lactalis	Fonterra	Yili	Saputo	Arla	Nestlé	Feiesland Campina	Danone	DMK	
JPMorgan Chase	200	184	25,732	56	-	1,970	-	350	-	-	-	9,519	-	16,682	-	54,693
Morgan Stanley	-	285	37,418	3,680	-	-	-	-	-	-	-	-	-	-	-	41,383
BNP Paribas	-	-	-	167	-	-	12,430	-	-	-	-	9,519	-	16,829	-	38,945
Société Générale	-	-	-	-	-	-	17,586	150	-	-	-	9,519	-	3,554	-	30,809
HSBC	-	248	375	56	-	-	16,919	442	-	-	365	9,519	-	2,727	-	0,651
Crédit Agricole	-	-	-	1,111	-	-	16,919	-	-	-	-	2,466	-	4,192	-	24,688
Bank of America	-	74	4,708	56	-	1,669	-	330	-	-	-	9,519	-	-	-	16,355
Natixis	-	-	-	1,108	-	-	12,486	-	-	-	-	-	-	1,645	-	15,239
Barclays	-	-	2,758	56	-	-	-	-	-	-	-	9,519	-	1,422	-	13,755
Royal Bank of Canada	-	-	3,558	-	-	-	-	-	-	565	-	9,519	-	-	-	13,642
Citigroup	-	-	-	56	-	-	-	300	-	-	-	9,519	-	3,733	-	13,607
Banco Santander	200	422	-	-	-	-	-	-	-	-	-	9,519	-	3,389	-	13,531
Mitsubishi UFJ	-	-	-	-	-	-	2,066	114	-	-	-	9,519	-	1,461	-	13,159
Bank of Montreal	-	-	-	-	-	-	-	-	-	13,038	-	-	-	-	-	13,038
National Bank of Canada	-	-	-	-	-	-	-	-	-	12,698	-	-	-	-	-	12,698
ING Groep	-	-	-	167	-	-	2,066	-	-	-	-	8,675	-	1,461	-	12,369
Credit Suisse	-	-	-	56	-	-	-	-	-	-	-	10,555	-	-	-	10,611
UBS	-	-	-	56	-	-	-	-	-	-	-	10,555	-	-	-	10,611
UniCredit	-	-	-	-	-	-	10,364	-	-	-	-	-	-	-	112	10,476
Deutsche Bank	-	74	-	56	-	-	-	96	-	-	-	9,519	-	-	-	9,745
Total	400	1,287	74,548	6,679	-	3,639	90,837	1,782	-	26,302	365	136,962	-	57,096	112	400,007

ATTRIBUTING A METHANE FOOTPRINT TO INVESTORS

The 15 meat and dairy companies have a combined annual GWP20 methane footprint of 1,033 Mt CO_2e – one gigatonne.

Company – methane per dollar of capital (CH_4/EV)

Our starting point is the amount of methane per dollar of capital (equity and debt) for each of the meat and dairy companies – see Figure 9.

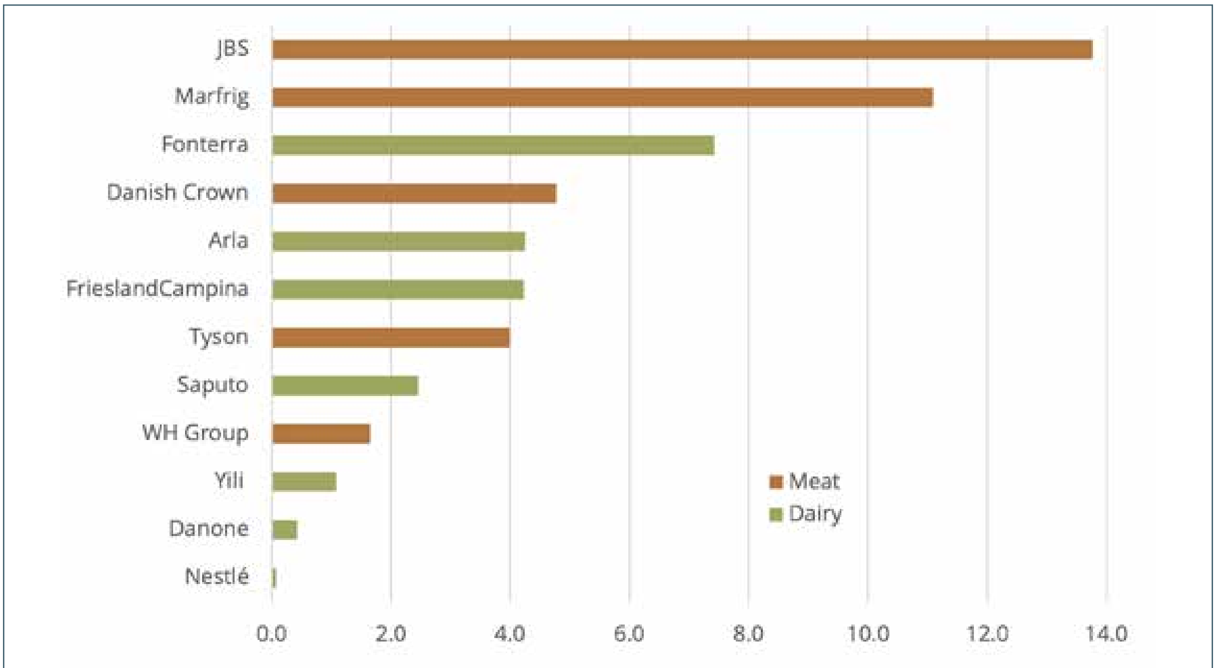


Figure 9: Methane (GWP20 CO_2e) to enterprise value (kg/USD). Source: Planet Tracker.

Note: No financial information available for Lactalis, DMK or Dairy Farmers of America, so no CH_4/EV.

The methane footprint is calculated using the 20-year Global Warming Potential method (GWP20) amount as estimated by CMF and the IATP.

We divide this figure by the company's capital (enterprise value) – the combination of equity capital (at market valuation for the publicly listed companies and at book value for private ones) and non-equity capital (principally debt net of cash) – to derive our CH_4/EV ratio.

This ratio can then be multiplied by the value of the funding provided by an institution to a particular company to derive a funded methane footprint. That, in turn, can be aggregated with the funded footprints from other companies to derive a portfolio footprint.

The key numbers are summarised in Table 7.

Table 7: Methane (CH_4) per dollar of enterprise value. Source: Planet Tracker/CMF and IATP.[viii]

Methane footprint	MEAT					DAIRY									
	JBS	Marfrig	Tyson	WH Group	Danish Crown	Dairy Farmers of America	Lactalis	Fonterra	Yili	Saputo	Arla	Nestlé	Feiesland Campina	Danone	DMK
Equity value (USD billion)	10.5	1.3	24.0	8.5	1.1	-	-	2.5	29.7	9.8	3.1	300.7	4.0	32.6	-
Debt & other (USD billion)	17.2	12.2	7.4	4.1	1.4	-	-	2.8	1.0	2.9	3.0	49.4	1.3	10.7	-
Enterprise Value (USD billion)	27.7	13.5	31.4	12.6	2.5	-	-	5.3	30.7	12.7	6.1	350.1	5.3	43.3	-
Equity share	38%	9%	76%	67%	45%	72%	72%	46%	97%	77%	50%	86%	76%	75%	72%
Non-equity share	62%	91%	24%	33%	55%	28%	28%	54%	3%	23%	50%	14%	24%	25%	28%
CH_4 20 year equity	145	14	96	14	5	57	30	18	32	24	13	22	17	14	9
CH_4 20 year non-equity	237	136	30	7	6	22	11	21	1	7	13	4	5	5	3
CH_4 20 year (Mt)	382	150	125	21	12	79	41	39	33	31	26	26	22	19	13
CH_4 / EV (kg/USD)	13.8	11.1	4.0	1.7	4.8	-	-	7.4	1.1	2.5	4.2	0.1	4.2	0.4	-

Note: For Danish Crown, Arla and Friesland Campina, balance sheet equity has been used instead of market cap. For Dairy Farmers of America, Lactilis and DMK, dairy sector average equity/non-equity split has been applied. Meat and dairy companies are shaded differently. See later note regarding DFA and Lactalis with respect to bank financing – we have assumed a methane per dollar of enterprise value of 3.9 (kg/USD) for both. This is based on the average of five other dairy companies: Fonterra, Yili, Saputo, Arla and Friesland Campina.

Investor methane footprint of invested capital

We have applied the company level CH_4/EV (kg / USD) amounts to the investments (USD of equity and bonds) held by each financial institution (FI) to arrive at portfolio totals for each investor, or, put another way, how much methane each financial institution is funding – see Figure 10.

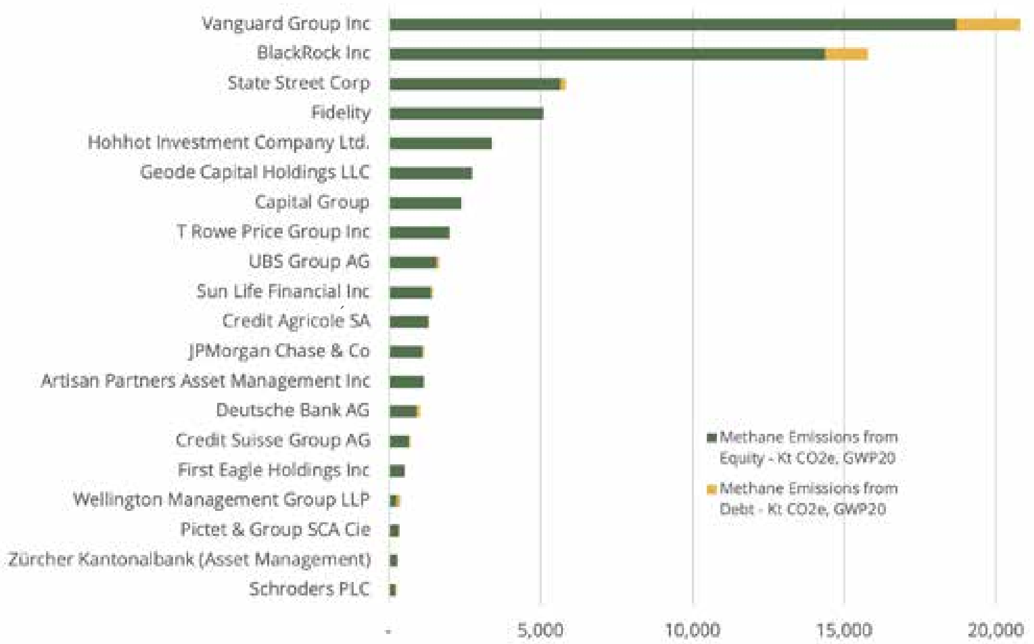


Figure 10: Methane footprint of the top 20 FIs' equity & bond holdings. Source: Planet Tracker.

On this basis, our 20 FIs 'support' a combined 68.1 Mt CO_2e of methane emissions. The majority (93%) of this, as illustrated in Figure 10, is attributable to their equity holdings. This represents 14% of the estimated total equity-linked emissions.

