



Market standards on climate-related risk by asset owners

ClientEarth is a non-profit environmental law organisation based in London, Brussels and Warsaw. We are environmental lawyers working at the interface of law, science and policy. Using the power of the law, we develop legal strategies and tools to address major environmental issues. ClientEarth's Climate Finance Project conducts research into the legal implications of climate change-related financial risk for a wide spectrum of market participants including companies, investors (including pension funds and banks), company directors and regulators. We also engage with and conduct advocacy with these stakeholders in relation to the specific and the systemic risks of climate change.

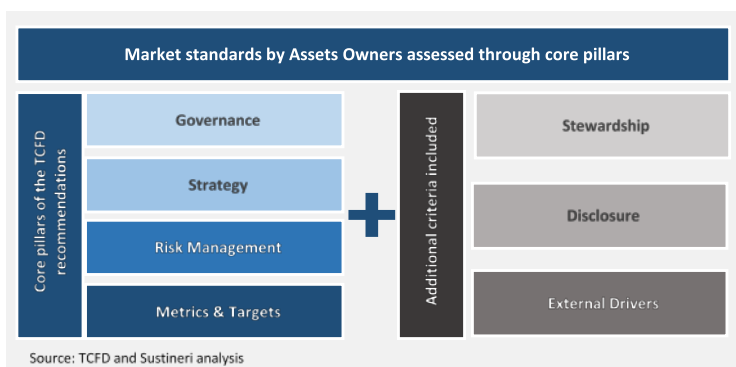
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EXECUTIVE SUMMARY

This report, produced by Sustineri and commissioned by ClientEarth, explores current practices by asset owners in addressing climate-related risk in order to establish the standards which are emerging across the market. Market standards are relevant to an assessment of whether asset owners are properly fulfilling their legal duties towards their ultimate beneficiaries and taking reasonable steps to identify and mitigate risk to the performance of their investments. This research is aimed at analysing the existing disclosures on climate-related activities by asset owners to include not only best practices by those considered to be leaders in this sector, but also emerging trends and common practices within the broader investment sector.

In order to ensure that the report reflects a representative cross-section of asset owners, findings were drawn from a population of 30 asset owners from OECD countries (excluding the United States), by size, jurisdiction and type. The report analyses each of these 30 asset owners against the core pillars of the framework recommended by the Taskforce on Climate-related Financial Disclosure (“TCFD”), including three additional criteria as set out below.



Key findings in the report:

- **Fiduciary duty** and a focus on **risk-adjusted returns over the longer-term** are key drivers in the approach taken by asset owners towards climate risk, with some asset owners also emphasising the short-to medium-term investment risks posed by climate change. This approach is linked to a recognition that climate change is a **material financial risk** and the need therefore to safeguard the resilience of the portfolio over multiple time horizons.
- **Governance** structures around climate change are becoming more robust, with many boards over the last 12 – 24 months – following the Paris Climate Agreement and more recently the TCFD – taking action on or approving firm-wide policies on climate change.
- **Risk Management** practices, such as the use of data analytics tools and audits for external managers to mitigate climate change and the development of new climate-aware and low-carbon investment products demonstrate a growing commitment to identifying and taking action on climate-related risks and opportunities. The **proliferation of tools** designed to assess climate risk is evidence of an emerging industry, although the tools themselves have still to mature and remain relatively untried by investors, e.g. on disclosure.
- **Stewardship** practices are an important piece of asset owners’ overall response to climate risk. There is also evidence of engagement practices being used in combination with exclusion policies. This analysis has shown that 67% of the asset owners reviewed have divestment policies in place

This review shows that climate-risk management and disclosure is becoming increasingly mainstream for asset owners and that the existing market standard is growing in sophistication. The clear message to asset owners that are not currently taking the steps outlined in this report is that they must quickly ramp up their efforts and consider the impact of climate risk across their whole portfolio and multiple timeframes. For those asset owners who have been acknowledged as setting previous best practice, the bar for demonstrating leadership on climate is being raised at a relatively quick pace. This drive among asset owners should in turn lead to a more robust and rigorous set of market standards that can propel the ‘mainstreaming’ of climate risk into broader investment policies and practices.

LIST OF ASSET OWNERS SELECTED AND ANALYSED FOR THIS REPORT

	<u>Fund Name</u>	<u>Location</u>
1	Andra AP-fonden (AP2)	Sweden
2	Fjarde AP-Fonden (AP4)	Sweden
3	ATP	Denmark
4	AustralianSuper	Australia
5	Barclays Bank UK Retirement Fund	UK
6	Bedrijfspensioenfonds voor de Landbouw (BPL)	Netherlands
7	BT Pension Scheme	UK
8	Canada Pension Plan/CPPIB	Canada
9	Church of England Pensions Board	UK
10	Environment Agency Pension Fund	UK
11	Etablissement de retraite additionnelle de la Fonction Publique (ERAFP)	France
12	Fonds de Réserve pour les Retraites (FRR)	France
13	Future Fund	Australia
14	Government Pension Investment Fund	Japan
15	Greater Manchester Pension Fund	UK
16	HSBC Bank Pension Trust (UK)	UK
17	Ilmarinen Mutual Pension Insurance Company	Finland
18	Kommunal Landspensjonskasse Gjensidige Forsikringsselskap (KLP)	Norway
19	Lloyds Bank Pension Scheme	UK
20	Local Government Super (LGS)	Australia
21	New Zealand Superannuation Fund	NZ
22	Norwegian Government Pension Fund (Norges Bank)	Norway
23	Pensioenfonds Zorg en Welzijn (PFZW)	Netherlands
24	Pensionskassernes Administration (PKA)	Denmark
25	Railways Pension Scheme	UK
26	RBS Group Pension Fund	UK
27	Stichting Pensioenfonds ABP (ABP)	Netherlands
28	Swiss Federal Pension Fund (Publica)	Switzerland
29	Unilever Pension Funds	UK
30	Universities Superannuation Scheme (USS)	UK

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1 INTRODUCTION

1.1 Purpose of Study

This report forms part of an initiative by ClientEarth and Sustineri that explores current practices by asset owners in addressing climate-related risk within their investment strategies in order to form a view about how these actions are evolving into a set of market standards. The purpose of this study is to analyse the existing literature and disclosures on climate-related activities of asset owners: to include not only best practices by those considered to be leaders in the sector but also to capture emerging trends and more commonplace policies within the industry.

