AIGCC
ASIA INVESTOR GROUP ON CLIMATE CHANGE

Invesco

Asia 2030 Climate Playbook

How Asian Asset Owners Can Deliver 2030 Targets and Scale Climate Investment

March 2026

About the Asia Investor Group on Climate Change

AIGCC is the leading network of investors in Asia focusing on risks and opportunities in climate and nature. Our 80+ members have a combined AUM of $36 tn and have headquarters in 11 markets across the region. We were founded by institutional investors as a not-for-profit to drive action on climate, and bring an evidence driven, long-term focus on climate, nature, and investment across Asia.

Our work is underpinned by science, economics, and an effective theory of change that channels the influence of powerful Asian and international institutional investors, integrated across finance, business and policy making towards systemic impact. We bring deep knowledge and familiarity with Asian markets and dynamics, and play a founding role in global initiatives, making us a trusted force in driving climate-aligned finance across the region and globe.

About This Playbook

The Asia 2030 Playbook (hereafter, "the Playbook") provides a practical guide for asset owners on climate investment approaches across different asset owner types and asset classes, including equities, fixed income, and private markets. The Playbook was developed under AIGCC's Asset Owner Program, in collaboration with Invesco's Sustainable Investing Services team.

The success of this Program relies on the effort from AIGCC's Investor Practice team members, contributing asset owners and funders, and we acknowledge their invaluable contribution of the broader AIGCC team.

Acknowledgments

We are grateful to asset owners who have contributed to the case studies, substantially enriching the content of this Playbook. They include AIA, CalPERS, Income Insurance, Indonesia Investment Authority (INA), La Caisse, and Permodalan Nasional Berhad (PNB).

The draft of this Playbook was first presented and tested at AIGCC's Asset Owner Working Group in October 2025.

Editorial and content review was provided by Blue Praxis Pty Ltd.

Antitrust Reminder

AIGCC's Asset Owners Program is not intended to facilitate or require collective decision-making regarding an investment decision. The Program will not provide recommendations to investors to divest, vote in a particular way or make any other investment decision — investors are expected to continue to make their own independent investment and strategic decisions. Members are reminded not to discuss, disclose or exchange any competitively sensitive information in violation of antitrust and competition laws, rules, or regulations.

Contents

Executive Summary 5

Part I — Overview of Asset Owner Investment in Asia 7

1. Overview of Asset Owners in Asia 8
2. Asset Owner Adoption of Sustainable and Climate Investing 11
3. The 5/50/10 Opportunity for 2030 13

Part II — Approaches to Sustainable and Climate Investing 16

4. Seven Investment Approaches: The Building Blocks 17
   - Approach 1: Climate Risk Integration (Across Listed Markets) 18
   - Approach 2: Portfolio Decarbonisation (Listed + Private) 19
   - Approach 3: Index and ETF Approaches 21
   - Approach 4: Climate Solutions (Public + Private) 22
   - Approach 5: Real Assets 28
   - Approach 6: Whole-of-Portfolio Integration 31
   - Approach 7: Impact Investing 34
5. Mapping Approaches Across Asset Owner Types 36
6. Four Archetypes 38
7. Linking Approaches to Returns (Beta and Alpha) 41

Part III — Delivering 2030 Climate Strategies 44

8. Designing a Climate Strategy 45
9. Best-Practice Evidence: What Leading AOs Demonstrate 48
10. Looking Ahead 55

References 56

List of Figures

Figure 1: Understanding asset owner types 9
Figure 2: Asset owners' geographic and asset class allocations 10
Figure 3: Asian asset owner adoption of sustainable investment components 12
Figure 4: 10-year annualised returns for asset owners 14
Figure 5: The 2030 5/50/10 opportunity for Asian asset owners 15
Figure 6: Climate and sustainable investing approaches 17
Figure 7: Climate risk integration approaches 18
Figure 8: Portfolio-decarbonisation approaches 19
Figure 9: Climate index/ETF approaches 21
Figure 10: Climate solutions approaches 23
Figure 11: Real assets approaches 29
Figure 12: Whole-of-portfolio integration approaches 31
Figure 13: Impact investing approaches 35
Figure 14: Mapping across AO types and approaches 37
Figure 15: Archetypes and linkages 39
Figure 16: Targets delivery and investment returns 41
Figure 17: Capturing beta from climate investing 42
Figure 18: Capturing alpha from climate investing 43
Figure 19: Strategy-design considerations 46
Figure 20: Financial linkages: Frameworks to demonstrate linkages of sustainability risks and opportunities to financial implications on portfolios 49
Figure 21: Growing AO adoption of climate and sustainable indices 50
Figure 22: Stewardship 52
Figure 23: Role of blended finance and partnerships 53

Executive Summary

Strong long-term performance, material emissions reductions, and increased allocation to climate solutions can be achieved in parallel and can be actionable. This is the evidence from leading global and Asian asset owners (AOs). Climate risks are increasingly considered financially material, while climate-aligned opportunities are expanding across markets.