In a country context this places our top 20 investor methane CO_2e footprint above the CO_2 footprint of Austria (65 Mt) and close to Morocco (CO_2 emissions of 71.5 Mt in 2019).[xxv]

The top three institutions, Vanguard, BlackRock and State Street, account for 62% of the total holdings on an attributable methane footprint basis across all 15 companies. All three are significant passive (index) fund investors, which means that the companies they invest in are determined by the indices their funds track, potentially restricting their ability to mitigate their methane footprint through their investment decisions. However, they have significant influence over the companies they support in terms of voting and can use this to encourage business practices that reduce their methane footprints.

Fidelity (via FMR), which has investments in all four of the listed meat companies, is the largest investor amongst the predominantly active investor names.

While JBS is the largest methane emitter – both in absolute terms (382 Mt CO_2e GWP20) and per dollar of enterprise value (13.8 kg per USD) – the top 20 investors have a total of just USD 0.6 billion invested in the company.

In contrast, **18 of the 20 invest** in Tyson with a total combined investment amount of USD 10.9 billion. While Tyson's methane emission level per dollar of enterprise value (4 kg per USD) is about a quarter that of JBS, the sheer amount invested in the company by the top 20 (18x more than in JBS) results in it being the largest contributor to our top 20 investors' footprint – see Figure 11 and Table 8.

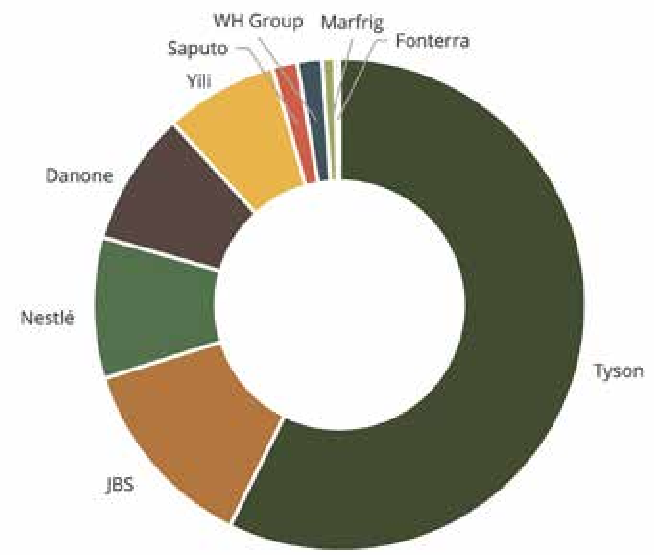


Figure 11: Methane footprint by company of the top 20 FIs' combined investments. Source: Planet Tracker.

Table 8: Methane footprint (Kt, 20yr CO_2 GWPe) of Top 20 investors by company. Source: Planet Tracker.

Top 20 financial institutions	MEAT					DAIRY										Total methane footprint
	JBS	Marfrig	Tyson	WH Group	Danish Crown	Dairy Farmers of America	Lactalis	Fonterra	Yili	Saputo	Arla	Nestlé	Feiesland Campina	Danone	DMK	
Vanguard Group Inc	3,455	305	15,077	258	-	-	-	21	79	488	-	697	-	414	-	20,793
BlackRock Inc	2,278	126	9,116	403	-	-	-	136	175	434	-	1,833	-	1,277	-	15,780
State Street Corp	148	54	5,277	138	-	-	-	14	10	41	-	81	-	60	-	5,821
Fidelity	1,867	30	2,860	18	-	-	-	-	-	76	-	240	-	5	-	5,097
Hohhot Investment Company Ltd	-	-	-	-	-	-	-	-	3,392	-	-	-	-	-	-	3,392
Geode Capital Holdings LLC	367	4	2,045	71	-	-	-	-	8	36	-	126	-	86	-	2,744
Capital Group	-	-	-	-	-	-	-	-	434	-	-	1,174	-	762	-	2,370
T Rowe Price Group Inc	-	-	1,877	7	-	-	-	-	2	0	-	90	-	4	-	1,979
UBS Group AG	117	0	644	27	-	-	-	23	175	26	-	427	-	205	-	1,645
Sun Life Financial Inc	1	-	135	5	-	-	-	-	130	9	-	394	-	779	-	1,453
Crédit Agricole SA	262	10	214	5	-	-	-	5	13	3	-	53	-	749	-	1,315
JPMorgan Chase & Co	15	25	255	54	-	-	-	-	603	47	-	103	-	43	-	1,146
Artisan Partners Asset Mgt Inc	-	-	358	0	-	-	-	-	-	0	-	11	-	770	-	1,139
Deutsche Bank AG	79	-	580	21	-	-	-	-	4	21	-	186	-	126	-	1,018
Credit Suisse Group AG	90	0	213	11	-	-	-	-	9	10	-	332	-	36	-	700
First Eagle Holdings Inc	-	-	-	-	-	-	-	-	-	-	-	51	-	468	-	519
Wellington Management Group LLP	60	10	90	30	-	-	-	-	9	0	-	98	-	62	-	358
Pictet & Group SCA Cie	43	0	94	3	-	-	-	-	2	1	-	140	-	39	-	323
Zürcher Kantonalbank (Asset Mgt)	-	-	-	-	-	-	-	-	1	4	-	272	-	6	-	283
Schroders PLC	-	12	68	1	-	-	-	-	-	1	-	77	-	71	-	231
Total methane footprint	**8,782**	**578**	**39,902**	**1,053**	**-**	**-**	**-**	**198**	**5,045**	**1,199**	**-**	**6,385**	**-**	**5,961**	**-**	**68,103**

METHANE FOOTPRINT FUNDED BY BANKS

Summary

In a similar manner to our investor footprint working, we have applied the company level CH_4/EV amounts to our data on the amount of financing provided by the top 20 banks.

On a combined basis the top 20 banks have a methane footprint linked to their financing activities in our 15 meat and dairy companies of 202.5 Mt – see Table 9. This is higher than the annual CO_2 emissions of countries like the Netherlands (146 Mt) and Argentina (168 Mt).[xxvi] This is also roughly three times the footprint of the top 20 investors. As discussed previously, the American and French banks dominate the lending and so together account for 66% of the top 20 banks' methane footprint.

We have also calculated a 'equal responsibility' methane footprint which allocates the non-equity methane footprint equally amongst the banks. Using this approach we estimate the top 20 banks have a combined methane footprint linked to their support of the 15 meat and dairy companies of 435 Mt; above the 2019 CO_2 emission levels of Brazil and South Africa.[xxvii]

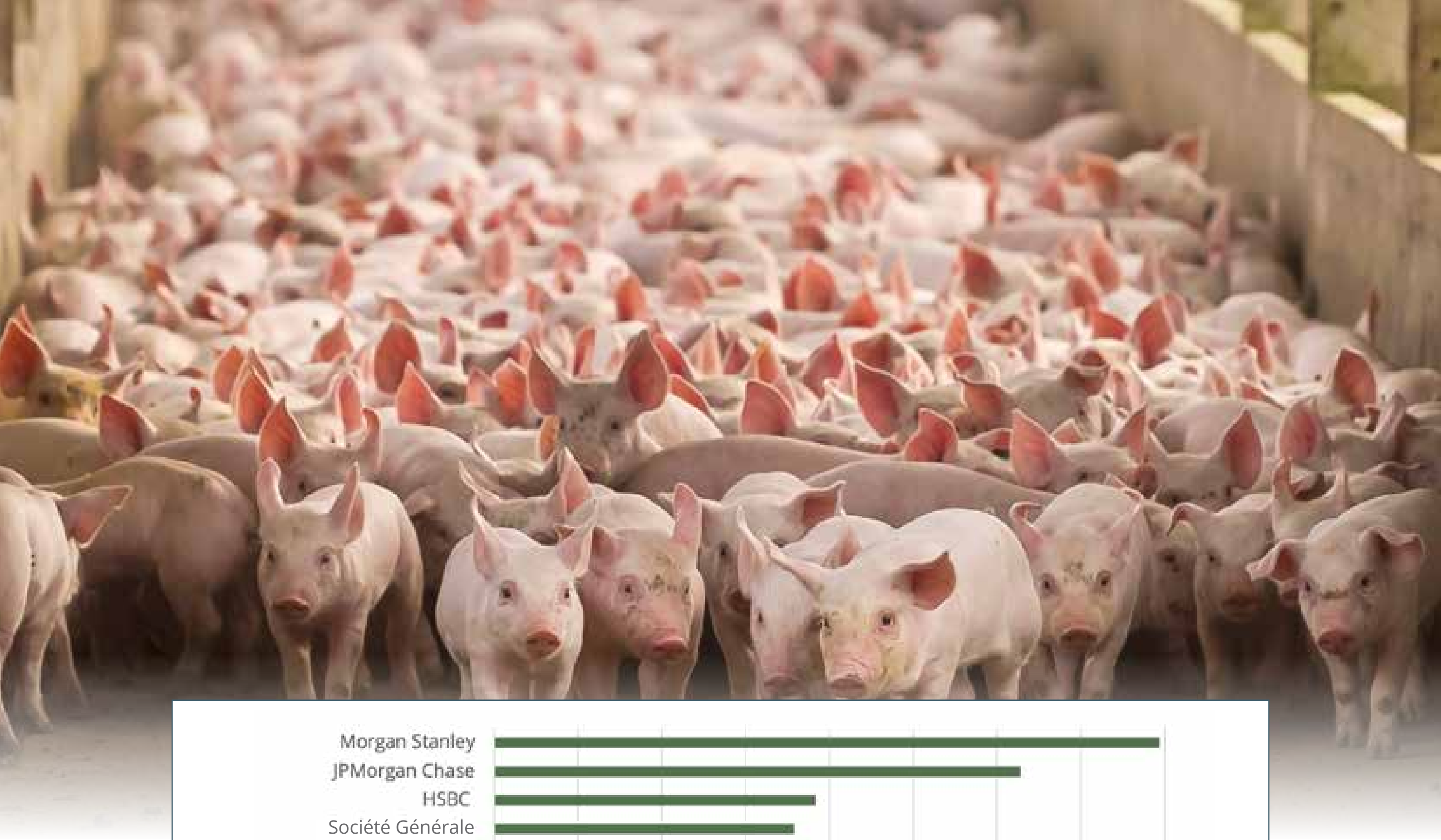
Methane per dollar of capital (CH_4/EV – kg/USD)

The starting point is the same as our investor footprint calculations: namely methane per dollar of enterprise value (capital) which was shown earlier in Table 7.

We have had to make an educated guess as to the methane per dollar of enterprise value for two private companies – Dairy Farmers of America and Lactalis. Both appear on our bank financing database, but neither publishes financials. For this exercise we have assumed a methane per dollar of enterprise value of 3.9 (kg/USD) for both. This is based on the average of five other dairy companies: Fonterra, Yili, Saputo, Arla and Friesland Campina.