More specifically, this report aims to present evolving market standards for climate-related practices by asset owners in accordance with their legal and fiduciary responsibility to their beneficiaries, to maximise long-term value and to safeguard the resilience of their portfolios.

1.2 Methodology & Scope

To undertake the research, a sample population of asset owners was selected (“the asset owner list”) to provide a cross-section in terms of size (Assets under Management (“AUM”) in USD), geographical jurisdiction, and type of asset owner. The number of asset owners analysed was selected based on a desire to strike a balance between depth and breadth of approach. Based on these parameters, the relevant scope of asset owners has been defined as follows:

- 30 asset owners in total
- Public pension funds, corporate pension funds, and sovereign wealth funds
- Within the Organization for Economic Cooperation and Development (“OECD”) region, excluding the United States

Specific asset owners were chosen within the aforementioned criteria to achieve a geographic breadth that represents a fair cross-section of asset owners by category within the OECD region.¹ The decision to exclude the United States from the analysis was based on the view that asset owners from that region are operating under a unique set of circumstances, driven by the federal government’s decision to withdraw from the Paris Climate Agreement and the absence of a nationally-driven climate agenda that is out of step with the rest of the world.

As a further representation of the cross-section, we drew from a variety of large, medium and small sized funds as follows:

- Large funds: AUM \$100MM+ (23% of asset owner list)
- Mid-sized funds: AUM \$30-\$100MM (47% of asset owner list)
- Smaller funds: AUM <\$30MM (30% of asset owner list)

¹ OECD region excluding the United States. OECD geographic spread based on 146 largest asset owners reported in Willis Towers Watson’s 2016 Pension and Investments 300 Analysis

The asset owners on the list collectively have ~\$4.6 trillion in AUM,² which represents ~9% of estimated AUM of pension and sovereign wealth funds globally.³ Figures 1 and 2 below display a breakdown of the asset owners in this report by geography and type of scheme. Where we refer to an

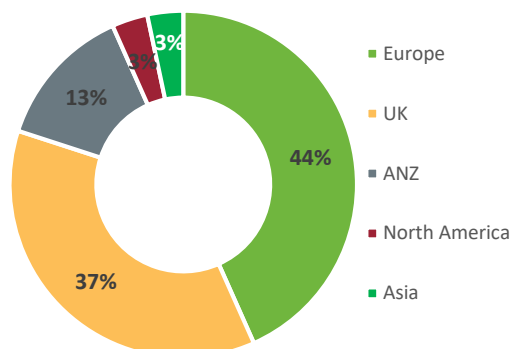


Figure 1: Asset Owner Sample by Geography

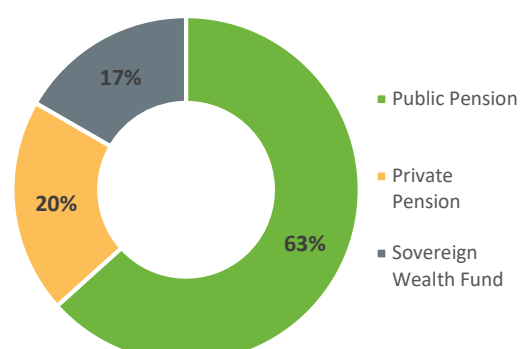


Figure 2: Asset Owner Sample by Type

asset owners 'board' throughout the report, this should be taken to include trustees, directors or other equivalent governing body.

1.3 Assessment Framework

To assess the climate-related practices of each asset owner, this research used the framework established by the TCFD in their June 2017 final report, which sets out recommendations for companies as well as investors on how to best report on climate-related financial risk. In the absence of a global regulatory standard on climate-related financial risk, the TCFD framework is used here because it provides a measure for comparison across geographies and is becoming widely adopted by asset owners globally. The TCFD framework consists of four core pillars, described below. In addition to this, three supplementary criteria were included in order to give a more rounded picture of how asset owners are approaching climate risk. The complete assessment framework utilised is as follows:

TCFD Pillar	TCFD Definition ⁴
Governance	The organisation's governance in respect of climate-related risks and opportunities
Strategy	The actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning
Risk Management	The processes used by the organisation to identify, assess, and manage climate-related risks
Metrics & Targets	The metrics and targets used to assess and manage relevant climate-related risks and opportunities
Supplementary Criterion	Definition
Stewardship	Climate-related voting practices, dialogue with investee companies or beneficiaries, collaborative efforts with other asset owners, regulators, or other industry players, and divestment or reallocation of capital to safeguard portfolio value
Disclosure	Method by which organisation discloses climate-related practices (i.e. in mainstream financial filings, supplemental sustainability report, etc.)
External Drivers	Rationale cited for addressing climate-related risks and opportunities, such as fiduciary duty, regulatory or ethical

² Time periods range from end of FY 2016 through Q1 2018 based on reporting schedules of each asset owner.

³ Global estimated AUM based on 2017 estimated AUM of global pension & sovereign wealth funds sourced from Willis Towers Watson's Global Pension Assets Study 2018.

⁴ <https://www.fsb-tcfd.org/publications/final-recommendations-report/>

The framework was used to conduct a desk-based assessment of each asset owner, utilising publicly available information from a variety of sources, including public disclosures published by the respective asset owner, regulatory and audit body publications, and other industry and academic publications. Please refer to the References section at page 21 for a complete list of sources.

1.4 Limitations

This research has some limitations. The research was conducted between 1 June – 31 July 2018 and relies solely on publicly available information; it did not involve face to face interviews with members of the organisations assessed. As such, it is accepted that the analysis undertaken may not accurately reflect all the actions taken by asset owners on climate change unless they are publicly disclosed. Furthermore, as no standardised climate-related reporting practices are currently in place, our research may not have included all available climate-related public information, if it fell outside of the sources reviewed. For documents reported in languages other than English, basic translation attempts were made but may imperfectly reflect original documents. Finally, as the sample of asset owners analysed was limited to 30, generalisations to the broader asset owner industry based on research findings may not in all cases be appropriate, although we have tried to mitigate this possibility by reviewing a representative cross-section of asset owners from the selected OECD region.