Asian AOs play a critical role in shaping regional and global climate outcomes, with portfolios that span listed markets, private equity, infrastructure, real assets, and domestic investment ecosystems.

We have designed this Playbook to support AOs — alongside broader stakeholders such as policymakers, NGOs, and market participants — by outlining the landscape of AO types in Asia, the practical tools that AOs use to integrate climate considerations, and the steps involved in designing and delivering credible 2030 climate strategies.

Part I overviews AO types in the region and the factors shaping their climate-investing strategies. It highlights five primary AO types — sovereign funds (national-focused and global allocators), pension funds (centralised and selection schemes), and life insurers — each with distinct mandates, investment time horizons, geographic exposures, and operating environments. Adoption of sustainable and climate-investing practices is broadening across all AO types. Many investors already integrate climate into investment policies and are increasing allocation to climate solutions.

A growing number of AOs have set or are setting 2030 climate targets, which they can obtain while maintaining their long-term returns:

- **5%+ long-term annualised return**
- **~50% portfolio emissions reduction**
- **5–10% allocation to climate or sustainability investments.**

This **5/50/10 framing** is a practical reference point for 2030 strategy design. While specific targets differ by mandate and jurisdiction, top-performing global and Asian AOs show that progress across all three dimensions is already achievable, supported by systematic risk integration, climate-aligned benchmarks, allocations to solutions, and strengthened stewardship.

Part II outlines how AOs can capitalise on climate strategies and opportunities. We illustrate this through the **seven investment approaches:** climate risk integration, portfolio decarbonisation, climate indexes and ETFs, climate solutions, real assets, whole-of-portfolio integration, and impact investing. These provide the building blocks for implementing climate strategies across asset classes. These approaches are applied differently depending on the type and mandate of AOs. **Four archetypes** — *risk integration*, *portfolio decarbonisation*, *financing solutions*, *transition to a low-carbon economy*, and *whole-of-portfolio* — illustrate common patterns of practice observed globally and within Asia. The Playbook summarises how climate factors can influence investment returns, including managing broader sustainability risks (beta), allocation to climate investment opportunities (alpha) and how stewardship can support value creation. Examining investment returns of the top-10 performing global AOs and the top-5 performing APAC AOs by 10-year performance shows that many have achieved significant emission reductions (35% average). Climate-integrated index benchmarks, strategic asset allocation, and engagement and stewardship enabled this.

Part III focuses on climate strategy design and delivery. It sets out how AOs define objectives, structure investment approaches, embed climate considerations into investment processes and establish governance and organisational resourcing structures. The section concludes with best practices observed among leading AOs, spotlighting key considerations to develop for 2030 — prioritising financial linkage, use of climate index, engagement and stewardship for decarbonisation, financing and partnership for transition, and operating models to support coordinated delivery.

For non-investors, the Playbook offers a clear understanding of the asset owner paradigm of climate investing in Asia. For Asian AOs and global AOs active in Asia, it provides a structured, evidence-based guide to refine climate strategies, respond to evolving market and policy conditions, and work towards credible and achievable 2030 objectives.

Part I — Overview of Asset Owner Investment in Asia

1. Overview of Asset Owners in Asia

The Asia 2030 Playbook (the "Playbook") offers Asset Owners (AOs) a practical guide and toolkit to help translate climate ambition into investment action across asset classes, leveraging global best practices and tailored investment strategies. It identifies proven results that integrate climate considerations into portfolios while maintaining sound risk-return outcomes and operational alignment with institutional mandates.

AOs in Asia are diverse in their mandates, risk appetites, investment objectives, and regulatory environments. These differences shape how they integrate climate and sustainability considerations into investment processes and long-term strategies.