Banks – methane footprint

The two large American banks – Morgan Stanley and JP Morgan – with their wide exposure to meat funding, and in particular Tyson Foods, dominate. Combined they have a methane footprint of 71 Mt, equivalent to 35% of the top 20 total. Four French banks occupy spots four to seven: Société Générale, Crédit Agricole, BNP Paribas and Natixis. This primarily links to their financing of French dairy company Lactalis. Combined they have a methane footprint of 62 Mt, equivalent to 31% of the top 20 total – see Figure 12.



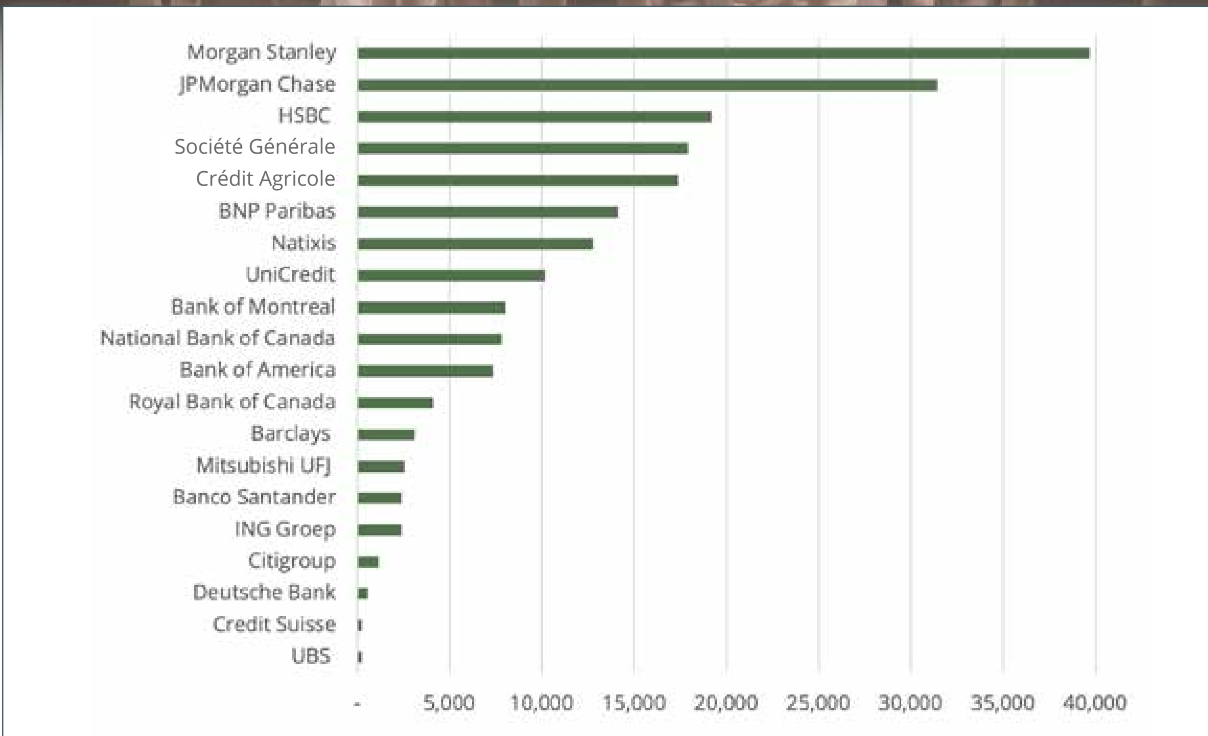


Figure 12: Methane footprint (Kt, 20-yr CO_2 GWPe) of bank funding. Source: Planet Tracker.

The bank financing totals aggregate lending over a period of ten years (Table 6), so we have estimated the current funding levels (i.e. the current outstanding bank loan balances) by dividing these amounts by four. This reflects our analysis of 400,000 food system companies across the globe that suggests that companies in the food space have a typical re-financing cycle of around two and a half years.

As previously noted, due to lack of publicly available information on loans, our figures represent an incomplete and likely understated amount of financing which in turn means that the methane footprint of each bank will also be understated. Table 9 summarises our estimates.

Table 9: Methane footprint (kt, CO_2e GWP20) of top 20 banks by company. Source: Planet Tracker.

Top 20 banks	**MEAT**					**DAIRY**										Total
	JBS	Marfrig	Tyson	WH Group	Danish Crown	Dairy Farmers of America	Lactalis	Fonterra	Yili	Saputo	Arla	Nestlé	Feiesland Campina	Danone	DMK	
Morgan Stanley	-	790	37,377	1,522	-	-	-	-	-	-	-	-	-	-	-	39,689
JPMorgan Chase	688	510	25,703	23	-	1,914	-	649	-	-	-	176	-	1,784	-	31,448
HSBC	-	687	374	23	-	-	16,438	820	-	-	387	176	-	292	-	19,197
Société Générale	-	-	-	-	-	-	17,086	278	-	-	-	176	-	380	-	17,920
Crédit Agricole	-	-	-	460	-	-	16,438	-	-	-	-	45	-	448	-	17,391
BNP Paribas	-	-	-	69	-	-	12,077	-	-	-		176	-	1,800	-	14,121
Natixis	-	-	-	458	-	-	12,131	-	-	-	-	-	-	176	-	12,765
UniCredit	-	-	-	-	-	-	10,069	-	-	-	-	-	-	-	108	10,178
Bank of Montreal	-	-	-	-	-	-	-	-	-	8,012	-	-	-	-	-	8,012
National Bank of Canada	-	-	-	-	-	-	-	-	-	7,803	-	-	-	-	-	7,803
Bank of America	-	205	4,702	23	-	1,622	-	612	-	-	-	176	-	-	-	7,339
Royal Bank of Canada	-	-	3,554	-	-	-	-	-	-	347	-	176	-	-	-	4,076
Barclays	-	-	2,754	23	-	-	-	-	-	-	-	176	-	152	-	3,105
Mitsubishi UFJ	-	-	-	-	-	-	2,007	211	-	-	-	176	-	156	-	2,550
Banco Santander	688	1,171	-	-	-	-	-	-	-	-	-	176	-	362	-	2,398
ING Groep	-	-	-	69	-	-	2,007	-	-	-	-	160	-	156	-	2,392
Citigroup	-	-	-	23	-	-	-	556	-	-	-	176	-	399	-	1,154
Deutsche Bank	-	205	-	23	-	-	-	179	-	-	-	176	-	-	-	582
Credit Suisse	-	-	-	23	-	-	-	-	-	-	-	195	-	-	-	218
UBS	-	-	-	23	-	-	-	-	-	-	-	195	-	-	-	218
Total	1,377	3,568	74,465	2,762	-	3,536	88,253	3,305	-	16,163	387	2,525	-	6,106	108	202,556

Equal responsibility – a harsher measure of a bank's methane footprint

As noted above, poor lending data means that our estimate of the methane footprint of individual banks is likely to be significantly understated.

An alternative approach is to argue that a company cannot undertake debt-funded projects unless all the banks in the syndicate agree to contribute, implying that if one bank withdrew then the project would not go ahead (or, at least, would cost more and thus be less likely to proceed). If one takes this approach, then it is fair to attribute 'equal responsibility' (and the associated share of the company's methane footprint) based simply on a bank having a lending relationship with a company rather than analysing the extent of that relationship. This also has the effect of attributing the whole of the non-equity portion of the company's methane footprint to the banks we have identified as funding the company[12] (in contrast to the funding-based approach which leaves a portion of the methane footprint unallocated).

The workings for this approach and a list of all the methane footprints for the banks concerned is set out in an appendix on page 44.

The outcome is a much more extensive methane footprint for the banks and a change in the pecking order: JP Morgan Chase, with financing links to all the heavier emitting meat companies takes over the top spot with a methane footprint of 68 Mt CO_2e.

Other American banks, including Bank of America (#7) and Morgan Stanley (#8), still feature heavily, but the French banks slip down the pecking order and are replaced by Banco Santander (#2) the Brazilian banks (Banco BTG Pactual, Banco Bradesco and Banco do Brasil – #3, #4, and #5 respectively).

Where there is a banking relationship, the average footprint is 3 Mt CO_2e of methane. The total footprint of the banks surveyed is 497 Mt, with the top 20 accounting for 88%. Their footprint of 435 Mt CO_2e is more than double the figure estimated using the funded basis (203 Mt – see Table 9).

435 Mt of methane emissions as calculated on an equal responsibility basis would place the combined top 20 banks well above countries such as the UK and Australia, and alongside Brazil and South Africa when compared to their CO_2 footprints.[xxviii]

[12] 'Not just the top 20 banks – our survey covered 89 banks in total.

FINANCIAL INSTITUTIONS' METHANE-LINKED POLICIES

Financial institutions are not following the Global Methane Pledge

98% (39 of the top 20 funders and top 20 banks featured in this report) are domiciled in countries that participate in the Global Methane Pledge launched at COP26 in November 2021 – USA (15), Switzerland (6), France (5) Canada (4), UK (3), Germany (2), Netherlands (1), Spain (1), Japan (1) and Italy (1) – see Figure 13.

The significant divergence in levels for two of the meat companies, Danish Crown and WH Group, can be explained by their focus on pigs, which produce less methane per kilo of food product than beef.[xx] In contrast, the three largest methane emitters, JBS, Marfrig and Tyson, are predominantly cattle-based, which means enteric fermentation also represents a significant source of methane.

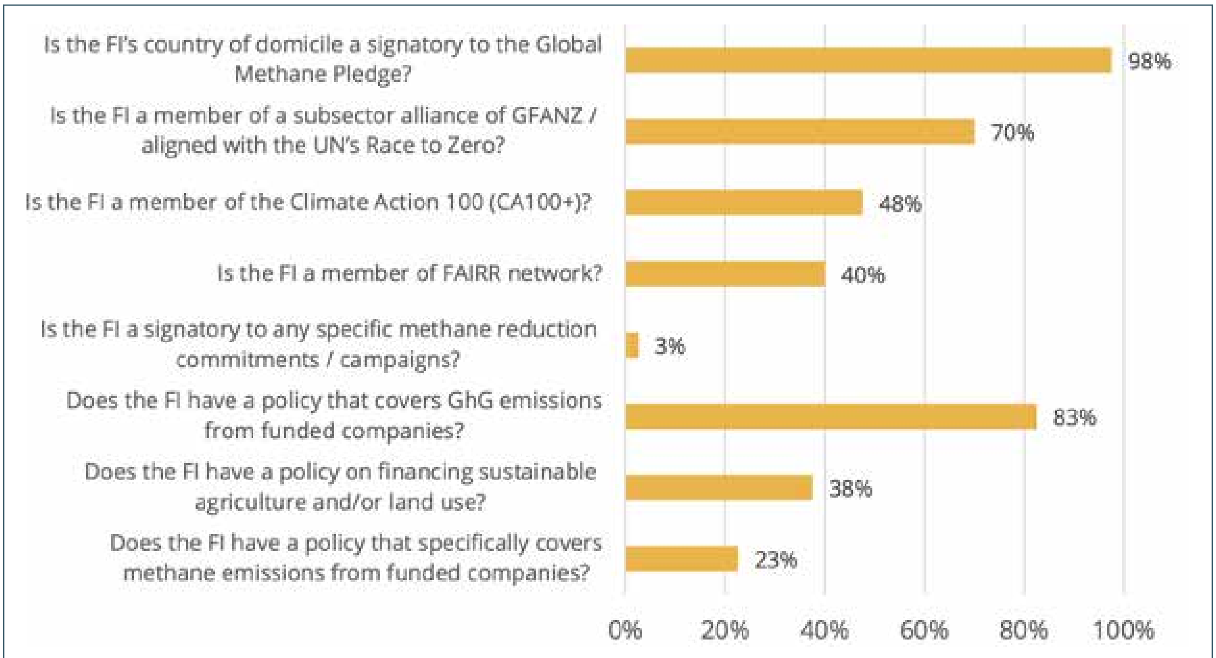


Figure 13: Summary of FI methane policy position at macro and company levels. Source: Planet Tracker.