2 GOVERNANCE

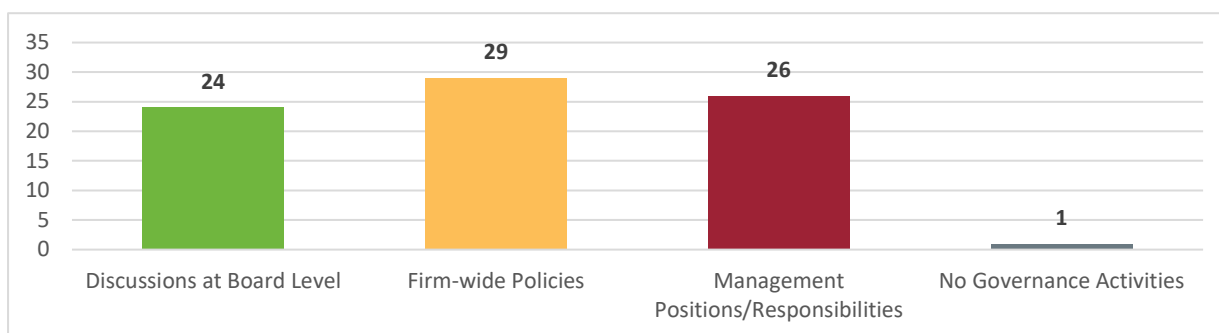
2.1 Overview of Governance

Underpinning the TCFD framework is the Governance pillar, which outlines expectations regarding top-down oversight, direction, and tone from the board and senior management, where applicable, on climate change. The following key activities were identified as representative of the asset owners' responses to this category:

- **Board-level actions and activities**, including training sessions for board members, regular operating processes through which the board receives climate-related updates from management or other personnel (including consultants), or climate-related committees established by/responsible to the board.
- **Firm-wide policies** established or endorsed by the board or management that dictate climate-related investment beliefs, processes, or procedures. This includes incorporation of climate into primary investment beliefs documentation or supplemental policies that complement primary policies.
- **Management positions and responsibilities**, including dedicated climate-related positions, establishment of climate-related working groups or task forces, or assignment of climate-related responsibilities to certain personnel within firm policies or other documentation. This includes responsibilities and policies that pertain to external asset managers if applicable.

2.2 Key Governance Themes & Analysis

Of the 30 asset owners analysed, 97% publicly disclosed participation in one or more activities that fall within the pillar of Governance. Figure 3 displays the number of asset owners on the reviewed list who disclose participation in each of the three Governance categories, as well as those who were not found to currently participate in any climate-related Governance activities.



The chart below in Figure 4 displays the percentages of asset owners by level of robustness of climate-related Governance activities. Robustness levels are defined as follows:

- **Highly Robust:** Available information indicates the board receives regular updates and/or training on climate-related activities. Documentation formally defines climate-related responsibilities for internal management, external managers, or other personnel. Investment beliefs and/or policies/procedures (either primary or supplemental) mention climate change.
- **Moderately Robust:** Available information indicates the asset owner satisfies at least two of the criteria mentioned in the “highly robust” category.
- **Not Robust:** One or zero Governance activities found in available information.

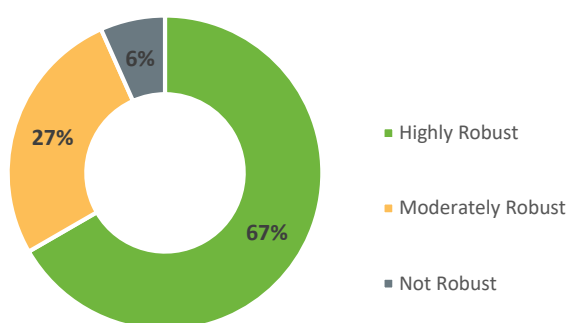


Figure 4: Robustness of Governance

Key themes related to the demonstration and robustness of climate-related Governance activities were that private sector asset owners tend to disclose less information than public sector asset owners. Furthermore, many asset owners assign responsibilities to existing personnel/executives rather than establishing dedicated teams with climate expertise, and common practice is for climate-related

investment beliefs to be published in supplemental documentation, often as a part of broader Environmental, Social, and Governance (“ESG”) policies, rather than in primary investment beliefs/principles documentation.

2.3 Examples of Governance

Below are select examples of approaches to climate-related Governance found within the research:

Canadian Pension Plan Investment Board (“CPPIB”): The CPPIB is an organisation created specifically to manage the assets of Canada’s public pension scheme. Its approach to climate-related governance includes a board-approved policy on responsible investing, in which climate change is specifically mentioned. The board receives regular updates on climate-related activities, and climate risk is a standalone risk category discussed with the board as a part of broader risk management strategy. Below the board level, climate-related governance bodies include a Sustainable Investing Committee and a Climate Change Steering Committee. The scheme’s CEO is responsible for liaising with these bodies. Specific responsibilities and duties of these different groups are clearly stated within the scheme’s published documentation.

ATP – Danish ATP’s climate-related Governance structure is underpinned by a policy of ‘Responsibility in Investments’, which is reviewed and approved by the Supervisory Board on a regular basis. A dedicated climate risk manager has been appointed to ensure climate-risk management is

incorporated into day-to-day investment operations. The climate risk manager along with other executives participate in a Climate Forum to discuss projects and share experiences. The Climate Forum's work is shared with the Committee for Responsibility, which reports directly to the Supervisory Board.

Local Government Super ("LGS") – The Sustainable and Responsible Investment Policy defines Australian LGS's strategy for managing risks to long-term portfolio returns posed by ESG factors. Climate change is described as the most significant ESG risk to members' long-term savings. This policy sets out specific goals related to climate change, such as monitoring the carbon performance of the portfolio and ensuring climate risk is involved in the due diligence procedures of new investments. Further, the policy describes LGS's broader strategic approach to incorporating ESG into investment processes, in terms of requirements for external managers, collaboration with industry groups, investment restrictions reporting, and active ownership. This policy is reviewed and approved by the Investment Committee on an annual basis.

New Zealand Superannuation Fund – The sovereign wealth fund of New Zealand exemplifies robust climate-related governance through participation of senior management as well as wider engagement across all levels of the organisation. Climate change strategy is discussed and approved at board level with strong oversight from the Chief Investment Officer and Head of Responsible Investment. Commitment to this strategy has been formalised in a 'Responsible Investment Framework' and other published strategy documents on the fund's website. On-going climate-related training takes place at multiple levels and all personnel are said to be kept up to date on climate practices and strategies.