For this Playbook, we focus on five primary types of AOs shown in Figure 1:

- **Sovereign Funds — National-Focused:**
  Sovereign investors with development-oriented mandates and predominantly domestic portfolios. They typically have longer investment time horizons and a bias towards private-market allocations, including stakes in state-owned enterprises, strategic technologies, and national infrastructure.
- **Sovereign Funds — Global Allocator:**
  Sovereign investors focused on long-term capital preservation and returns and may have supplementary strategic objectives. These funds invest globally across asset classes and operate with extended investment horizons.
- **Pension — Centralised Schemes:**
  Defined benefit and defined contribution schemes, where capital is generally invested with longer investment time horizons, providing flexibility across asset classes and climate-investing approaches.
- **Pension — Selection Schemes:**
  Pension schemes in which individual pensioners have greater flexibility to select or switch investment options based on recent investment performance. These retail-like dynamics impose shorter time horizons and constraints on investment strategies and risk appetite.
- **Life Insurers:**
  Life insurers typically focus on liability matching and regulatory capital requirements, such as capital charges, which result in predominantly fixed-income portfolios. They also tend to have longer investment horizons and greater flexibility in investment strategies.

Several characteristics shape an AO's ability to advance climate-investing practices:

- **Investment objectives and liability profiles** differ on whether the AO seeks stabilisation, liability matching, strategic development impacts, etc. AOs with stabilisation objectives, such as managing exchange rates and liquidity, generally have less flexibility in their allocation. Similarly, those with savings objectives that require liability matching maintain prudent investment approaches. In contrast, AOs with strategic development objectives often exhibit stronger alignment with climate investing, as sustainability is typically integrated into their national development considerations.
- **Investment time horizon** is connected to investment objectives, where AOs with longer investment horizons generally have greater capacity to invest in solutions and real assets. AOs with liability matching and retail-driven components (e.g. defined contribution pension schemes with individual selection and switching, or individual insurance investment options) tend to have shorter investment horizons. While this creates further considerations in terms of potential fund outflows, it also encourages innovative approaches to integrate climate investing within dynamic portfolio management.
- **Geographic focus** depends on AOs' mandates. Large domestic-focused or overweight in emerging markets may face higher emissions profiles with limited low-carbon alternatives and evolving disclosure standards. These dynamics also offer meaningful opportunities to drive impactful climate investments. However, domestic market-bias AOs tend to reduce complexity (as climate priorities are concentrated in one market) and can better derive synergies of climate investments in line with their development objectives.
- **Asset class composition** influences the approaches to implement and prioritise. Higher weights in fixed income, public equities, or private markets create differing opportunities for climate risk management and solutions investing. For example, portfolio decarbonisation tends to be less complex in investment-grade fixed income or global index/ETFs than in active public equities. Private markets allocation also provides an extra bucket that can closely align with climate themes.
- **Organisational resources** with specialist teams, strong governance structures, and tailored data capabilities vary significantly. They have direct considerations in designing and implementing climate strategies. We explore this further in Part III.

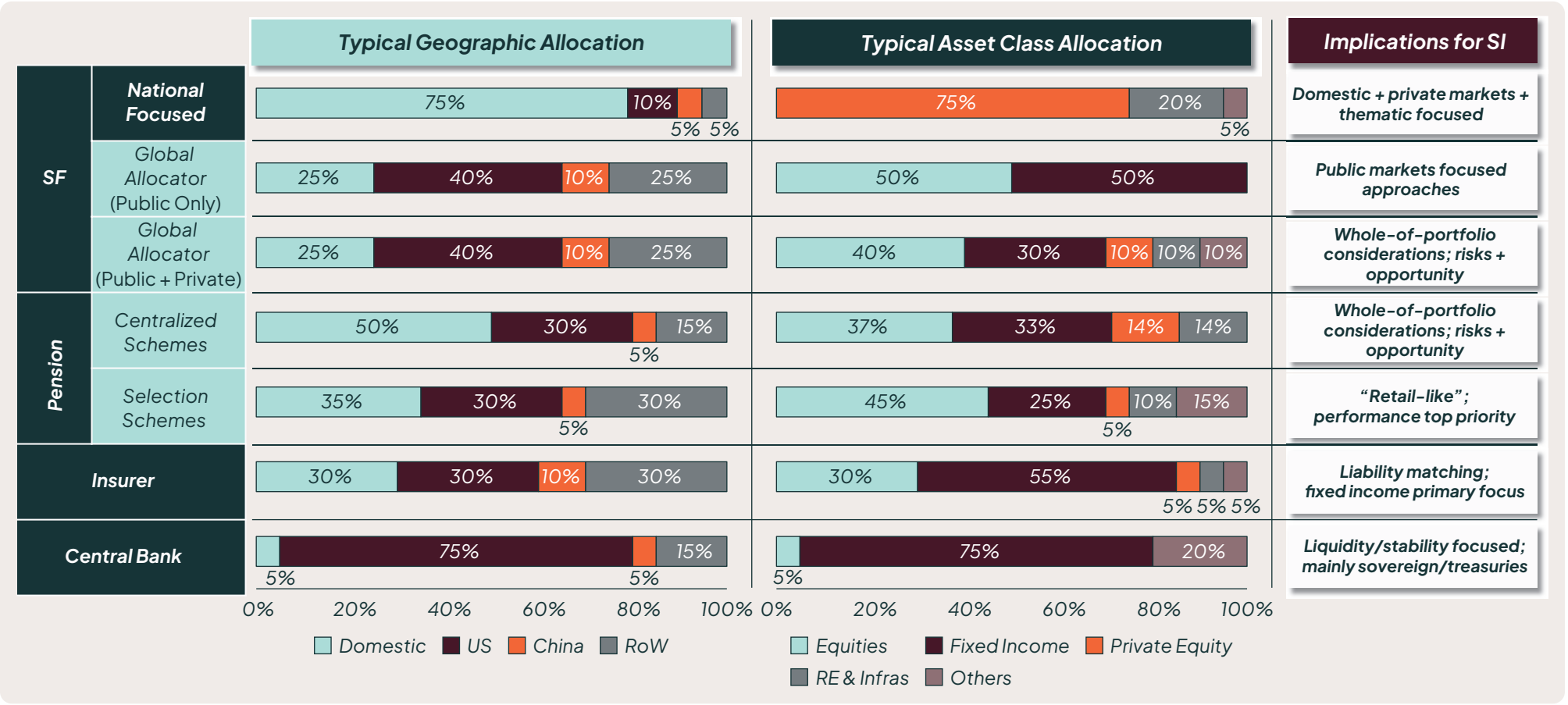
These characteristics explain the variation in climate adoption across Asian markets and help situate the practical recommendations in Parts II and III of the Playbook.