China, where Hohhot Investment Company Ltd is domiciled, is the only country in our sample group that has not signed onto the Pledge.

Signatory countries have agreed to take voluntary actions to contribute to a collective effort to reduce global methane emissions by at least 30 percent from 2020 levels by 2030, which could eliminate over 0.2°C warming by 2050.

The Pledge also recognises the essential roles that private sector, development banks, financial institutions and philanthropy play to support implementation of the Pledge and welcomes their efforts and engagement.[xxix]

Disappointingly, this message doesn't seem to have reached the financial institutions featured in this report, in spite of the fact that a significant number of them are aligned to initiatives aimed at driving positive change to arrest global warming:

- 28 of the FIs are members of a subsector alliance of GFANZ[xxx]
- 19 of the FIs are members of the Climate Action 100 (CA100+)[xxxi]
- 16 of the FIs are members of the FAIRR network, which has a particular focus on the need for a sustainable food system (including addressing agri-methane emissions).[xxxii]

However:

- None of the 40 FIs are themselves signatories to a specific methane reduction commitment / campaign such as the ICCR/Ceres "Call for Ambitious Methane Regulation for the Oil and Gas Industry".[xxxiii]

BNP Paribas has a peripheral link to both the Ceres and IIGCC initiatives through its Swiss foundation[13]. However, BNP Paribas as a bank has not made any such commitments.

[13] Fondation de prévoyance du Groupe BNP PARIBAS en Suisse https://www.bnpparibas.ch/fr/une-banque-de-reference/la-fondation-bnp-paribas-en-suisse/.

FINANCIAL INSTITUTIONS HAVE WEAK METHANE POLICIES

Greenhouse gas emission policy

33 out of our 40 FIs have policies relating to reducing Greenhouse Gases (GhG) emissions by funded companies. Of the seven that do not have any such policies on GhG emissions, one is in the banking sub-group and six are in the investing sub-group, meaning that 30% of our top 20 investors do not have a GhG policy in place relating to the companies they invest in.

The financial institutions that currently do not appear to have any policies concerning limiting GhG emissions by their funded companies are:

- **Investors:** Artisan Partners, Capital Group, First Eagle, Geode Capital, Hohhot Investment and Pictet.
- **Bankers/banks:** UniCredit

For those that do have a policy, the emphasis is however very much on energy, utility and manufacturing – not other GhGs from agriculture (methane and nitrous oxide). This is despite methane and nitrous oxide accounting for 16% and 6% of GhG emissions respectively,[xxxiv] and agriculture constituting the main source (48% as shown in Figure 2 on page 11).

Specific Methane Emission Policy

Our analysis points to only nine of the 40 FIs (23%) having a policy of that specifically covers methane emissions from funded companies. On closer inspection we conclude that:

- All the policies focus on methane related to oil & gas linked emissions – not livestock.
- Policies predominantly occur in the banking rather than the investing space.
- Only one of the top 20 investors, JP Morgan Asset Management, has such a policy (and that does not cover agri-methane), focusing instead on methane emissions in the energy sector.

Sustainable agriculture policy

However, 15 financial institutions (38% of our 40) do have a policy that covers sustainable agriculture or land use. Yet again the focus is not on livestock methane emissions. Rather, the focus is on deforestation, carbon release and land degradation.

- Four of our 20 investors have sustainable agriculture policies, but none make specific reference to methane.
- BlackRock is one of these four and the #2 ranked livestock investor.
- Only three of the 11 banks with a sustainable agriculture policy make reference to methane.

Policy scorecards

We have scored the top 20 investors and the top 20 banks on three main policy categories.

1 Does the FI have a policy on financing sustainable agriculture and/or land use?

2 Does the FI have a policy that covers methane emissions from funded companies?

3 Does the FI have a policy that covers GhG emissions from funded companies?

Each carries an equal weighting of 50, giving a combined maximum total of 150 – see Figures 14 and 15.

- No FI achieves a score above 75 – the half-way point.
- Banks (avg. 34) generally score better than Investors (avg. 15).
- Six investors and one banks score ZERO.

We discuss the methodology behind our scoring system in an appendix on page 49.

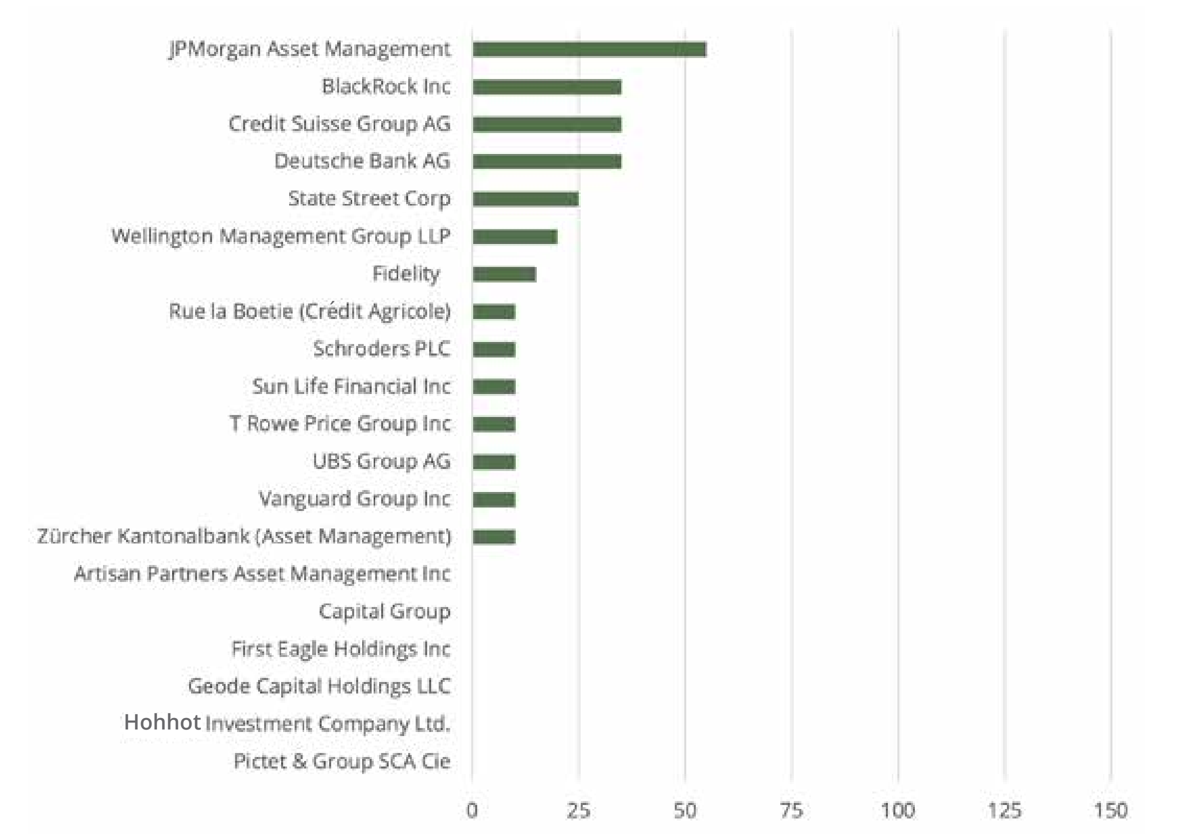
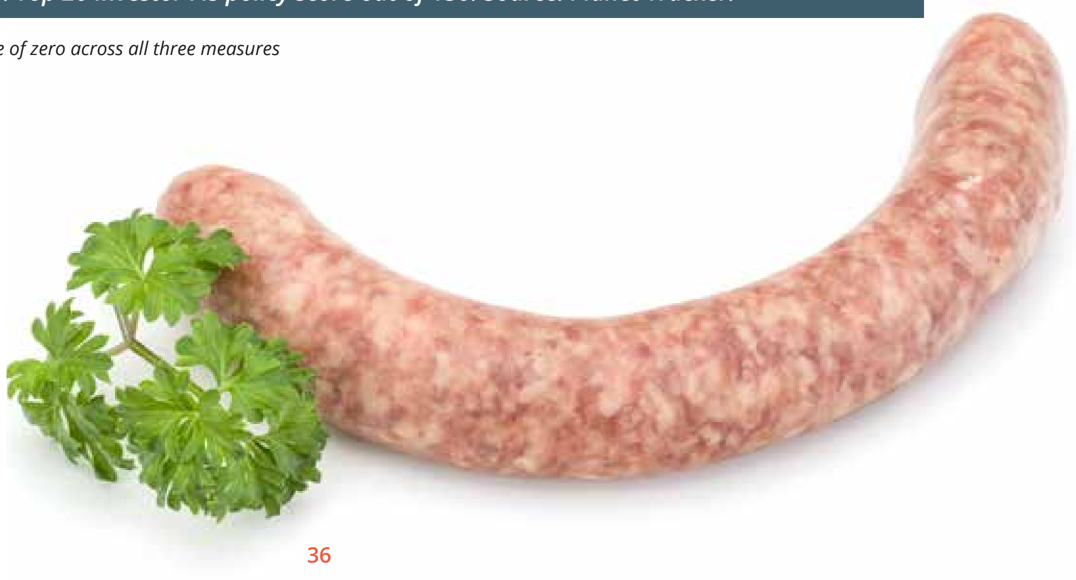


Figure 14: Top 20 investor FIs policy score out of 150. Source: Planet Tracker.