3 STRATEGY

3.1 Overview of Strategy

The Strategy pillar as defined by the TCFD involves the identification of specific types of climate risk present in the investment portfolio, such as transitional, physical, and regulatory risks, as well as the relevant time horizon over which to consider each risk (short, medium, and long-term).

Recommendations under this pillar also include quantification of these risks within the portfolio and analysis of the robustness of the portfolio to these risks under different climate scenarios. The TCFD and other industry organisations often recommend the use of a scenario aligned with achieving the Paris Climate Agreement's goal of limiting global temperature rise to well below 2 degrees Celsius above pre-industrialisation levels. The research highlighted the following emerging strategy-related themes:

- Addressing or defining climate-related risks and opportunities over **various time horizons (short, medium, and long-run)**.
- Acknowledgement of various **climate-related risks and opportunities** to financial returns/overall investment strategy.
- **Quantification** of climate-related financial risk.
- Analysis of portfolio resilience to climate risk **under various climate scenarios**.

3.2 Key Strategy Themes & Analysis

The Strategy pillar is highly interconnected with the Risk Management pillar described in Section 4. In this context, Risk Management has been interpreted as concrete activities and procedures undertaken to pinpoint specific investment risks within the portfolio (or opportunities in the market) and to mitigate (or capitalise) accordingly, while an asset owner's climate change strategy has been viewed as

a high-level road map that sets the stage for risk management activities to be defined. For example, an asset owner's strategy may involve a board-level commitment to mitigating climate-related regulatory risk in the wake of new emissions legislation in their jurisdiction. A corresponding Risk Management activity may be to routinely monitor emissions legislation and the development of a low-emissions fund.

Figure 5 below depicts how certain Strategy activities are being performed across the 30 asset owners reviewed. A key finding for this pillar was that few asset owners have made sufficient strides towards full adherence to the TCFD recommendations on strategy. While certain asset owners identified specific investment opportunities in the short to medium-term and others classified certain types of climate risk as immediate or near future, the majority have focused primarily on the long-term effects and repercussions of climate change risk. With regard to quantification of climate-related risks, only one asset owner stated in publicly available documentation that they have undertaken this exercise. In terms of scenario analysis, several asset owners have engaged with the investment consultancy Mercer to conduct high-level or preliminary scenario analysis for either all or select parts of their portfolio, while several others have utilised scenarios published by the International Energy Agency to perform similar analyses. However, the majority of asset owners are either in early stages of building out these capabilities, are still considering adopting this recommendation, or have no scenario-related public disclosures. Apart from the 10 asset owners who have disclosed their participation in scenario analysis, an additional seven have cited works in progress or active consideration of undertaking the exercise in the near term.

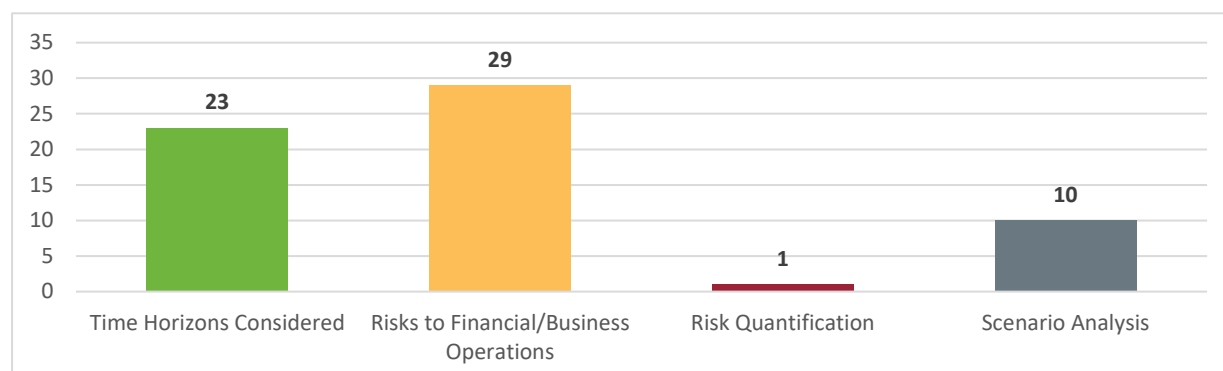


Figure 5: Demonstration of Strategy Activities

3.3 Examples of Strategy

ATP – Within their public disclosures, ATP identifies both the physical and regulatory risks posed by climate change to their investment portfolio. With regard to physical risk, climate change is recognised as a tangible, physical threat to the asset owner's infrastructure and real estate assets, as it can result in cloudbursts, elevated water levels, forest fires, storms and increases or decreases in temperature and drought. In terms of regulatory risk, ATP recognises the possibility of implementation of a carbon tax or new regulations regarding pollution that may adversely impact returns.

Future Fund – Within their Annual Report, the Australian asset owner addresses how ESG considerations are key factors in their medium- to long-term capital allocation strategy. Through this lens, the asset owner identifies resource scarcity as well as regulatory and consumer responses to ESG issues as key risks over these time horizons that could influence investment outcomes. They also emphasise their long-term view on investment when taking advantage of opportunities in the clean

energy space. For example, they have allocated capital to a number of wind, solar, and energy-efficient technologies expected to generate attractive risk-adjusted returns over an appropriate time horizon.

Fonds de Réserve pour les Retraites (“FRR”) – The French sovereign wealth fund FRR performs an in-depth analysis of its physical and transition risks posed by climate change. Physical risk assessment, performed by Trucost Ltd in conjunction with the research firm Four Twenty Seven, focuses on risk exposure related to asset geographic location, consumption of natural resources, and sensitivity to weather variability. With regard to transition risk, FRR has partnered with PRI and CDP, as well as other investors, on a report highlighting the alignment of the practices of 69 oil and gas companies with the Paris Climate Agreement’s 2-degrees scenario (report entitled “2 Degrees of Separation: Transition risk for oil and gas in a low carbon world”). In addition to climate-related risks, FRR’s process aims to identify investment opportunities that have arisen due to the energy transition.