Figure 1: Understanding asset owner types[1]

		Sovereign Funds		Pension		Life Insurers	Central Bank	Endowments/ Foundations/ Family Offices	DFIs	Others (Bank/State Related)
		National Focused	Global Allocator	Centralized Schemes	Selection Schemes					
Objectives	Strategic	Y	~					Y	Y	
	Savings		~	Y	Y	Y				Y
	Returns	Y	Y	Y	Y	Y		Y	Y	Y
	Stabilization						Y			
Time Horizon		10–20+ years	10–20+ years	10–40+ years	Variable – dependent on scheme participants	5–10 years (General) >10 years (Life)	1–2 years vs 3–4 years	Long-term/ perpetual	Long-term	Varies
Private Markets %		>80%	~0–30%	~10–30%	~5–15%	~5–15%	*Minimal*	>30%	~20–40%	~10–20%

Source: Invesco Analysis. For illustrative purposes only.

Figure 2: Asset owners' geographic and asset class allocations[1]



Source: Invesco Analysis. For illustrative purposes only.

2. Asset Owner Adoption of Sustainable and Climate Investing

Drawing on AIGCC's State of Investor Climate Transition in Asia 2025[2] and AIGCC's 2025 internal analysis of asset owners, adoption of climate and sustainable investment practices across Asian AOs is broadening and deepening. More investors are integrating climate strategies, setting targets, and taking action across asset classes. This analysis identifies observable patterns in climate-related investment practices among a broader AO group across Asia (Figure 3).

- **Sovereign and pension funds:** Most Asian sovereign and pension funds are generally in the early stages of sustainable investing. A growing subset now recognises climate as both a financial risk and an opportunity. A portion of this subset sets longer-term portfolio emissions-reduction targets, incorporating dedicated climate allocations, and introducing deforestation policies alongside broader biodiversity and nature strategies and disclosures.
- **Central banks:** Many central banks, particularly members of the authoritative Network for Greening the Financial System (NGFS), increasingly acknowledge the financial materiality of climate risk and embed it into policies and board-level oversight. However, reflecting their core mandates around liquidity and exchange-rate stability, this generally limits emphasis on long-term portfolio targets or dedicated climate allocations.
- **Insurers:** Among Asian insurers — primarily life insurers, many of them listed companies — sustainable investment objectives often reflect shareholder expectations and regulatory requirements. Across the region, insurers tend to show relatively higher adoption of climate risk management, decarbonisation targets, and stewardship.
- **Others:** This AO group mainly comprises investment management arms of banks and state-linked entities, particularly in China, Korea, Japan, and Southeast Asia. Aligned with banking or state priorities, many adopt sustainable investing measures, including deforestation and biodiversity/nature policies, and associated disclosures.

