Taskforce for Climate Related Financial Disclosure (TCFD) Report

December 2024

ARDEA
Investment Management

As stewards of capital, Ardea Investment Management (Ardea IM) has a duty to ensure that we are operating and investing sustainably; making a full effort to identify and mitigate all risks to our portfolios. Given our focus on advanced economy sovereign bond markets, we see climate change as the sustainability risk of most concern. We are committed to use our knowledge and to effect change in government bond markets arising from the realisation of risks related to climate change.
We therefore place a reliance on engagement and specific initiatives, such as fostering growth of the global government green bond market, to deliver practical change. As government bond investors, we have direct access to issuers and strongly advocate for engagement, in contrast to exclusion or divestment, to influence change and encourage long-term value creation.

As a supporter of the Paris Agreement and a signatory to the Global Investor Statement to Governments on Climate Change, it is our fiduciary responsibility to manage climate risks and opportunities in our portfolios and as an organisation.

We acknowledge the recently published standards of the International Sustainability Standards Board (ISSB) on sustainability and climate change, in particular, the IFRS S2 Climate Related Disclosures, along with the Treasury Consultation on Climate Risk Disclosure and the Australian Accounting Standards Board (ASSB) requirements which will govern the content of climate reporting. The new standards consolidate and build on the TCFD framework. We are working to align our climate risk framework with the ISSB standards and report accordingly in the timeframes set by the jurisdictions within which we operate.

Governance

Disclose the organisation's governance around climate risks and opportunities

a. Describe the board's oversight of climate related risks

The Ardea IM Board has oversight over high level firm strategy and ensures appropriate risk management processes and policies are in place. This oversight extends to policies that address regulatory and fiduciary risks relating to climate change.

The Ardea IM Board receive regular ESG Reporting as part of the CEO update at each board meeting and, together with the CEO and CIOs, ensure that climate risks and opportunities are managed consistently with Ardea IM's investment philosophy, risk management approach, and overall strategy.

b. Describe management's role in assessing and managing climate related risks and opportunities

Ardea IM's Sustainability Committee is responsible for overseeing Ardea IM's sustainability initiatives, including those related to climate, and ensuring that investments are consistent with ESG principles. The committee is chaired by the CEO and is composed of senior managers from across the firm, including the CIOs and Head of Research.

Ardea IM's ESG Policy contains the firm's broad sustainability priorities and is part of the overall Governance, Risk and Compliance (GRC) Framework, managed by the Ardea IM Compliance Manager. The Compliance Manager is responsible for the implementation and day-to-day operation of the GRC Framework, with the support of the Fidante Compliance team's resources. All staff are provided with a copy of Ardea's GRC Framework and are required to sign the GRC Framework Acknowledgement to acknowledge that they have read and will abide by the policies and procedures contained within it. As the ESG Policy forms part of this Framework, the Compliance Manager is responsible for ensuring adherence with this Policy.

Implementation is delegated to the research and investment teams within Ardea IM. The CIOs lead the Investment team with responsibility for the development and implementation of Ardea IM's investment strategy. The Research team is responsible for identifying trade ideas, risks, and opportunities related to ESG through research and technology development. The Research and Investment teams work together to identify mispricing between securities and mitigate exposure to market risks, including climate-related risks.

Management is kept appraised of climate developments and related issues through regular presentations by the research team on ESG issues and topics at weekly investment meetings; by regulatory updates tabled by the executive leadership team at board meetings; and by broader industry advice and guidance from external advisors including the company's distribution partner, Fidante.

Strategy

Disclose the actual and potential impacts of climate related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material.

a. Describe the climate related risks and opportunities the organisation has identified over the short, medium, and long term

Risks

Transition Risk

Climate transition risks are the risks related to the process of adjustment towards a low carbon economy. Many in the investing community claim that climate change is not being factored into government bond markets; therefore, sovereign bond yields are not fully reflecting the impact of climate change and a country's effort to transition to a low-carbon economy in line with the 2015 Paris Agreement.