4 RISK MANAGEMENT

4.1 Overview of Risk Management

Within the Risk Management pillar, the TCFD focuses on specific processes, initiatives, and infrastructure used to identify key climate-related risks and opportunities within investment portfolios, activities or policies undertaken to mitigate/capitalise on the identified risks/opportunities and integration of these climate-related processes into the scheme’s overall risk management framework. The following Risk Management activities were identified through the research:

- Participation in **research** initiatives, either independently or in **collaboration** with other asset owners, academic institutions, or external advisers on climate risks or opportunities, or initiation of **data capabilities/analytics** projects to improve climate-related data.
- Establishment of climate-related **reporting requirements** for investee companies or external asset managers responsible for asset allocation, risk management, or engagement with companies on climate-related activities.
- Adoption of **divestment or exclusion policies** or criteria based on climate-related factors.
- Development of **new products, portfolios, or indices** with a climate focus.
- **Engagement** with investee companies through **voting or dialogue**, other asset owners or industry organisations, or regulators/policymakers on climate-related issues (refer to Stewardship section for further details).

4.2 Key Risk Management Themes & Analysis

In terms of risk identification, many asset owners are beginning to expect investee companies to supply better quality and higher volumes of data on their climate-related practices, either through encouragement or direct mandate. Some have encouraged their investee companies to report in accordance with the TCFD framework to promote consistency and transparency. Several have partnered with academia or government/non-government organisations to produce research on the potential impacts of climate change on investments or how the incorporation of climate-related

factors can influence portfolio returns. As for managing risks and seizing opportunities, many examples were found relating to the innovation of new low-carbon or sustainable products and low-carbon asset allocation strategies in response to the perceived lack of attractive climate-conscious investment opportunities. A substantial proportion of asset owners within the sample practice divestment as part of a broader stewardship policy (refer to Stewardship section for further details). The majority of asset owners have divestment policies in place related to either certain high-emitting industries (typically fossil fuels or mining) or specific companies who have not been responsive to engagement efforts. Often these policies state that divestment is used after dialogue and voting

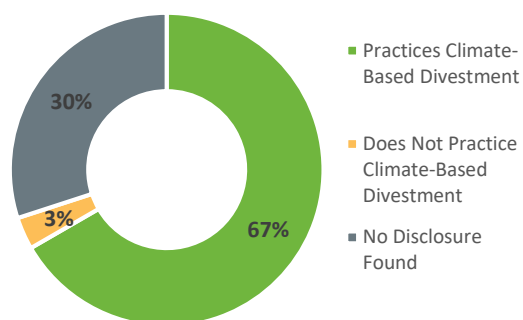


Figure 6: Divestment Policy Landscape

efforts have been unfruitful and companies have no viable plans in place to address the investor's concerns.

4.3 Examples of Risk Management

Pensionskassernes Administration ("PKA") – In support of its commitment to the Paris Climate Agreement, Denmark's PKA conducted a review of the practices of 62 oil and gas companies in its portfolio. This review resulted in the decision to exclude 35 of the 62 companies whose activities

were not aligned with the scenario, and to actively monitor and engage with an additional 12 of these companies that were viewed as having the potential to improve upon their climate-related practices. As a part of its review, PKA also considered each company's willingness to engage with asset owners on climate-related issues and their responsiveness to the trustee's queries.

Kommunal Landspensjonskasse Gjensidige Forsikringsselskap ("KLP") – Norwegian KLP's strategy is to first engage with investee companies that participate in practices against the trustee's beliefs, such as impacting the environment in a negative way. However, if the company does not show willingness to improve its practices or progress towards ceasing the activities, KLP chooses to exclude the company from its portfolio. KLP's current policy is to exclude companies that generate greater than 30% of revenues from coal-based activities to underline to the industry that the use of coal as an energy source is incompatible with the achievement of the Paris Climate Agreement's 2-degrees target. KLP continues to engage with companies after they have excluded them to encourage positive change. Exclusion decisions can be revoked if meaningful progress is made by the excluded company.

Government Pension Investment Fund ("GPIF") – The Japanese sovereign wealth fund has partnered with the World Bank to conduct research aimed at promoting further consideration of ESG factors in the fixed income investment space, an asset class that has historically been viewed as less exposed to climate risk than equities. Findings to date indicate that climate risk can also pose material financial risk to fixed income assets, such as bonds. This research is exploring the use of benchmarks, guidelines, rating methodologies, disclosure frameworks, and reporting templates to assist in these efforts. GPIF has also selected low carbon indices against which to track its domestic equities portfolio, and has called for applications from vendors for similar global indices for its foreign equities portfolio.

Transition Pathway Initiative ("TPI") – TPI is a global, asset owner-led initiative which assesses how companies are aligning themselves with the transition to a low-carbon economy. The initiative was co-founded by The Church of England National Investing Bodies and the Environment Agency Pension Fund in partnership with the Grantham Research Institute at the London School of Economics and

with data support from FTSE Russell. TPI is focused on assessing both the management quality and carbon performance of companies on an annual basis and making this information publicly available for investors to use in a web-based tool. The assessment is being conducted on a sector-by-sector basis, beginning with high-emissions industries such as oil, gas, mining, cement, electricity, iron, steel, and automotive. This project is supported by 13 asset owners and five asset managers (as of summer 2017), with AUM over \$2.6 trillion. TPI is currently considering the launch of a low-carbon index that reflects its findings.

Fjarde AP-Fonden (“AP4”) – In 2018 the Swedish pension fund announced the sale of 20 coal companies previously held within its global equities portfolio on the basis of climate risk. The coal companies identified for divestment were those with revenues from thermal coal in excess of 20%. This move is in line with a low-carbon emissions strategy followed within its equities portfolios since 2012.

5 METRICS & TARGETS

5.1 Overview of Metrics & Targets

The TCFD encourages asset owners to disclose the metrics used to assess climate-related investment risks and opportunities, including greenhouse gas emissions (Scope 1, 2, and 3, if possible), as well as targets used to track fund performance against climate-related goals. Key Metrics commonly reported by the asset owners reviewed are as follows:

- **Carbon footprint** (absolute emissions, emissions intensity, or other equivalent measure, either for entire or partial portfolio).
- **Low-emissions investments** (in terms of amount of capital committed to low-carbon asset classes, industries, or specific investments).
- **Voting and dialogue** (number of shareholder meetings voted at or targeted company dialogues initiated).