Note: No bar is the result of a score of zero across all three measures



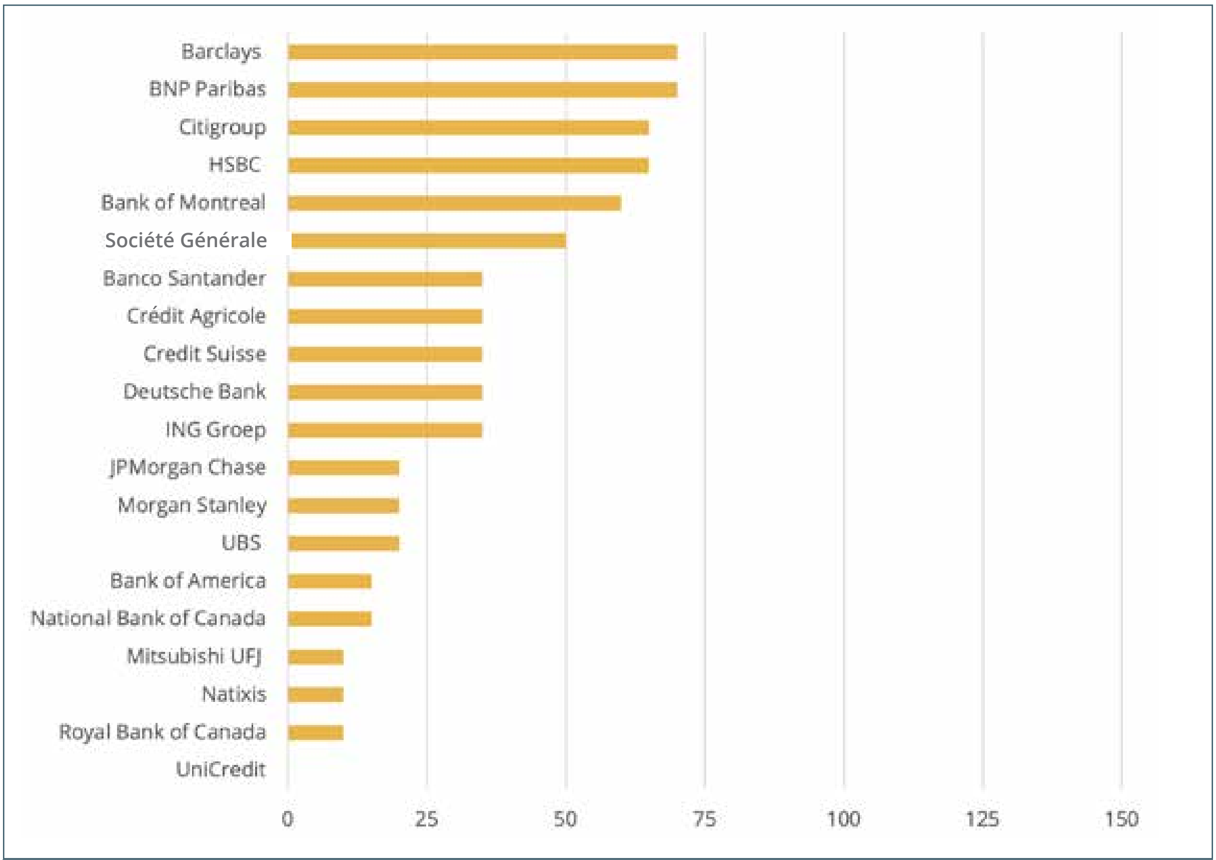


Figure 15: Top 20 banks policy score out of 150. Source: Planet Tracker.

Note: No bar is the result of a score of zero across all three measures

WORLD BENCHMARK ALLIANCE SCORES

In addition to our own scoring we have reviewed the World Benchmarking Alliance's Financial System Benchmark to provide a third party assessment.[xvi]

The World Benchmark Alliance (WBA) assesses 400 financial institutions in its Financial System Benchmark score. Its methodology uses 32 indicators across three areas: i) governance and strategy, ii) respecting planetary boundaries (RPB) and iii) adhering to societal conventions. Each of these areas are scored out of 30 and combined to arrive at an overall score out of 90 and rank relative to the other institutions.

No specific reference is made to methane in the WBA respecting planetary boundaries (RPB) scoring methodology. Instead it looks at disclosure, policy and action related to 'financed emissions', 'financed emission targets', 'engagement aligned with a 1.5% trajectory', 'climate solutions', 'approach to fossil fuel sectors', 'nature and biodiversity-related impact', 'protection and restoration of nature and biodiversity through finance', 'protection and restoration of nature and biodiversity through engagement' and 'nature- and biodiversity-related solutions'.

However, despite the lack of a specific mention of methane, there is an alignment between the WBA scores – and particularly the 'respecting planetary boundaries' (RPB) score – and our Planet Tracker 'Policy' scores for our top 20 investors and top 20 banks. We have illustrated this alignment by highlighting the scores, which can be found in Table 10 by quartile. Blue (1^{st} quartile) and green (2^{nd} quartile) tend to dominate the top end for both and gold (3^{rd} quartile) and red (4^{th} quartile) tend to dominate the bottom end.

At the bottom end, 12 of the financial insitutions score less than four (out of 30) on the WBA methodology. Of these, six score zero on the Planet Tracker scorecard. At the other end of the table, BNP Paribas scores top on both the WBA and Planet Tracker scorecards.

There are however some notable differences. Rue la Boétie (Crédit Agricole) and Schroders both achieve top quartile RPB scores, but score ten (bottom quartile) on the Planet Tracker score. This appears to be linked to heavy weighting towards alignment with the Paris climate agreement in the case of Crédit Agricole and Schroders' position as a founding member of the Net Zero Asset Managers Initiative (neither factor scores points in the Planet Tracker assessment).

Conversely, Barclays, HSBC and JP Morgan Asset Management score well, in relative terms, on the Planet Tracker policy score – all three are first quartile, with Barclays equal first – but only feature as mid-second quartile on the WBA RPB score.

We also note that a deeper dive into the WBA scores points to strong variations by type of financial institution – something that we highlighted in our investor and bank policy review work, with the latter generally outperforming the former. The WBA study, with a much greater sample size, also points to strong geographic differences, with Europe typically outscoring the USA.

With methane an immediate issue, and with direct near-term benefits from tackling methane emissions, we believe financial institutions should be prioritising action with respect to this gas.

Because of the role played by livestock in generating methane emissions it is clear that financial institutions need to include agri-methane emissions from meat and dairy companies in their policy and investment frameworks.

Table 10: World Benchmark Alliance scores and Planet Tracker scores. Source: WBA[xxxv] and Planet Tracker.

Banking	World Benchmarking Alliance score (out of 90)	WBA rank out of 395	WBA RPB score out of 30	RPB rank out of 395	Planet Tracker methane policy score	World Benchmark Alliance comment
BNP Paribas	49.1	4	14.9	3	70	Performs strongly across all three measurement areas – ranks third in the respecting planetary boundaries area where it provides evidence of a process to identify its nature – and biodiversity-related impacts across its financing activities
UBS	38.4	13	13.9	6	20	Among the top ten banks – performs well in 'respecting planetary boundaries', where it ranks sixth – one of the few FIs committed to minimise its negative impacts on nature and biodiversity
UBS Group AG	38.4	13	13.9	6	10	Among the top ten banks – performs well in 'respecting planetary boundaries', where it ranks sixth – one of the few FIs committed to minimise its negative impacts on nature and biodiversity
Bank of Montreal	52.5	1	13.3	7	60	Highest-ranking FI – in the area of respecting planetary boundaries, the financial institution requires its investees to have a strategy aligned with the Paris Agreement and a strategy to address the impacts on nature and biodiversity
Crédit Agricole	43.4	5	12.9	11	35	Performs well across all three measurement areas – performance in respecting planetary boundaries area is driven by its asset management business where it requires its investees to set targets in alignment with the Paris Agreement
Rue la Boetie (Crédit Agricole)	43.4	5	12.9	11	0	Performs well across all three measurement areas – performance in respecting planetary boundaries area is driven by its asset management business where it requires its investees to set targets in alignment with the Paris Agreement
Schroders PLC	34.9	19	12.8	12	10	Second out of a total of 62 asset managers – amongst the top 15 FIs in the respecting planetary boundaries – founding member of the Net Zero Asset Managers Initiative
Mitsubishi UFJ	24.4	65	11.7	21	10	Better than industry peers – achieves its highest ranking in respecting planetary boundaries area, where it ranks 21st and it provides evidence of several leading practice examples, such as on the topic of financing climate solutions
BlackRock Inc	34.4	20	10.0	35	35	Top 3 asset manager, with examples of leading practice – has an opportunity to provide further evidence of its commitment to sustainability and impact in the areas of respecting planetary boundaries
Credit Suisse	28.1	46	9.6	38	35	Better than industry peers and ranks higher relative to its geographical context – among the top 10% of assessed FIs respecting planetary boundaries areas – could provide more evidence regarding how it is committed to sustainability
Société Générale	39.9	11	9.4	39	50	Among the top ten banks in the benchmark – has an opportunity to improve its performance on respecting planetary boundaries area, where it ranks 39th
ING Groep	36.5	17	8.9	42	35	Leader relative to its industry peers – could provide more evidence on its commitment to sustainability and impact in the respect for planetary boundaries area – eg by providing evidence of absolute interim emissions reduction targets
Banco Santander	28	47	8.6	49	35	Performs better relative to its industry peers – top 20% of assessed financial institutions in each area of measurement including planetary boundaries – opportunity to improve its performance relative to its geographical context
Barclays	23.3	71	8.3	53	70	Opportunity to improve its relative industry and geographical ranking – top performing FIs in the respecting planetary boundaries (top 20%) – could provide more evidence regarding how it is committed to sustainability
HSBC	25	64	8.3	53	65	Performs better relative to its industry peers – ranks among the top 20% of assessed financial institutions in respecting planetary boundaries – opportunity to provide more evidence regarding how it is committed to sustainability and impact
JPMorgan Asset Management	26.7	58	8.1	59	55	Has an opportunity to improve its ranking compared to its industry peers - ranks among the top 20% assessed Fis in respecting planetary boundaries area - could provide more evidence regarding how it is committed to sustainability
JPMorgan Chase	26.7	58	8.1	59	20	Has an opportunity to improve its ranking compared to its industry peers – ranks among the top 20% assessed Fis in respecting planetary boundaries area – could provide more evidence regarding how it is committed to sustainability
Sun Life Financial Inc	33.2	25	8.1	57	10	Among top ten financial institutions – ranks among the top 20% of financial institutions in respecting planetary boundaries – it could provide more evidence of how it is committed to sustainability