Through a joint research project with the University of Technology, Sydney, we challenge this narrative and find that carbon dioxide emissions, natural resources rents, and renewable energy consumption, as measures of transition risk, significantly impact yields and spreads. Countries with lower carbon emissions incur a lower borrowing cost. Advanced countries reducing their earnings from natural resource rents and increasing renewable energy consumption are associated with lower borrowing costs, which differs from the effects in developing countries. The necessity to support developing countries to meet climate change targets also emerges. The research findings are published here.

Physical Risk

In many asset classes in investment markets, including sovereign bonds, transition risks have materialised much faster than physical risks. The physical risk of climate change is currently impacting GDP levels globally. Over the medium to longer term, the physical impacts of more frequent natural disasters will impact the credit ratings of Governments by ratings agencies. Our research has identified that advanced economies that perform poorly in managing their climate transition may encounter increased sovereign borrowing costs, liquidity constraints, reduced capacity to effectively manage climate transition and the inability to finance economic recovery from severe climate shocks or natural disasters.

Opportunities

Promoting the Growth and Development of a Government Green Bond Market

An inherent and distinctive feature of our investment approach is its highly active trading style, which results in frequent and high-volume trading of government bonds. We aim to utilise this strong presence in the market to foster growth of the green bond market, contributing materially towards improving market liquidity and price discovery for green government bonds.

To practically integrate these ideas into our investment process, Ardea IM is committed to:

- Preference trading green bonds over conventional bonds when the relative value is similar, and
- Regular engagement with government bond issuers to advocate for more green bond issuance, including participation in new bond syndications when the relative value is attractive.

By creating more opportunities for trading and enhancing price discovery, our aim is to contribute to advancing the development and growth of the green bond market globally which, in turn, has encouraged governments to issue more green bonds and contributes to a reduction in sustainability risk for issuers, and therefore economies overall. This has direct implications for the sustainability of the government bond market in aggregate and therefore all investors in government bond strategies.

Engagement

Engagement is the most effective tool at our disposal to encourage and shape long-term, best practice ESG outcomes. We view engagement with stakeholders including clients, media, debt management offices, academia, and issuers as the most efficient and logical way to promote sustainable outcomes generally, not just within our industry or asset class. Engagement also

broadens the scope to include a wider discussion on ESG issues with the key entities that produce the supply of a large part of the fixed income universe, namely governments.

In integrating ESG into our investment process, and therefore our engagement with issuers, Ardea IM has focused on system-wide risks such as climate change and the financial sustainability of governments' fiscal burdens. We consider that effective policy in these areas could materially improve key outcomes, such as levels of economic growth and lowering inflation risks, contributing directly to a higher structural rate of return on government fixed income. Our influence on these policies is likely to be strongest in an Australian context and we follow a consistent engagement approach across the markets in which we invest.

b. Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning

Ardea IM recognises that the availability of a well-functioning market for government bonds is critical to its future prospects for business success. Without such a market, the case for allocating to fixed income does not exist, and moreover pricing of a wide range of other financial assets is potentially thrown into turmoil.

For this reason, the business views its ongoing role in supporting bond market development as being critical to the organisation's overall strategy and business planning. Yet, the broad nature of government bond investing means that impacts are wide and far-reaching, and it will require an extended period of ongoing work ahead to fully assess the scope and magnitude of these risks. This has anchored our reliance on active engagement and promoting the development of the green sovereign bond market to fund national projects that have positive environmental and/or climate benefits.

To meet its overall sustainability commitments, and to make an ongoing contribution towards better outcomes until such time as these risks can be more accurately assessed, Ardea IM has implemented the following four pillar ESG framework:

1. Research,
2. Integration,
3. Engagement, and
4. Corporate Sustainability.

Research

Research is integral to Ardea IM's investment process, and the consideration of ESG is consistent with that approach. Furthermore, the research projects help to inform our broader investment and operational ESG activities as well as to raise awareness of the importance of sustainability risks and opportunities when it comes to investing in government bonds. The potential impact of climate related risks and opportunities is a factor driving the research strategy. This has resulted in the development of several key research partnerships with academic institutions including the University of Technology Sydney publishing a joint research paper, 'Climate change transition risks on sovereign bond markets.'