As for Key Targets, the following were repeatedly identified in the population of 30:

- Commitment to **Paris Climate Agreement 2-degrees Scenario**.
- Commitment to **lower emissions** by specified target.
- Commitment to **increase investment** by a specified amount in low-emissions companies.

5.2 Key Metrics & Targets Themes & Analysis

While a substantial proportion of asset owners disclose carbon emissions metrics, the vast majority state they only do so for their equities portfolios (typically public equities rather than private). Some

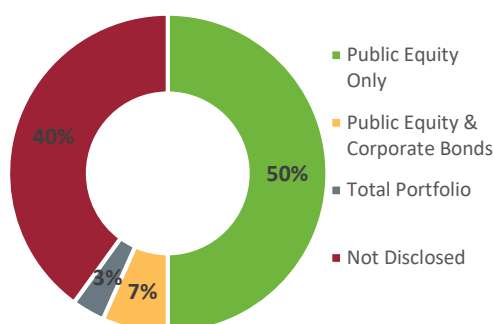


Figure 7: Metrics & Targets: Carbon Footprinting

have indicated they hope to expand their carbon footprinting exercises to other asset classes. Several asset owners explain within their documentation that, due to methodological complexities and the challenges around obtaining reliable data, carbon footprinting metrics should be used as a climate risk management tool along with a broader, holistic approach rather than as a hard cut-off by which to make investment decisions. In Figure 7 to the left,

carbon footprinting metrics disclosure practices are categorised according to their level of analysis.

In terms of voting and dialogue, most asset owners disclose the number of meetings at which they have voted (either by proxy, through personal attendance, or through representation by an external manager), and the number of companies whom they have engaged in dialogue with, in their annual report or in dedicated engagement reports. Further, most asset owners disclose these metrics by topic or theme (i.e. environmental/climate-related issues, governance issues, etc.). Figure 8 to the right displays the breakdown of the asset owner list by voting/dialogue disclosure practices.

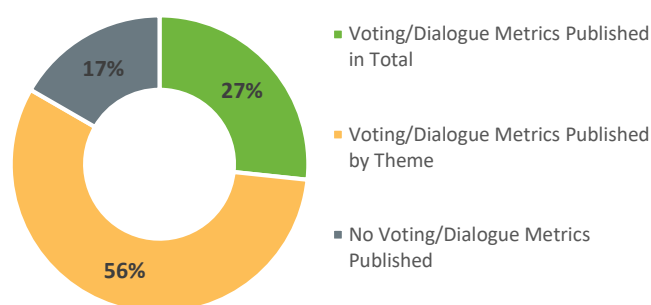


Figure 8: Metrics & Targets: Voting & Dialogue

5.3 Examples of Metrics & Targets

Fjarde AP-Fonden ("AP4") – The fourth Swedish national pension fund exercised its voting rights at 896 annual meetings of investee companies in 2017. Of the 896 annual meetings, 476 shareholder proposals were voted on, 102 of which were related to climate issues or renewable energy.

ATP – Because of what they consider to be methodological weaknesses and challenges around data quality, ATP does not believe that carbon emissions metrics, as reported by the investee company, should be the sole metric for managing climate-related risk. ATP particularly feels that data quality related to Scope 3 emissions, such as emissions from consumers' use of a company's products, is at this time lacking. They also believe that the calculation methodologies used to estimate emissions and the tendency for data providers to overestimate emissions lead to further challenges, such as incomparability of metrics across investee companies as well as double-counting of emissions across scopes. However, they continue to disclose carbon emissions data for their listed equities portfolio.

Ilmarinen – Finland's Ilmarinen reports Scope 1 and Scope 2 carbon emissions data for direct listed equities as well as corporate bonds. Absolute emissions are reported as well as carbon intensity, which is compared to an aggregate benchmark. In addition to emissions, carbon sink metrics related to forest investments are also reported.

New Zealand Superannuation Fund – New Zealand's sovereign wealth fund began tracking its carbon footprint in 2017 and by 2020 expects to reduce the carbon emission intensity of the fund by at least 20%, and its carbon reserves by at least 40%. Their carbon footprint methodology entails the use of data and calculations from MSCI ESG Research to quantify emissions for both active and passive listed equity portfolios. They then estimate the footprint of their equity derivatives assets by assuming equivalent carbon intensity to the underlying physical assets of the derivatives. To round out the footprint calculation for the entire portfolio, the asset owner utilises a combination of internally-derived emissions estimates and public equivalents to estimate emissions for private equity holdings.

6 STEWARDSHIP

6.1 Overview of Stewardship

The UN Principles for Responsible Investment ("UNPRI") refer to stewardship as including activities such as engagement and voting, which are largely incorporated into the TCFD framework as part of

the Risk Management pillar. For the purposes of this report, we have included divestment and exclusion policies as a form of engagement. The following stewardship activities were identified:

- Establishment of **voting guidelines/policies** and **exercising of shareholder rights** as a form of risk management.
- Initiating **dialogue with companies** on key climate-related issues (i.e. emissions practices or climate-related disclosures).
- **Collaboration with other asset owners** on shareholder resolutions, dialogue with policymakers or regulators, or on best-practice initiatives.
- **Membership or signatory status** of organisations such as UNPRI, CDP, and IIGCC.
- Participation in **climate-related initiatives**, such as the Transition Pathway Initiative (“TPI”) and the “Aiming for A” Coalition.
- Engagement with **scheme beneficiaries** on climate-related topics.

6.2 Key Stewardship Themes & Analysis

Analysis revealed that for the vast majority of asset owners sampled, fulfillment of stewardship duties is a process that includes dialogue with investee companies, exercising shareholder rights, and divesting from assets if concerns are not met. These activities are viewed as complementing one another rather than being mutually exclusive. Evidence also exists to support the claim that some asset owners are reducing ownership in higher risk sectors (i.e. partial divestment) in order to preserve engagement opportunities, while simultaneously minimising exposure to nearer term devaluation of companies.

Additionally, there were several examples of owners preferring to engage with investee companies, or citing greater success in these engagements, when collaborating on resolutions or dialogues with other shareholders. Similarly, many owners have pointed to advocacy organisations, such as the IIGCC, as effective vehicles through which they have liaised with governments and regulators on issues such as enhanced climate-related disclosure requirements for companies.