1st quartile *2nd quartile* *3rd quartile* *4th quartile*

Banking	World Bench-marking Alliance score (out of 90)	WBA rank out of 395	WBA RPB score out of 30	RPB rank out of 395	Planet Tracker methane policy score	World Benchmark Alliance comment
Deutsche Bank AG	20.2	97	7.9	60	35	Has also an opportunity to improve its performance in its geographical context – ranks higher in respecting planetary boundaries, compared to the governance and strategy and adhering to societal conventions
Deutsche Bank	20.2	97	7.9	60	35	Has also an opportunity to improve its performance in its geographical context – ranks higher in respecting planetary boundaries, compared to the governance and strategy and adhering to societal conventions
Morgan Stanley	24.1	67	7.6	67	20	Performs better relative to its industry peers and demonstrates some examples of leading practices – but it has an opportunity to improve its performance across all three measurement areas
Citigroup	33.3	23	7.5	68	65	Leadership in its geographical context – could provide more evidence regarding how it is committed to sustainability and impact across the respecting planetary boundaries measurement area, particularly on biodiversity topics
Royal Bank of Canada	19	107	7.5	70	10	Performs better relative to its industry peers (59th out of 155) and higher relative to its geographical context – well positioned to take leadership on sustainability and impact in the region
Wellington Management Group LLP	15.9	139	6.9	75	20	Comparison to other asset managers, it ranks 17th out of 62 – ranks higher in respecting planetary boundaries area compared to the governance and strategy and adhering to societal conventions
National Bank of Canada	22.9	73	5	104	15	Performs better relative to its industry peers and its geographical context than its absolute score suggests
Zürcher Kantonalbank (Asset Management)	13.9	162	3.9	134	10	Average performance across all three measurement areas – has an opportunity to improve its performance relative to its industry peers – has an opportunity to further demonstrate its commitment to sustainability and impact topics
Pictet & Group SCA Cie	11.8	194	3.9	131	0	Has an opportunity to improve its performance relative to its industry peers – opportunity to improve its performance across all three measurement areas
T Rowe Price Group Inc	16.1	134	3.1	152	10	In comparison to other asset managers, it ranks 15th out of 62 – has an opportunity to further demonstrate its commitment to sustainability and impact topics
Capital Group	14.4	156	3.1	152	0	Performs well in the governance and strategy measurement – has an opportunity to further demonstrate its commitment to sustainability and impact topics in the respecting planetary boundaries
Bank of America	19.7	101	2.6	163	0	Opportunity to improve its performance compared to industry peers – but geographically ranks higher where it ranks 16/138 of N America FIs – could provide more evidence regarding how it is committed to respecting planetary boundaries
UniCredit	20.7	91	2.5	167	0	Performs well compared to its industry peers but not in a geographical context – opportunity to provide more evidence regarding its commitments and performance on climate and biodiversity topics in respecting planetary boundaries area
Fidelity	5.7	269	1.9	187	15	Ranks 37th compared to 62 asses managers that are assessed – has an opportunity to improve its performance across all three measurement areas
State Street Corp	23.3	70	1.7	197	25	Eighth out of a total of 62 asset managers – could provide more evidence on its commitment to sustainability and impact in respecting planetary boundaries
Vanguard Group Inc	4.1	289	0.8	232	10	Very little relevant disclosure was found for any of the measurement areas, including governance and strategy, respecting planetary boundaries and adhering to societal conventions
Geode Capital Holdings LLC	0	353	0	276	0	Ranks at the bottom of the Financial System Benchmark – no relevant disclosure found for any of the measurement areas, including respecting planetary boundaries
Artisan Partners Asset Management Inc	9.4	220	0	276	0	Performance is average relative to its industry peers and its region – has an opportunity to improve its performance across all three measurement areas, in particular respecting planetary boundaries
First Eagle Holdings Inc	1.0	338	0	276	0	No relevant disclosure was found for the respecting planetary boundaries – has an opportunity to further demonstrate its commitment to sustainability and impact topics
Natixis	n/a	n/a	n/a	n/a	10	n/a
Hohhot Investment Company Ltd.	n/a	n/a	n/a	n/a	0	n/a

1st quartile *2nd quartile* *3rd quartile* *4th quartile*

PLANET TRACKER & CHANGING MARKETS FOUNDATION RECOMMENDATIONS FOR FINANCIAL INSTITUTIONS (FIs)

Our work has led us to two basic conclusions.

1. FIs have very underdeveloped public policies when it comes to assessing and addressing methane emissions by the livestock sector.
2. FIs are lagging significantly behind their host countries. Momentum on tackling methane emissions is shifting, highlighted by 150 countries having signed the Global Methane Pledge (GMP), and the additional GMP Pathways announced at COP27

This lack of effective policies needs addressing rapidly given methane's amplified near-term influence on global warming. In particular we recommend the following actions:

- FIs should require the companies they fund to have clear policies and procedures to limit methane emissions, particularly those arising from agriculture (including Scope 3). Banks should include this requirement within their lending agreements.
- FIs should demand that companies provide quantified, independently verified, full (scope 1, 2, 3) methane emission disclosure, by product line and geography, on a timely basis and in a public manner.
- FIs should set an investment policy linked to quantitative, time-framed and science-based methane reduction targets (with public disclosures to ensure accountability). These need to extend to agriculture and in particular livestock and should be aligned to the Global Methane Assessment's recommendations.
- FIs should report annually on their progress with respect to limiting methane emissions, including those from agriculture.

Improved measurement and disclosure of methane by livestock companies

Planet Tracker's research, corroborated by the research conducted by IATP and Changing Markets Foundation,[xxxvi] shows that livestock corporations rarely, if ever, report their methane emissions, with no evidence of such reporting in companies' most recent annual and sustainability reports.

Furthermore, for the seven of the 15 companies that disclose some methane emissions, corporate disclosures on the Climate Disclosure Project (CDP) platform are limited to direct operations (Scope 1), leaving out the actual supply chain emissions from farms, which mostly occur in Scope 3. This means that their methane emissions reporting is incomplete, resulting in vast underestimates of their actual methane footprint.

FIs need to press companies to provide quantified, independently verified, full (scope 1, 2, 3) methane emissions disclosure, by product line and geography, on a timely basis and in a public manner.

Introduction of policies that specifically cover livestock methane emission

FIs have successfully introduced policies for dealing with emissions, including methane, from the energy and utility sectors. These include setting positive change targets (amounts – timeframes – verification), curtailing support of new capacity (e.g. coal mine expansion), withdrawal of support in sensitive areas (e.g. tar sands) and support of activities perceived as positive (e.g. carbon capture and storage).

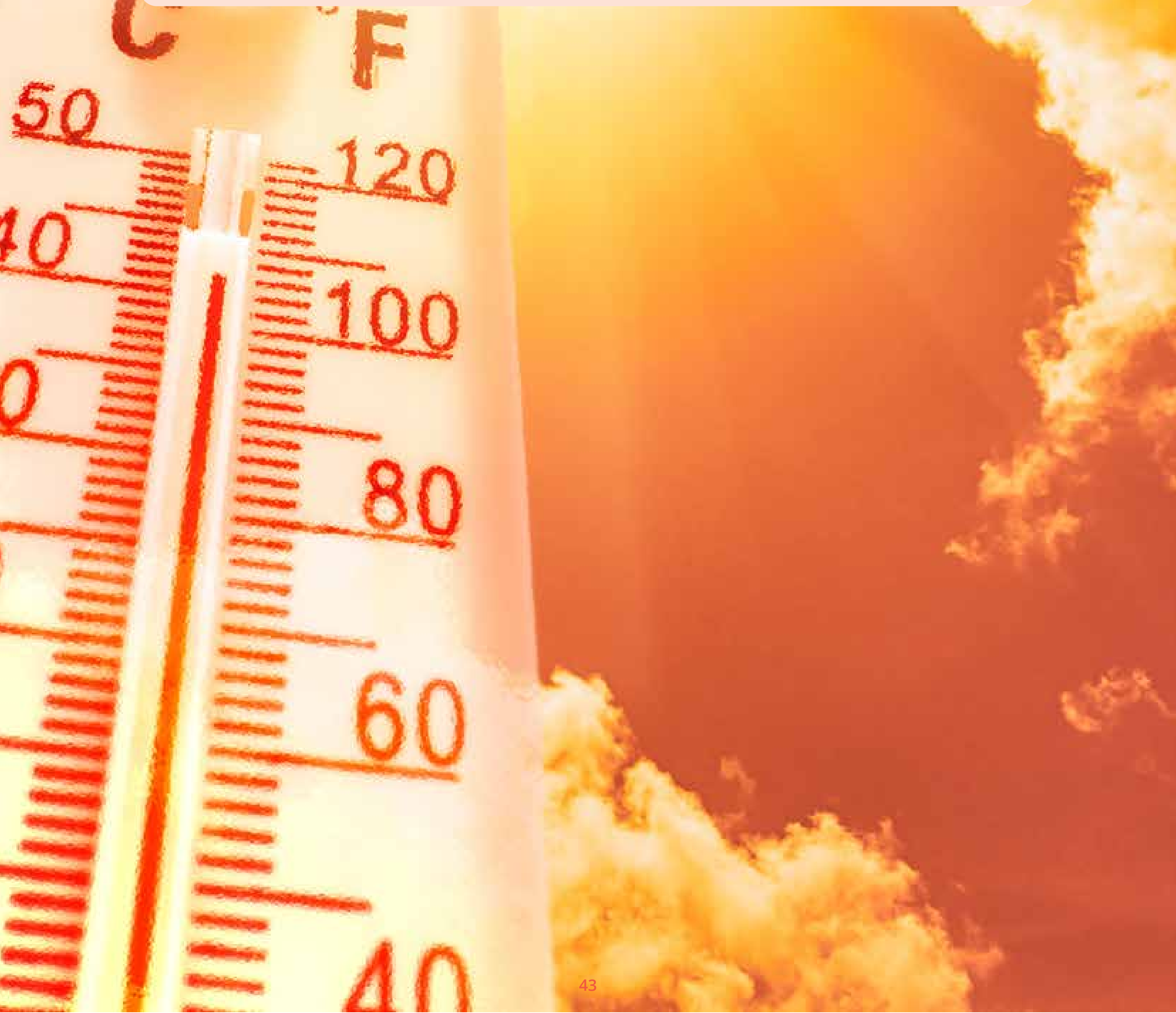
Linked to our own scorecard, we believe **FIs need to set a policy linked to quantitative, time-framed and science-based methane reduction targets. These need to extend to agriculture and in particular livestock.**

CONCLUSIONS

Methane emissions are playing a significant role in driving up temperatures globally, adding to the climate crisis we are facing. Action is urgently needed to limit this effect.

The positive side to this is that urgent action against methane emissions will have a much more immediate effect than acting against CO_2 emissions because methane has an atmospheric half-life of around 11 years. It is important, therefore, that reductions to methane emissions happen simultaneously to CO_2 reductions in order to meet all climate targets.

The financial institutions that are funding the meat and dairy companies that generate the agri-methane emissions have a crucial role to play in requiring those companies to act now. Given the vulnerability of the meat and dairy companies to climate change, if financial institutions fail to focus on this issue, the resulting global heating from methane emissions will put their investment and lending portfolios at risk.



APPENDIX 1: WORKINGS – CALCULATING THE EQUAL RESPONSIBILITY FOOTPRINT

Table 11 lists the banks and highlights where they have a lending relationship (shown by a '•') with the key methane emitting companies[14].

Table 11: Banking relationship map (● or ● = a banking relationship). Source: Planet Tracker.