Integration

In prioritising ESG integration into our investment process, Ardea IM focuses on system-wide risks, such as climate change and the financial sustainability of governments' fiscal burdens. Given the threat climate change poses to the global economy and the fast materialisation of transition risk, these factors are most likely to be material determinants of sovereign bond markets. However, environmental risks are not currently adequately addressed by credit ratings given their focus on policy events and market dynamics. Further, we believe that environmental risks (and, in particular, climate change) will become increasingly important over time.

To practically address climate change and secure the government funding to support environmental projects, Ardea is committed to supporting the development of the green sovereign bond market. We are committed to utilising our frequent and high-volume trading of government bonds, alongside our engagement activity, to foster growth of the green bond market, with the aim to contribute materially towards improving market liquidity and price discovery for green government bonds.

Engagement

As an investor in advanced economy sovereign bonds, we regularly engage with all major government bond issuers across the markets we invest. The company's engagement activities extend beyond issuers to education and advocacy with other stakeholders, including investors, consultants, academia, the media, and the industry more broadly. We retain a detailed record of these engagement activities, which seek to move beyond demonstrating the impact of ESG factors for investment risk and returns and promote a wider discussion on sustainability issues, including climate change. We place reliance on engagement and specific initiatives, like the development of the government green bond market, to practically promote change.

Corporate Sustainability

Ardea IM is committed to drive long-term change and improve outcomes for both the company and its stakeholders. By fostering a culture of improvement and innovation, Ardea IM continues to evolve its corporate approach across key areas, including with respect to our own carbon footprint and our actions as global citizens. As such, we support the Paris Agreement and are a signatory to the Global Investor Statement on Climate Change.

c. Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

We use the risks identified in our research paper with UTS (link to paper) that finds that climate transition risk is priced into government bond markets. We use these risks as the basis for our scenario analysis, and to inform our other policies (in particular our policy regarding participation in the green and "brown" bond markets).

Equation (1) specifies the dependent variable as the 10-year government bond yield, $Y_{i,t}$, for the ith country, $i \in \{1, \ldots, N\}$ and time, $t \in \{1, \ldots, T\}$,

$$\begin{aligned} Y_{i,t} =& \gamma_1 CO2_{i,t-1} + \gamma_2 Rent_{i,t-1} + \gamma_3 Renewables_{i,t-1} + \beta_1 GDP_{i,t} + \beta_2 Growth_{i,t} + \beta_3 Inflation_{i,t} + \\ & \beta_4 Debt_{i,t} + \beta_5 Trade_{i,t} + \beta_6 Current_{i,t} + \beta_7 rating_{i,t} + \beta_8 CBBB_{i,t} + \beta_9 NEER_{i,t} + \mu_i + e_{i,t}, \end{aligned} \tag{1}$$

where the climate transition risk variables are: carbon dioxide emissions, $CO2_{i,t-1}$; natural resources rents, $Rents_{i,t-1}$; and renewable energy consumption, $Renewables_{i,t-1}$. The control variables are: GDP per capita, $GDP_{i,t}$; real GDP growth, $Growth_{i,t}$; inflation rate, $Inflation_{i,t}$; debt-to-GDP ratio, $Debt_{i,t}$; trade openness, $Trade_{i,t}$; the current account to GDP ratio, $Current_{i,t}$; Moody's sovereign credit rating, $rating_{i,t}$; the Central Bank budget balance as per cent of GDP, $CBBB_{i,t}$; and the nominal effective exchange rate, $NEER_{i,t}$. Further, μ_i are the country-specific intercepts that capture heterogeneity across countries, and $\epsilon_{i,t}$ are the idiosyncratic error terms. Equation (2) specifies the dependent variable as

Physical risks are missing from the expression above. The proxies used to measure physical risk (e.g., the NDGAIN Country Index[1]) are slow moving and do not exhibit enough volatility to map to movements in yields.