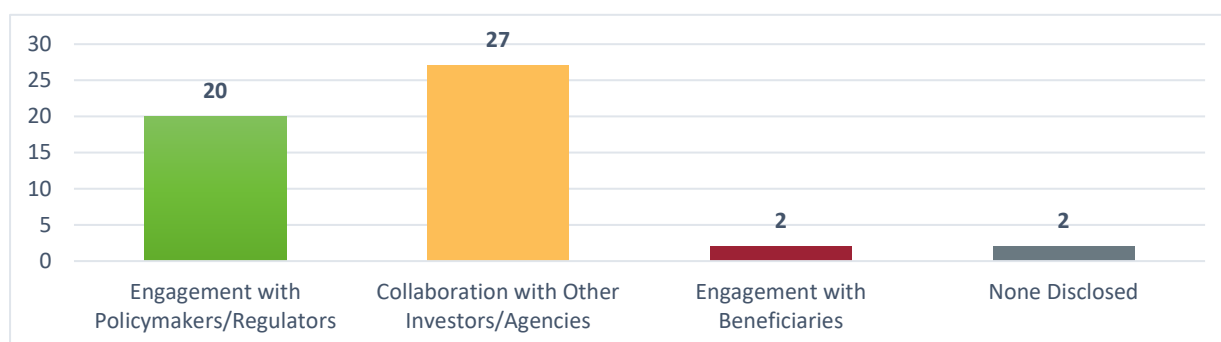


Figure 9: Engagement Beyond Investee Companies

6.3 Examples of Stewardship

Government Pension Fund Global – The sovereign wealth fund of Norway engages in regular dialogue with its largest 1000 investee companies, which comprise approximately two thirds of its total portfolio value. In 2017, three dialogues were specifically related to climate issues. In addition to these case-by-case discussions, the asset owner has published expectations for all investee companies

related to climate change practices and regularly publishes position papers on issues deemed important to the fund’s mission.

AustralianSuper – The Australian asset owner was part of a 400-strong group of global investors with collective AUM in excess of \$22 trillion that authored a letter to the governments of G20 and G7 nations to encourage their assistance in the transition to a low-carbon economy and in the achievement of climate-related goals. More specifically, the letter calls on ministers to adhere to the Paris Climate Agreement goals and targets, implement policies that drive investment in low-carbon opportunities and encourage decarbonisation, and legislate on climate-related disclosure practices including the TCFD framework. In addition to the signatory investors, the letter was coordinated by the Asia Investor Group on Climate Change, CDP, IIGCC, Ceres, IGCC, and UNPRI.

Environment Agency Pension Fund – The UK asset owner participates in the “Aiming for A” investor coalition, which is a group formed by investors with the goal of co-filing shareholder resolutions at investee company meetings that advocate for enhanced climate-related policies and practices. Through this coalition, asset owners have achieved success in influencing the behavior of several large oil, gas, and mining companies, including BP and Shell in 2015 and Rio Tinto, Anglo American, and Glencore in 2016. In each case, the resolutions passed with overwhelming shareholder support.

7 DISCLOSURE

7.1 Overview of Disclosure

Disclosure practices have been analysed in order to better understand the extent to which climate-related information is “mainstreamed” within scheme documentation or is treated as a workstream separate to other financial disclosures. We reviewed the following types of disclosure practices:

- The asset owner’s **mainstream financial filings** such as the Annual Report/financial statement document.
- Statements in **supplementary reports** (i.e. responsible or sustainable investing report, ESG report, or climate report).
- Statements in other public documents (i.e. **interviews, case studies, questionnaires, or surveys**).

7.2 Key Disclosure Themes & Analysis

We identified two overarching themes under the Disclosure criterion: there was notably less climate-related information made publicly available by private pension schemes. Although many asset owners have developed quite robust disclosure practices with detailed information, no asset owner reviewed included climate risk as an embedded risk within its mainstream financial and investment risk disclosure. Additionally, presentation of climate information varied widely between asset owners, as no global reporting standard currently exists. Several have begun reporting in line with the TCFD

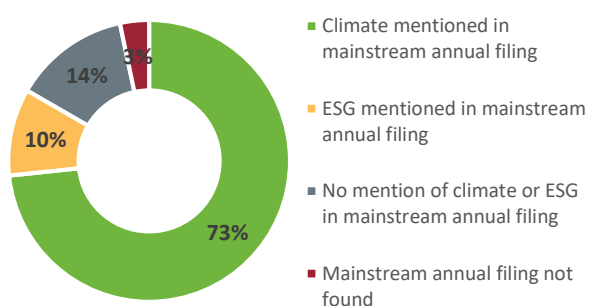


Figure 10: Climate Disclosure in Mainstream Filings

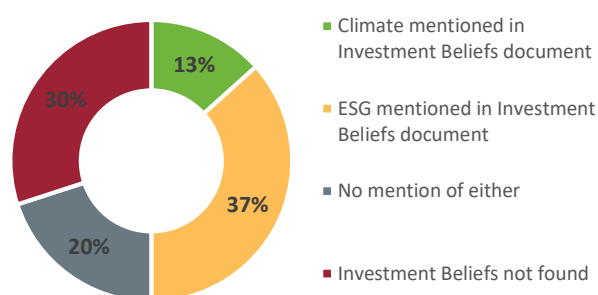


Figure 11: Climate Incorporation in Investment Beliefs

recommended format, and have encouraged other asset owners and investee companies to do so as well. Overall, those with the most developed climate-related practices tend to produce dedicated reports on ESG activities or climate change specifically, which either stand alone as separate documents or form part of mainstream annual filings, such as the Annual Report or Management Report. Information on asset owners with less-developed climate reporting capabilities was gained from a wider range of publicly available sources, such as case studies, media publications, and survey responses; adding a level of complexity to the assessment of their climate-related practices.

Figure 10 above shows that the majority of asset owners researched (73%) mention climate specifically in their primary annual publication, with an additional 10% of asset owners specifically mentioning ESG but not climate. While not always the case, many schemes explicitly define their ESG initiatives as covering climate change.

In terms of investment beliefs documents, or publications related to schemes' overarching principles and mission which guide their investment strategies, (13%) of asset owners reviewed include climate-related beliefs, with an additional 37% referring to ESG; however, not all schemes were found to produce an investment beliefs document (see Figure 11).