Banking relationships	MEAT				DAIRY								
	JBS	Marfrig	Tyson	WH Group	Dairy Farmers of America	Lactalis	Fonterra	Yili	Saputo	Arla	Nestlé	Danone	DMK
Morgan Stanley	-	●	●	●	-	-	-	-	-	-	-	-	-
JPMorgan Chase & Co	●	●	●	●	●	-	●	-	-	-	●	●	-
Bank of America Corp	-	-	●	-	●	-	●	-	-	-	●	-	-
CoBank ACB	-	-	●	-	●	-	-	-	-	-	-	-	-
Royal Bank of Canada	-	-	●	-	-	-	-	-	●	-	●	-	-
Cooperatieve Rabobank UA	-	-	●	●	-	●	-	-	-	-	-	-	●
Barclays PLC	-	-	●	●	-	-	-	-	-	-	●	●	-
Bank of Ningbo Co Ltd	-	-	-	●	-	-	-	●	-	-	●	-	-
Crédit Agricole SA	-	-	-	●	-	●	-	-	-	-	●	●	-
Standard Chartered PLC	-	-	-	●	-	-	-	-	-	-	●	-	-
Natixis SA	-	-	-	●	-	●	-	-	-	-	-	●	-
National Westminster Bank PLC	-	-	-	●	-	-	-	-	-	-	●	●	-
DBS Group Holdings Ltd	-	-	-	●	-	-	-	-	-	-	-	-	-
Export-Import Bank of China	-	-	-	●	-	-	-	-	-	-	-	-	-
Industrial & Comm Bank China	-	-	-	●	-	-	-	-	-	-	-	-	-
Banco BTG Pactual SA	●	●	-	-	-	-	-	-	-	-	-	-	-
Banco Bradesco SA	●	●	-	-	-	-	-	-	-	-	-	-	-
Banco do Brasil SA	●	●	-	-	-	-	-	-	-	-	-	-	-
HSBC Holdings PLC	-	●	●	●	-	●	●	-	-	●	●	●	-
Banco Santander SA	●	●	-	-	-	-	-	-	-	-	●	●	-
Goldman Sachs Group Inc	-	-	●	●	-	-	-	-	-	-	-	-	-
US Bancorp	-	-	●	-	●	-	-	-	-	-	-	-	-
Mizuho Financial Group Inc	-	-	●	-	-	●	-	-	-	-	●	-	-
_Unknown	-	-	●	-	-	-	●	-	●	-	●	-	-
Nomura Holdings Inc	-	●	-	●	-	-	-	-	-	-	-	-	-
Anz Banking Group Ltd	-	-	-	●	-	-	-	-	-	-	●	-	-
BNP Paribas SA	-	-	-	●	-	●	-	-	-	-	●	●	-
ING Groep NV	-	-	-	●	-	●	-	-	-	-	●	●	-
Deutsche Bank AG	-	●	-	●	-	-	●	-	-	-	●	-	-
XP Securities LLC	-	●	-	-	-	-	-	-	-	-	-	-	-
IUPAR Itau Unibanco Participacoes SA	-	●	-	-	-	-	-	-	-	-	-	-	-
Bank of Communications Co Ltd	-	-	-	●	-	-	-	●	-	-	-	-	-
Credit Suisse Group AG	-	-	-	●	-	-	-	-	-	-	●	-	-
UBS Group AG	-	-	-	●	-	-	-	-	-	-	●	-	-
Citigroup Inc	-	-	-	●	-	-	●	-	-	-	●	●	-
China Construction Bank Corp	-	-	-	●	-	-	-	-	-	-	-	-	-
Jefferies Financial Group Inc	-	-	-	●	-	-	-	-	-	-	-	-	-
Agricultural Bank of China Ltd	-	-	-	●	-	-	-	-	-	-	-	-	-
China Merchants Bank Co Ltd	-	-	-	●	-	-	-	-	-	-	-	-	-

Note: Banks are ranked according to the aggregated value of their relationships to match Table 13.

[14] Our data captures lending over a 10-year timeframe so this method of 'equal attribution' would penalise a bank that has made one loan to a company early in the last decade and since withdrawn from the methane financing market. We have not found any examples of banks withdrawing from the methane market in this way.

Table 11: ...continued from previous page													
Banking relationships	**MEAT**				**DAIRY**								
	JBS	Marfrig	Tyson	WH Group	Dairy Farmers of America	Lactalis	Fonterra	Yili	Saputo	Arla	Nestlé	Danone	DMK
Haitong Securities Co Ltd	-	-	-	●	-	-	-	-	-	-	-	-	-
Industrial and Commercial Bank of China Ltd	-	-	-	●	-	-	-	-	-	-	-	-	-
Guosen Securities Co Ltd	-	-	-	●	-	-	-	-	-	-	-	-	-
Daiwa Securities Group Inc	-	-	-	●	-	-	-	-	-	-	-	-	-
China International Capital Corp Ltd	-	-	-	●	-	-	-	-	-	-	-	-	-
China Merchants Securities Co Ltd	-	-	-	●	-	-	-	-	-	-	-	-	-
CITIC Securities Co Ltd	-	-	-	●	-	-	-	-	-	-	-	-	-
Société Générale SA	-	-	-	-	-	●	●	-	-	-	●	●	-
Mitsubishi UFJ Financial Group Inc	-	-	-	-	-	-	●	-	-	-	●	●	-
Bank of Montreal	-	-	-	-	-	-	-	-	●	-	-	-	-
National Bank of Canada	-	-	-	-	-	-	-	-	●	-	-	-	-
UniCredit SpA	-	-	-	-	-	●	-	-	-	-	-	-	●
Bpce SA	-	-	-	-	-	●	-	-	-	-	-	-	-
Wells Fargo & Co	-	-	-	-	●	-	-	-	-	-	●	-	-
China Bohai Bank Co Ltd	-	-	-	-	-	-	-	●	-	-	-	-	-
China Everbright Bank Co Ltd	-	-	-	-	-	-	-	●	-	-	-	-	-
Sumitomo Mitsui Financial Group Inc	-	-	-	-	-	●	-	-	-	-	-	-	-
Caisse Federale de Credit Mutuel	-	-	-	-	-	●	-	-	-	-	-	-	-
Hua Xia Bank Co Ltd	-	-	-	-	-	-	-	●	-	-	-	-	-
Commerzbank AG	-	-	-	-	-	●	-	-	-	-	-	-	●
Ping An Bank Co Ltd	-	-	-	-	-	-	-	●	-	-	-	-	-
Shanghai Pudong Development Bank Co Ltd	-	-	-	-	-	-	-	●	-	-	-	-	-
Bank of Communications Co Ltd	-	-	-	-	-	-	-	●	-	-	-	-	-
Zuercher Kantonalbank	-	-	-	-	-	-	-	-	-	-	●	-	-
Huatai Securities Co Ltd	-	-	-	-	-	-	-	●	-	-	-	-	-
Industrial Bank Co Ltd	-	-	-	-	-	-	-	●	-	-	-	-	-
Australia and New Zealand Banking Group Ltd	-	-	-	-	-	-	●	-	-	-	-	-	-
China Minsheng Banking Corp Ltd	-	-	-	-	-	-	-	●	-	-	-	-	-
China Zheshang Bank Co Ltd	-	-	-	-	-	-	-	●	-	-	-	-	-
PNC Financial Services Group Inc	-	-	-	-	●	-	-	-	-	-	-	-	-
National Australia Bank Ltd	-	-	-	-	-	-	●	-	-	-	-	-	-
Commonwealth Bank of Australia	-	-	-	-	-	-	●	-	-	-	-	-	-
Toronto-Dominion Bank	-	-	-	-	-	-	-	-	●	-	-	-	-
China Securities Co Ltd	-	-	-	-	-	-	-	●	-	-	-	-	-
CIBC World Markets Inc	-	-	-	-	-	-	-	-	●	-	-	-	-
Truist Financial Corp	-	-	-	-	●	-	-	-	-	-	-	-	-
Skandinaviska Enskilda Banken AB	-	-	-	-	-	-	-	-	-	●	-	-	-
Westpac Banking Corp	-	-	-	-	-	-	●	-	-	-	-	-	-
Nord/LB	-	-	-	-	-	-	-	-	-	-	-	-	●
Dz Bank Ag	-	-	-	-	-	-	-	-	-	-	-	-	●
Davy	-	-	-	-	-	-	-	-	-	-	-	-	-
Goodbody Stockbrokers UC	-	-	-	-	-	-	-	-	-	-	-	-	-
Scotiabank	-	-	-	-	-	-	-	-	●	-	-	-	-
Danske Bank A/S	-	-	-	-	-	-	-	-	-	●	-	-	-
Westdeutsche Genossenschafts Zentralbank eG	-	-	-	-	-	-	-	-	-	-	-	-	●
IKB Deutsche Industriebank	-	-	-	-	-	-	-	-	-	-	-	-	●
Nordea Bank Abp	-	-	-	-	-	-	-	-	-	●	-	-	-
Landesbank Baden Wuerttemberg	-	-	-	-	-	-	-	-	-	-	-	-	●
Federation of Caisses Desjardins Du Quebec	-	-	-	-	-	-	-	-	●	-	-	-	-
Ping An Securities Group (Holdings) Ltd	-	-	-	-	-	-	-	●	-	-	-	-	-
Total	5	12	12	36	7	14	12	19	8	4	23	12	8

The methane footprint attributed to each bank is then calculated by splitting the company's methane footprint between equity and debt (as shown in Table 7 on page 26) and then allocating the debt-funded portion equally between all the banks with which it has a funding relationship, as summarised in Table 12 and detailed in Table 13.

Table 12: Company data for bank 'equal responsibility' methane footprint working. Source: Planet Tracker.

Banking relationships	MEAT				DAIRY									Total / Avg
	JBS	Marfrig	Tyson	WH Group	Dairy Farmers of America	Lactalis	Fonterra	Yili	Saputo	Arla	Nestlé	Danone	DMK	
Count of banks	5	12	12	36	7	15	12	19	8	4	23	12	11	176
CH_4 of non-equity component of EV (Mt)	237	136	30	7	22	11	21	1	7	13	4	5	3	497
CH_4 per bank (Mt)	47	11	2	0	3	1	2	0	1	3	0	0	0	3

Table 13: Equal responsibility basis, bank methane footprint (Mt). Source: Planet Tracker.