However, the physical risk of climate change is currently impacting GDP levels globally. The Australian example is a case in point: "The economic implications are profound," the Australian Reserve Bank governor told the Australia-Canada Economic Leadership Forum, February 2020. "The world is getting hotter and the climate's more variable, and we're seeing already in Australia, perhaps more than anywhere else in the world, the effects of that."[2]. This means that even if investors are not making the explicit link between the decline in current levels of GDP to the physical risk of climate change, climate change is being priced into government bond yields as a result of investors accounting for concurrent GDP levels.

1. https://gain.nd.edu/our-work/country-index/
2. https://www.bloomberg.com/news/articles/2020-02-13/rba-s-lowe-says-economic-implications-of-climate-change-profound

Given the range of scenarios over which climate change might be realised, there is inherently a degree of uncertainty for the business in whether investors can continue to be adequately protected against these risks, and therefore whether the business can continue to operate its funds management services. As these risks are existential for investors and for the business, considerable resources have been allocated from the research team and from across the business towards addressing and mitigating these risks. While we cannot have absolute certainty that the business and its investors will be resilient to all risks across all scenarios, we seek to lower these risks wherever possible.

Table 1: Sovereign Bond Yields/Spreads and their relationship to Climate Change Transition Risk - Advanced Countries

The table reports the estimation results of the panel fixed effects regressions (1) and (2) between the sovereign bond yields and spreads, respectively, and the climate transition risk indicators for the group of the advanced countries. Country fixed effects have been used in all regressions. Standard errors are displayed in parentheses; $p < 0.1^{*}$, $p < 0.05^{**}$, $p < 0.01^{***}$.

	Advanced countries											
Dependent variable	Sovereign bond yields						Sovereign bond yield spreads					
	1	2	3	4	5	6	1	2	3	4	5	6
Carbon dioxide emissions	0.114	0.375***					0.272***	0.381***				
	(0.082)	(0.074)					(0.097)	(0.079)				
Carbon dioxide emmisions per capita			0.511***	0.723***					0.508***	0.548***		
			(0.095)	(0.081)					(0.097)	(0.079)		
Natural resources rents	0.446*		0.428*		0.720***		0.671***		0.655***		0.767***	
	(0.240)		(0.232)		(0.254)		(3.056)		(0.214)		(0.223)	
Renewable energy consumption	-0.165***		-0.103***			-0.205***	-0.046*		-0.011			-0.115***
	(0.028)		(0.028)			(0.022)	(0.027)		(0.026)			(0.020)
GDP per capita	-17.876***	-22.745***	-15.252***	-16.823***	-22.589***	-16.112***	-6.589***	-8.806***	-3.555**	-4.463***	-8.153***	-5.028***
	(1.871)	(1.737)	(1.842)	(1.797)	(1.800)	(1.735)	(1.718)	(1.518)	(1.675)	(1.620)	(1.565)	(1.582)
Real GDP growth	0.039	0.060**	0.041*	0.055**	0.083***	0.020	-0.039*	-0.035	-0.034*	-0.032	-0.008	-0.054***
	(0.024)	(0.024)	(0.023)	(0.022)	(0.024)	(0.021)	(0.021)	(0.021)	(0.021)	(0.020)	(0.021)	(0.020)
Inflation	0.168***	0.214***	0.154***	0.180***	0.215***	0.183***	0.372**	0.390***	0.359***	0.370***	0.395***	0.369***
	(0.049)	(0.051)	(0.048)	(0.048)	(0.052)	(0.047)	(0.045)	(0.045)	(0.044)	(0.044)	(0.045)	(0.043)
Debt-to-GDP	-0.014***	-0.013***	-0.004	-0.003	-0.020***	-0.019***	0.004	0.002	0.009**	0.007	-0.002	-0.004
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Trade openness	-2.206	-2.381	-3.676**	-3.836**	-4.600***	-1.240	1.614	3.095**	0.184	1.744	0.409	3.196**
	(1.701)	(1.606)	(1.671)	(1.519)	(1.785)	(1.509	(1.537)	(1.418)	(1.527)	(1.374)	(1.548)	(1.390)
Current account balance	-0.038	-0.042*	-0.047**	-0.053**	-0.063**	-0.013	-0.057***	-0.052**	-0.069***	-0.062***	-0.065***	-0.035*
	(0.024)	(0.024)	(0.023)	(0.023)	(0.025)	(0.022)	(0.021)	(0.021)	(0.021)	(0.021)	(0.022)	(0.020)
Credit rating scores	-0.220***	-0.081*	-0.228***	-0.157***	-0.067	-0.227***	-0.271***	-0.232***	-0.296***	-0.282***	-0.197***	-0.280***
	(0.048)	(0.044)	(0.046)	(0.043)	(0.045)	(0.047)	(0.043)	(0.040)	(0.042)	(0.040)	(0.040)	(0.043)
Central bank budget balance	-0.048**	-0.047**	-0.063***	-0.072***	-0.048**	-0.041**	-0.122***	-0.123***	-0.141***	-0.146***	-0.129***	-0.118***
	(0.021	(0.022)	(0.021)	(0.021)	(0.023)	(0.020)	(0.020)	(0.020)	(0.019)	(0.019)	(0.020)	(0.019)
Nominal effective exchange rate	-0.004	0.004	0.0003	0.007	-0.003	-0.003	0.022***	0.031***	0.026***	0.035***	0.025***	0.026***
	-0.008	-0.008	-0.008	(0.008)	-0.009	(0.008)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)
R^2	0.617	0.578	0.642	0.625	0.560	0.621	0.442	0.422	0.469	0.455	0.405	0.406
Adj. R^2	0.584	0.544	0.611	0.595	0.524	0.591	0.393	0.374	0.422	0.410	0.356	0.359