Figure 3 illustrates that financial materiality, governance enhancements, and strengthened investor practice drive adoption rather than policy or regulatory signals alone. Progress in climate solutions investment, deforestation and biodiversity policies, and physical risk integration show a maturing, more comprehensive approach to sustainable, climate-aligned investment among Asian AOs.

While data poses common challenges that affect the pace of adoption, including disclosure inconsistency, policy uncertainty, evolving regulatory environments, and other market and organisational constraints, many AOs use available frameworks and data, evolving policy signals, and practical portfolio tools to advance and grow climate-aligned investments. These trends underpin the importance of the investment approaches and strategy considerations outlined in Part II.

Figure 3: Asian asset owner adoption of sustainable investment components[3]

Focus Area by Invesco	Segment Listed by Invesco	Comparable AIGCC Metric (2025)	Sovereign Fund (National-Focused)		Sovereign Fund (Global Allocator)		Pension (Centralised Schemes)		Insurer		Central Bank		Other	
			% (n=6) AUM = 148.8 USD Billions		% (n=14) AUM = 7540.45 USD Billions		% (n=37) AUM = 7152.95 USD Billions		% (n=44) AUM = 10908.19 USD Billions		% (n=3) AUM = 1738.92 USD Billions		% (n=4) AUM = 7137.86 USD Billions	
			Asia HQ	Global HQ	Asia HQ	Global HQ	Asia HQ	Global HQ	Asia HQ	Global HQ	Asia HQ	Global HQ	Asia HQ	Global HQ
			(n=6)	(n=0)	(n=14)	(n=0)	(n=35)	(n=2)	(n=42)	(n=2)	(n=3)	(n=0)	(n=4)	(n=0)
Governance	Recognition of climate risks and opportunities	1. The investor recognises climate change as a financial risk/opportunity	50%	0%	57%	0%	54%	3%	64%	5%	67%	0%	100%	0%
	Climate integration	2. The investor has established a policy on integrating climate into investments	50%	0%	50%	0%	49%	3%	64%	5%	67%	0%	100%	0%
		3. The investor has board-level oversight of climate	67%	0%	43%	0%	46%	3%	52%	5%	33%	0%	100%	0%
		5. The investor has published an investor climate action plan/transition plan	0%	0%	7%	0%	19%	3%	20%	2%	33%	0%	100%	0%
		16. The investors proxy voting guidelines incorporate climate considerations	17%	0%	21%	0%	19%	3%	23%	0%	0%	0%	50%	0%
Climate Investments	Climate targets	6. The investor has made a commitment to achieving net zero portfolio emissions	0%	0%	21%	0%	38%	3%	43%	5%	33%	0%	75%	0%
	ST targets	7. The investor has set an interim/short term target to reduce portfolio emissions	0%	0%	7%	0%	30%	3%	34%	2%	0%	0%	75%	0%
	Climate solutions/ transition investments	9. The investor has committed to increasing investments in climate solutions or transition finance assets	50%	0%	29%	0%	38%	3%	43%	5%	33%	0%	100%	0%
	Deforestation	12. The investor has established a policy, position or strategy on deforestation	0%	0%	0%	0%	16%	3%	11%	2%	0%	0%	25%	0%
	Biodiversity/nature	13. The investor has comprehensive disclosures or strategies on biodiversity or nature	0%	0%	7%	0%	19%	3%	32%	5%	33%	0%	100%	0%
Stewardship	Stewardship report	14. The investor produces an annual stewardship or active ownership report outlining activities and material issues on engagement with companies and proxy voting activities	33%	0%	14%	0%	32%	3%	36%	0%	0%	0%	50%	0%
	Voting	17. The investor reports on voting decisions/ activities for all portfolio companies	17%	0%	21%	0%	19%	3%	32%	0%	33%	0%	50%	0%

Source: AIGCC 2025 Analysis of Asset Owners.

3. The 5/50/10 Opportunity for 2030

As a growing number of AOs prioritise and enhance climate and sustainable investing, a strategic opportunity exists for Asian AOs to consider setting climate targets in the lead-up to 2030. This involves:

- Investment return objective of 5%+ long-term annualised returns
- Portfolio emissions reduction objective of ~50% emissions reduction
- Asset allocation of 5–10% of AUM to climate or sustainability investments.