Banking	MEAT				DAIRY									Total
	JBS	Marfrig	Tyson	WH Group	Dairy Farmers of America	Lactalis	Fonterra	Yili	Saputo	Arla	Nestlé	Danone	DMK	
JPMorgan Chase & Co	47.5	11.3	2.5	0.2	3.1	-	1.8	-	-	-	0.2	0.4	-	67
Banco Santander SA	47.5	11.3	-	-	-	-	-	-	-	-	0.2	0.4	-	59
Banco BTG Pactual SA	47.5	11.3	-	-	-	-	-	-	-	-	-	-	-	59
Banco Bradesco SA	47.5	11.3	-	-	-	-	-	-	-	-	-	-	-	59
Banco do Brasil SA	47.5	11.3	-	-	-	-	-	-	-	-	-	-	-	59
HSBC Holdings PLC	-	11.3	2.5	0.2	-	0.8	1.8	-	-	3.2	0.2	0.4	-	20
Bank of America Corp	-	11.3	2.5	0.2	3.1	-	1.8	-	-	-	0.2	-	-	19
Morgan Stanley	-	11.3	2.5	0.2	-	-	-	-	-	-	-	-	-	14
Deutsche Bank AG	-	11.3	-	0.2	-	-	1.8	-	-	-	0.2	-	-	13
Nomura Holdings Inc	-	11.3	-	0.2	-	-	-	-	-	-	-	-	-	12
XP Securities LLC	-	11.3	-	-	-	-	-	-	-	-	-	-	-	11
IUPAR Itau Unibanco Participacoes SA	-	11.3	-	-	-	-	-	-	-	-	-	-	-	11
CoBank ACB	-	-	2.5	-	3.1	-	-	-	-	-	-	-	-	6
US Bancorp	-	-	2.5	-	3.1	-	-	-	-	-	-	-	-	6
Cooperatieve Rabobank UA	-	-	2.5	0.2	-	0.8	-	-	-	-	-	-	0.3	4
Royal Bank of Canada	-	-	2.5	-	-	-	-	-	0.9	-	0.2	-	-	4
Mizuho Financial Group Inc	-	-	2.5	-	-	0.8	-	-	-	-	0.2	-	-	3
Danske Bank A/S	-	-	-	-	-	-	-	-	-	3.2	-	-	-	3
Skandinaviska Enskilda Banken AB	-	-	-	-	-	-	-	-	-	3.2	-	-	-	3
Nordea Bank Abp	-	-	-	-	-	-	-	-	-	3.2	-	-	-	3
Wells Fargo & Co	-	-	-	-	3.1	-	-	-	-	-	0.2	-	-	3
Barclays PLC	-	-	2.5	0.2	-	-	-	-	-	-	0.2	0.4	-	3
Truist Financial Corp	-	-	-	-	3.1	-	-	-	-	-	-	-	-	3
Société Générale SA	-	-	-	-	-	0.8	1.8	-	-	-	0.2	0.4	-	3
Mitsubishi UFJ Financial Group Inc	-	-	-	-	-	0.8	1.8	-	-	-	0.2	0.4	-	3
PNC Financial Services Group Inc	-	-	-	-	3.1	-	-	-	-	-	-	-	-	3
Goldman Sachs Group Inc	-	-	2.5	0.2	-	-	-	-	-	-	-	-	-	3
Citigroup Inc	-	-	-	0.2	-	-	1.8	-	-	-	0.2	0.4	-	2
Australia and New Zealand Banking Group Ltd	-	-	-	-	-	-	1.8	-	-	-	-	-	-	2
National Australia Bank Ltd	-	-	-	-	-	-	1.8	-	-	-	-	-	-	2
Commonwealth Bank of Australia	-	-	-	-	-	-	1.8	-	-	-	-	-	-	2
Westpac Banking Corp	-	-	-	-	-	-	1.8	-	-	-	-	-	-	2
BNP Paribas SA	-	-	-	0.2	-	0.8	-	-	-	-	0.2	0.4	-	1
ING Groep NV	-	-	-	0.2	-	0.8	-	-	-	-	0.2	0.4	-	1
Crédit Agricole SA	-	-	-	0.2	-	0.8	-	-	-	-	0.2	0.4	-	1
Natixis SA	-	-	-	0.2	-	0.8	-	-	-	-	-	0.4	-	1
UniCredit SpA	-	-	-	-	-	0.8	-	-	-	-	-	-	0.3	1
Commerzbank AG	-	-	-	-	-	0.8	-	-	-	-	-	-	0.3	1
Bank of Montreal	-	-	-	-	-	-	-	-	0.9	-	-	-	-	1
National Bank of Canada	-	-	-	-	-	-	-	-	0.9	-	-	-	-	1
Scotiabank	-	-	-	-	-	-	-	-	0.9	-	-	-	-	1
Toronto-Dominion Bank	-	-	-	-	-	-	-	-	0.9	-	-	-	-	1
Federation of Caisses Desjardins Du Quebec	-	-	-	-	-	-	-	-	0.9	-	-	-	-	1
CIBC World Markets Inc	-	-	-	-	-	-	-	-	0.9	-	-	-	-	1
Bpce SA	-	-	-	-	-	0.8	-	-	-	-	-	-	-	1
Sumitomo Mitsui Financial Group Inc	-	-	-	-	-	0.8	-	-	-	-	-	-	-	1
Caisse Federale de Credit Mutuel	-	-	-	-	-	0.8	-	-	-	-	-	-	-	1
National Westminster Bank PLC	-	-	-	0.2	-	-	-	-	-	-	0.2	0.4	-	1

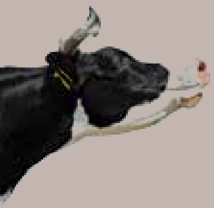
Table 13: ...continued from previous page														
Banking	MEAT				DAIRY									Total
	JBS	Marfrig	Tyson	WH Group	Dairy Farmers of America	Lactalis	Fonterra	Yili	Saputo	Arla	Nestlé	Danone	DMK	
Anz Banking Group Ltd	-	-	-	0.2	-	-	-	-	-	-	0.2	-	-	0
Credit Suisse Group AG	-	-	-	0.2	-	-	-	-	-	-	0.2	-	-	0
Bank of Ningbo Co Ltd	-	-	-	0.2	-	-	-	0.1	-	-	0.2	-	-	0
Standard Chartered PLC	-	-	-	0.2	-	-	-	-	-	-	0.2	-	-	0
UBS Group AG	-	-	-	0.2	-	-	-	-	-	-	0.2	-	-	0
Nord/LB	-	-	-	-	-	-	-	-	-	-	-	-	0.3	0
Dz Bank Ag	-	-	-	-	-	-	-	-	-	-	-	-	0.3	0
IKB Deutsche Industriebank	-	-	-	-	-	-	-	-	-	-	-	-	0.3	0
Landesbank Baden Wuerttemberg	-	-	-	-	-	-	-	-	-	-	-	-	0.3	0
Westdeutsche Genossenschafts Zentralbank eG	-	-	-	-	-	-	-	-	-	-	-	-	0.3	0
China Construction Bank Corp	-	-	-	0.2	-	-	-	0.1	-	-	-	-	-	0
Jefferies Financial Group Inc	-	-	-	0.2	-	-	-	-	-	-	-	-	-	0
Agricultural Bank of China Ltd	-	-	-	0.2	-	-	-	0.1	-	-	-	-	-	0
China Merchants Bank Co Ltd	-	-	-	0.2	-	-	-	0.1	-	-	-	-	-	0
Haitong Securities Co Ltd	-	-	-	0.2	-	-	-	-	-	-	-	-	-	0
Industrial and Commercial Bank of China Ltd	-	-	-	0.2	-	-	-	-	-	-	-	-	-	0
Guosen Securities Co Ltd	-	-	-	0.2	-	-	-	-	-	-	-	-	-	0
Daiwa Securities Group Inc	-	-	-	0.2	-	-	-	-	-	-	-	-	-	0
China International Capital Corp Ltd	-	-	-	0.2	-	-	-	0.1	-	-	-	-	-	0
China Merchants Securities Co Ltd	-	-	-	0.2	-	-	-	-	-	-	-	-	-	0
CITIC Securities Co Ltd	-	-	-	0.2	-	-	-	0.1	-	-	-	-	-	0
Zuercher Kantonalbank	-	-	-	-	-	-	-	-	-	-	0.2	-	-	0
DBS Group Holdings Ltd	-	-	-	0.2	-	-	-	-	-	-	-	-	-	0
Export-Import Bank of China	-	-	-	0.2	-	-	-	-	-	-	-	-	-	0
Industrial & Comm Bank China	-	-	-	0.2	-	-	-	-	-	-	-	-	-	0
Bank of Communications Co Ltd	-	-	-	0.2	-	-	-	0.1	-	-	-	-	-	0
China Bohai Bank Co Ltd	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0
China Everbright Bank Co Ltd	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0
Hua Xia Bank Co Ltd	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0
Ping An Bank Co Ltd	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0
Shanghai Pudong Development Bank Co Ltd	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0
Bank of Communications Co Ltd	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0
Huatai Securities Co Ltd	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0
Industrial Bank Co Ltd	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0
China Securities Co Ltd	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0
China Minsheng Banking Corp Ltd	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0
China Zheshang Bank Co Ltd	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0
Ping An Securities Group (Holdings) Ltd	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0
Other	-	-	2.5	0.2	-	0.8	1.8	-	0.9	-	0.2	-	0.9	7
Total	237	136	30	7	22	11	21	1	7	13	4	5	3	497

APPENDIX 2: PLANET TRACKER'S FINANCIAL INSTITUTIONS POLICY SCORE CARD METHODOLOGY

Our scorecard covers three main areas and contains a series of sub-questions. We have scored the results on a binary basis. A full score for a yes answer and a nil score for a no answer.

Table 14: Policy scorecard – scoring methodology. Source: Planet Tracker.

	Indicator	YES sub score	NO sub score	MAX score
1	**Does the FI have a policy on financing sustainable agriculture and/or land use?**			**50**
1.1	Does the FI have a policy on financing sustainable agriculture and/or land use?	25	0	-
1.2	Does the FI have specific policy terms for methane?	25	0	-
2	**Does the FI have a policy that covers methane emissions from funded companies?**			**50**
2.1	Does the FI have a policy that covers methane emissions from funded companies?	10	0	-
2.2	Set a specific methane/GhG reduction target?	5	0	-
2.3	Require the target to be time framed?	5	0	-
2.4	Require the target to be science-based?	5	0	-
2.5	Report quantitative emission metrics?	5	0	-
2.6	Identify key emission sources by product line?	5	0	-
2.7	Identify key emission sources by geography?	5	0	-
2.8	Have independent verification of performance against emission reduction targets?	5	0	-
2.9	Publish the findings of the independent performance verifier/auditor?	5	0	-
3	**Does the FI have a policy that covers GhG emissions from funded companies?**			**50**
3.1	Does the FI have a policy that covers GhG emissions from funded companies?	10	0	-
3.2	Set a specific methane/GhG reduction target?	5	0	-
3.3	Require the target to be time framed?	5	0	-
3.4	Require the target to be science-based?	5	0	-
3.5	Report quantitative emission metrics?	5	0	-
3.6	Identify key emission sources by product line?	5	0	-
3.7	Identify key emission sources by geography?	5	0	-
3.8	Have independent verification of performance against emission reduction targets?	5	0	-
3.9	Publish the findings of the independent performance verifier/auditor?	5	0	-



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ABOUT PLANET TRACKER

Planet Tracker is a non-profit financial think tank producing analytics and reports to align capital markets with planetary boundaries. Our mission is to create significant and irreversible transformation of global financial activities by 2030. By informing, enabling and mobilising the transformative power of capital markets we aim to deliver a financial system that is fully aligned with a net-zero, nature-positive economy. Planet Tracker proactively engages with financial institutions to drive change in their investment strategies. We ensure they know exactly what risk is built into their investments and identify opportunities from funding the systems transformations we advocate.

FOOD AND LAND USE PROGRAMME

Programme goal: to align capital markets with a sustainable global food system. Before 2050, Planet Tracker's Food and Land Use Programme will highlight the investment risks and opportunities associated with the just and equitable transformation of the global food system that eliminates negative externalities with respect to climate, nature, and health so that it is fit to feed the world's growing population within planetary boundaries. By highlighting these risks and opportunities, Planet Tracker's Food and Land Use programme will influence financial markets actors to actively support and fund this transformation.

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