Table 1 shows the parameter estimates for Equation 1. For developed markets we see there is a positive relationship between yields for carbon dioxide emissions. These results inform our scenario analysis policy, and in part our green bond market policy as explained below.

As guided by APRA[3] in CPG 229, we incorporate the following considerations into our scenario analysis:

Future Temperature Rises

- global average temperatures continuing to rise in the absence of mitigating actions and policies
- limiting global average temperature increase to well below 2˚C by 2100, consistent with the Paris Agreement, reducing the magnitude of longer-term physical risks.

Economic Transition Pathway

- an orderly transition to a lower-emissions economy, with policies and activities to address climate change being introduced early and gradually becoming more stringent, minimising both physical and transition risks; and
- a disorderly transition to a lower-emissions economy, with delayed action to reduce emissions leading to an increase in acute transition risks

3 https://www.apra.gov.au/consultation-on-draft-prudential-practice-guide-on-climate-change-financial-risks

We undertake the following scenario testing which encompass the considerations above and is defined by the IPCC its fifth assessment report[4]:

The Paris Agreement	Average global temperature rise will remain below 2°C by 2100 Emissions stay constant.
Intermediate Scenario	Emissions in the atmosphere peak at around 2040 and then decline. Global temperatures will rise by between 1.7–3.2°C by 2100 • Emission increase by say 0.5% per year.
No Action	According to the IPCC, global temperatures will rise by between 3.2–5.4°C between the years 2081–2100 from pre-industrial times. • Emissions increase by say 1% per year.

According to the IPCC, global temperatures will rise by between 3.2–5.4°C between the years 2081–2100 from pre-industrial times.

Emissions increase by say 1% per year.

Table 2: Shocks to yields at various horizons for different climate scenarios

We then apply the shocks above to our portfolios daily. The resulting profit and loss is reviewed as part of our investment process along with other scenarios and risk sensitivities. If undesirable risk exposures are identified via climate, or other, scenarios, the Investment Team is tasked with adjusting portfolios accordingly.