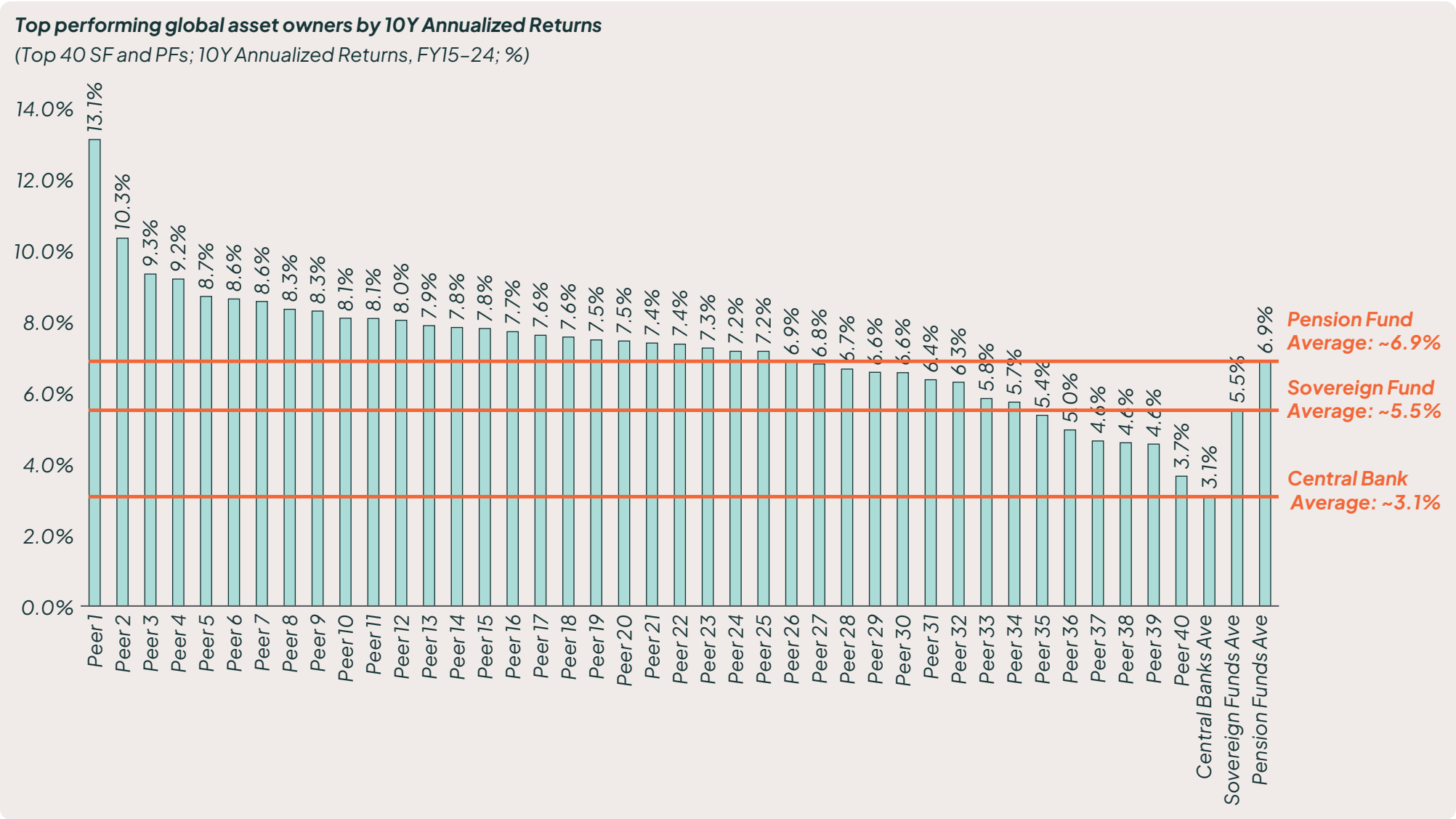
This **5/50/10** framing serves as a practical reference point for 2030 climate strategy design. While AOs need to consider the most suitable investment approach and strategy depending on their mandates, top-performing AOs demonstrate that progress across all three dimensions is already achievable, supported by systematic risk integration, climate or sustainability-aligned investments, allocations to climate solutions, and strengthened stewardship.

A review of high-performing sovereign funds, pension funds and insurers across global and APAC markets shows that many are moving in this direction.[1,4] While specific targets differ by mandate, portfolio structure and regulatory context, the broader trend reflects a convergence towards integrating climate risk management with proactive allocation to climate-aligned opportunities.[4] Specifically, Figure 4 indicates that most AOs achieved more than 5% 10-year annualised returns over the past decade (2015–2024), with pension funds meeting an average of ~6.9%, sovereigns ~5.5%, and central banks ~3.1%.