7.3 Examples of Disclosure

Andra AP-fonden ("AP2") – Swedish pension fund AP2 has adopted the TCFD recommendations for its reporting on climate-related activities, citing it as a framework for the trustee to assess its progress towards climate-related goals. The asset owner has used the TCFD's asset owner-specific guidance to produce, on an annual basis, a report covering the four TCFD climate-related disclosure pillars: Governance, Strategy, Risk Management, and Metrics & Targets. Further, they hope to encourage investee companies to utilise the TCFD framework to increase transparency and risk-assessment capabilities for asset owners. This report is produced and published separately to other scheme disclosures.

Pensioenfonds Zorg en Welzijn ("PFZW") – The Dutch asset owner PFZW closely partners with its external asset manager, PGGM, on their climate-related activities and disclosure practices. PFZW discloses a substantial amount of information on their climate change strategy within their Annual Report, as well as details of the responsibilities delegated to PGGM. PGGM produces their own annual report on responsible investment, in which they disclose their strategy for incorporation of climate-related considerations into investment management services for their clients.

8 EXTERNAL DRIVERS

8.1 Overview of External Drivers

Under the External Drivers criterion, we sought to identify the driving force(s) behind each asset owner's actions in climate risk management and disclosure. Key motivations and drivers were identified as follows:

- **Financial:** climate risk identified as material financial risk, and incorporation of climate-related factors designed to maximise fund value.
- **Ethical:** climate considerations designed to support sustainable development and preserve the environment for future generations.
- **Regulatory:** climate-related actions and/ or disclosures legally required in the investor's jurisdiction.

8.2 Key External Driver Themes & Analysis

The majority of asset owners indicated that concerns about financial materiality lay behind their actions, as they believe, based on available evidence, that the incorporation of climate-related factors (sometimes on their own or as a part of a broader ESG programme), will improve long-term risk-adjusted returns for beneficiaries, and is therefore part of their fiduciary responsibility. Several asset owners referred to ethical motivations in addition to financial, citing the desire to contribute to sustainable development of society while not compromising fund value. A few asset owners cited regulatory influence over their climate-related decisions. This was most notable among French asset owners, owing to recent legislation requiring (on a comply or explain basis) climate-related disclosure for companies and financial institutions.⁵

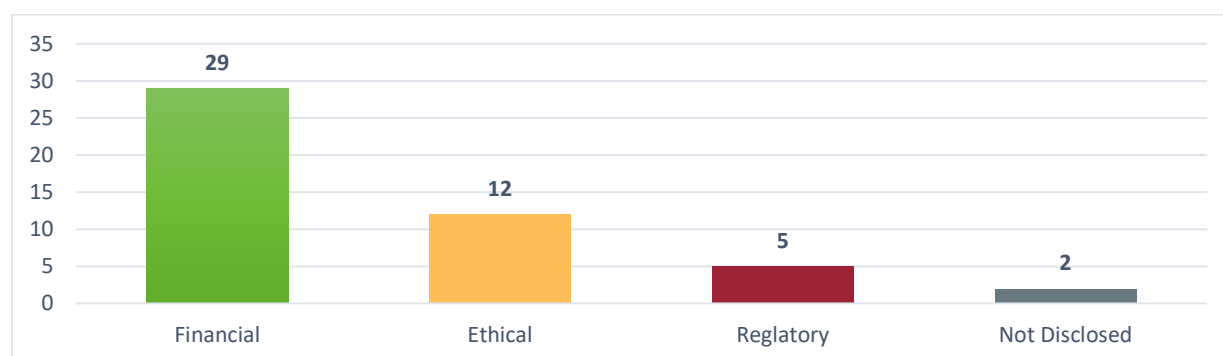


Figure 12: Demonstration of External Drivers

8.3 Examples of External Drivers

Etablissement de retraite additionnelle de la Fonction Publique (“ERAFP”) – Under Article 173 of France’s Energy Transition Law, institutional asset owners, including ERAFP, are required (from 2016) to publish information on their investment approach as it relates to ESG, with a specific focus on climate change.

Ilmarinen – The Finnish asset owner’s climate strategy has been shaped by both financial and regulatory motives. As the Finnish government intends to phase out coal energy by 2029, and is encouraging Finnish companies to target an earlier date of 2025, the asset owner no longer considers investment opportunities in companies that generate greater than 30% of their revenues from coal-based activities and have no viable plans in place to reduce coal dependency. The trustee actively tracks the coal dependency of investee companies, as well as the carbon footprints of energy companies as compared with the Paris Climate Agreement’s 2-degrees scenario.

9 CONCLUSIONS

We believe that, whilst this report cannot be conclusive, it demonstrates that asset owners are increasingly taking climate risk seriously. The key factor here is that many asset owners no longer consider climate change as an “ethical” or “niche” concern but increasingly recognise that climate change poses a material financial risk to the medium and long-term value of their funds. In short, the combination of fiduciary duty and a focus on risk-adjusted returns over the longer-term are acting as primary drivers for action.

⁵ Article 173 of the French Energy Transition Law

If asset owners are going to develop meaningful standards on climate risk, the building blocks set out in the TCFD will be key. It is therefore encouraging to see many asset owners focussing on improving governance structures, adopting holistic strategies, and developing risk management approaches accompanied by relevant climate risk-related targets and metrics.

Many asset owners' response to climate risk goes beyond the focus on disclosure represented by the TCFD. In addition to requiring greater disclosure on climate risk from investee companies, a majority of asset owners (covered in the research) are willing to exclude or divest where they have continuing concerns about investee companies.

This research highlights that public sector asset owners tend to be more prepared than their private sector peers to make voluntary public statements and disclosures about climate risk. This tiered response to climate risk is something that must be acknowledged and rectified by the private sector, given that they are likely to be similarly exposed to the physical and transitional impacts of climate change.

Across all types of asset owner reviewed there was a tendency to focus on risks posed to equity portfolios, possibly at the expense of missing similar risks to other asset classes that are generally considered less vulnerable to specific risks. This perhaps evidences that the potential systemic risks of climate change to the global economy are not yet being considered with as much care as risks to specific sectors or geographies.

Against the backdrop of an accelerating low-carbon transition, where policies, technologies and markets are responding globally, actions taken by asset owners are also evolving—driven above all by concerns about financial materiality and their fiduciary duty to act in the best interests of their beneficiaries.

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