Ardea's portfolios are generally observed to outperform their respective benchmarks in the climate scenarios below due to exposure to interest rate convexity. On the other hand, portfolios with fixed income benchmarks are expected to experience significant losses on an absolute basis due to exposure to government bonds.

Horizon	**1 Year**		**5 Years**		**10 Years**	
Scenario	**Shock to carbon dioxide emissions over the next year (%)**	**Change in 10 Year Yields Over the next year (bp)**	**Shock to carbon dioxide emissions over the next 5 years (%)**	**Change in 10 Year Yields Over the next 5 years**	**Shock to carbon dioxide emissions over the next 10 years (%)**	**Change in 10 Year Yields Over the next 10 years (bp)**
The Paris Agreement	None	No change	None	No change	None	No change
Intermediate Scenario	+0.5	+10.55	+2.5	+52.75	+5	+105.5
No Action	+1%	+21.11	+5	+105.5	+10	+211

4 https://www.swissre.com/dam/jcr:e73ee7c3-7f83-4c17-a2b8-8ef23a8d3312/swiss-re-institute-expertise-publication-economics-of-climate-change.pdf

Risk Management

Disclose how the organisation identifies, assesses, and manages climate related risks.

a. Describe the organisation's processes for identifying and assessing climate-related risk

Through the research and integration pillars of the Ardea IM ESG framework, we are able to identify and assess climate related risks in the portfolio. Risks and opportunities are identified via research (in house in conjunction with academic institutions, the literature, research houses and ratings agencies). Investment ideas and climate related risks are discussed at our weekly risk and strategy meetings.

Ardea IM have identified key transition risk factors in the portfolio that are relevant to government bonds including:

- Carbon emissions
- Renewable energy consumption
- Resource rents

A key part of identifying and assessing climate related risks and opportunities is through engagement with issuers. The objectives of engagement are first to assist with gathering information that better supports and enhances the assessment of climate related risks and opportunities. This is undertaken through ongoing liaison with issuers aimed at communicating strong support from investors for improvements in disclosure and reporting, and through providing feedback in areas where improvements may be needed.

The second objective of engagement is to ensure changes in practice across the full scope of responsibilities held by issuers. This includes not just with respect to policy changes related to the issuance of government bonds and associated climate risks and opportunities, but also the wider set of policy decisions made by governments. These will often have far greater bearing on climate outcomes than decisions made within the discretion of the issuer itself and thus are a key focus of engagement efforts in managing climate risk in the portfolios.

b. Describe the organisation's processes for managing climate-related risk

The business accepts that by investing in government bonds on behalf of its clients, it incurs material exposure to climate change risks as well as potential upside from opportunities arising from climate change. In incurring these risks, the business recognises that the government bond market differs considerably from private sector capital markets in that government bonds represent an asset class for which there are no real substitutes.

Moreover, in addition to the unique properties of the asset class, many investors in the sector hold government bonds not just because of their risk and return properties, but also because of stringent regulatory or prudential requirements. Together, these attributes mean that imposing market discipline as a means of managing and ultimately reducing climate related risks is of only limited effectiveness.

We monitor climate change risk through the scenario analysis outlined in the Strategy disclosure above. This allows us to monitor the likely impact of different climate scenarios, including physical and transition risks.

Given this backdrop, the business accepts that it will incur material climate related risks in investing funds on behalf of clients due to asset allocation preferences to retain exposure to government bonds, irrespective of the climate change risk embedded in these assets. As such the business has devoted considerable effort in undertaking research to measure and assess these risks (refer above).

c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management

The initial focus for Ardea IM was to identify climate related risk through the research and ESG integration process. In the first half of 2023, Ardea IM has incorporated climate risk into its enterprise risk management framework. This will ensure that climate related risks are assessed in the same way as all other business risks and benefit from existing established processes and frameworks for assessing these risks.