For Asian AOs, the progress towards 5/50/10 framing is a useful reference point yet acknowledges that each AO must adapt it to their own objectives, portfolio composition, and risk appetite, grounded in their mandate and investment strategy rather than applied as a uniform standard.

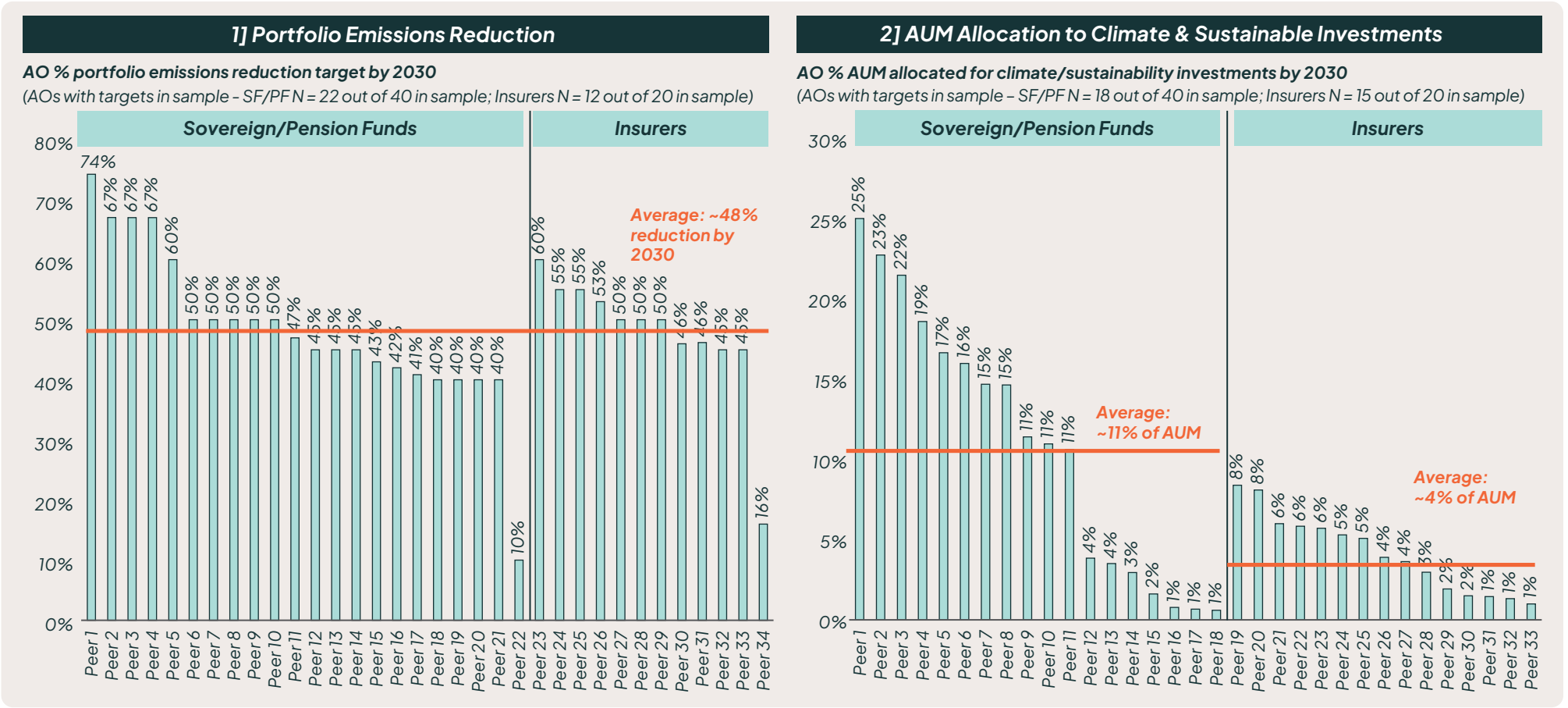
Having outlined the diversity of AOs, the current state of climate-investing adoption, and demonstrated achievable returns while considering climate and sustainable investment considerations, Part II turns to seven practical climate and sustainable investing approaches AOs use to progress their 2030 objectives.

Figure 4: 10-year annualised returns for asset owners[1,4]



Source: Invesco Analysis. For illustrative purposes only. SF (Sovereign Funds)/PF (Pension Funds) sample is based on top performing SF/PF by annualized 10Y returns (Top 40 performing funds). Global SWF, GSR 2025 Report, https://globalswf.com/reports/2025gsr.