Metrics and Targets

Disclose the metrics and targets used to assess and manage relevant climate related risks and opportunities where such information is material

a. Disclose the metrics used by the organisation to assess climate related risks and opportunities in line with its strategy and risk management process

Metrics and targets used by the business to assess climate related risks and opportunities are spread across three broad areas:

1. Research to identify the sensitivity of government bond yields to key climate change metrics. These are discussed in detail in earlier sections and provide a foundational framework for assessing the broad climate-related risks accruing to the government fixed income sector as a whole.
2. Scenario analysis and stress testing investment portfolios according to IPCC climate change scenarios and expected changes in government bond yields across the forward horizon. This process provides one measure of investors' exposure to climate change and is measured at the portfolio level.
3. Carbon intensity and emissions reporting consistent with regulatory requirements and standards. These measurements provide a standardised means of reflecting climate change exposures that is intended to be universal across different sectors and thus allows investors to perform aggregate portfolio analysis to determine their overall exposure to climate related risks, including all assets held.

Because sovereign government bonds pose some unique differences with other asset classes, such as the absence of equity market capitalisation and no direct parallel to private sector measures such as revenue or profit, several adjustments have been made to calculate appropriate carbon intensity and emissions exposures across portfolios. The starting point for the TCFD calculations provided below are the methods defined in the 2021 TCFD Annex in Table 3 on page 52, and available on the TCFD website: https://www.fsb-tcfd.org/publications/#implementing-guidance.

The main variation in implementing these measures for a government bond portfolio is the use of country-level GDP in place of corporate issuer revenue, and country sovereign bond market capitalisation in place of corporate issuer market capitalisation. Some figures are also scaled by GDP in US dollars to allow for comparability and aggregation at the total portfolio level. Emissions data are sourced from EDGAR, as availability of scope 1 and 2 emissions at the country level remains unclear.

Figures for portfolio data are for the stated reporting period whereas other data including emissions, GDP, and market capitalisation, are most recent available which in some cases will be for an earlier period.

b. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks

Ardea IM is working towards the disclosure of its scope 1 and 2 operational emissions in 2023. Given that Ardea is an investment management firm, the focus of emissions calculations to date has been on its financed emissions. This is where the majority of emissions are generated and is the focus for the climate risk management framework.

Ardea IM has calculated its own operational emissions for the year to 31 October 2024.

Ardea Operational Emissions

Scope 1	0.3 tCO2-e
Scope 2	13.5 tCO2-e
Scope 3	1,862.5 tCO2-e

As at 31 October 2024. For this assessment, the operational control approach is adopted. The operational control approach assigns GHG emissions responsibility to the organisational entity that controls the asset or activity at the source of the emission.

As Ardea is an investment management firm, the majority of emissions are generated from Scope 3 financed emissions. This is detailed below and is the focus for the climate risk management framework.

Ardea Real Outcome Fund Scope 3 financed emissions

Weighted average carbon intensity	295.34 t CO2 yr./$USm This figure represents the emissions of the portfolio weighted according to country allocation, with emissions scaled by GDP to normalise large nations relative to smaller ones.
Total Financed Emissions	1,083,674.78 t CO2 yr. This is calculated at the security level then aggregated for the portfolio. This is the portfolio's actual annual emissions based on its share of total government borrowing
Carbon Footprint	581.99 t CO2 yr./$USm This is the total carbon emissions measure from above but divided by portfolio value to produce emissions per million US dollars invested.
Carbon Intensity	217.93 t CO2yr/$USm

NOTE: More detail on each of these measures is provided in the TCFD Annex available at https://www.fsb-tcfd.org. The total carbon emissions measure should be scaled pro-rata by the size of a client's investment in the fund. Other metrics are already per million USD so do not require scaling.

These are strictly indicative estimates given the extensive assumptions Ardea IM have made.

c. Describe the targets used by the organisation to manage climate related risks and opportunities and performance against targets

Ardea IM is yet to set targets to manage climate related risks and opportunities. Through the ESG framework, the focus to date has been assessing the physical and transition risks in the portfolio, scenario analysis and the impact to Government bonds.

As we further develop our strategy to grow the green bond market, we may have more access to data to enable us to set a target. This is an area the Ardea IM management team will continue to review as more research and data develops in this asset class.