Figure 5: The 2030 5/50/10 opportunity for Asian asset owners[1,4]



Source: Invesco Analysis. SF (Sovereign Funds)/PF (Pension Funds) sample is based on top performing SF/PF by annualized 10Y returns (Top 10 global, Top 10 APAC, Top 10 EMEA). Insurers sample based on top 20 largest insurers in APAC/EMEA.

Part II — Approaches to Sustainable and Climate Investing

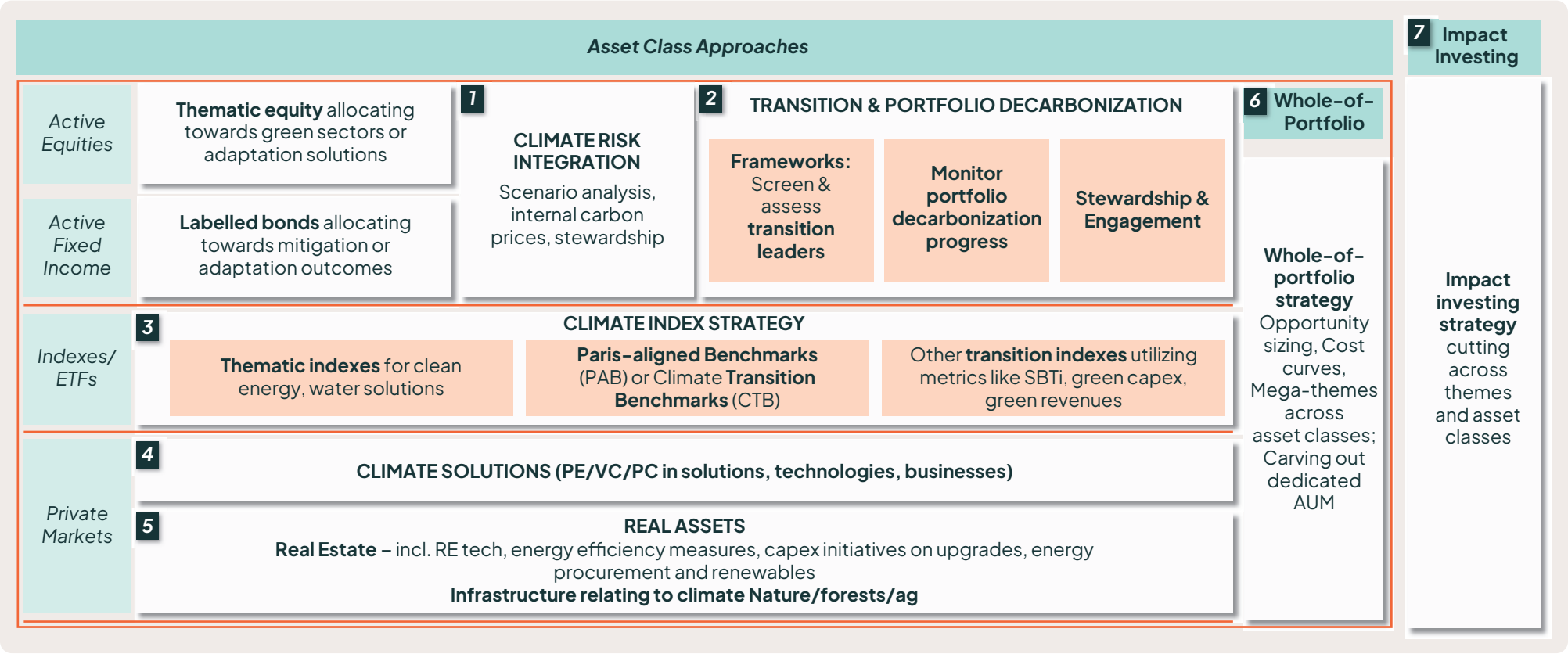
AOs use a range of approaches to capitalise and integrate climate and sustainability considerations into investment decisions. These approaches outline:

- **What** AOs can do through the "seven investment approaches", leveraging global best practices
- Subsequent sections explore **how** different AOs design tailored investment strategies that reflect their unique objectives, philosophies, and market positioning.

4. Seven Investment Approaches: The Building Blocks

The seven approaches described below reflect the most common and scalable levers used by AOs across public and private markets. While not exhaustive, the seven approaches form the building blocks that AOs use to integrate climate considerations across public and private markets that are best suited to their purposes.

Figure 6: Climate and sustainable investing approaches[1]



Source: Invesco Analysis. For illustrative purposes only.

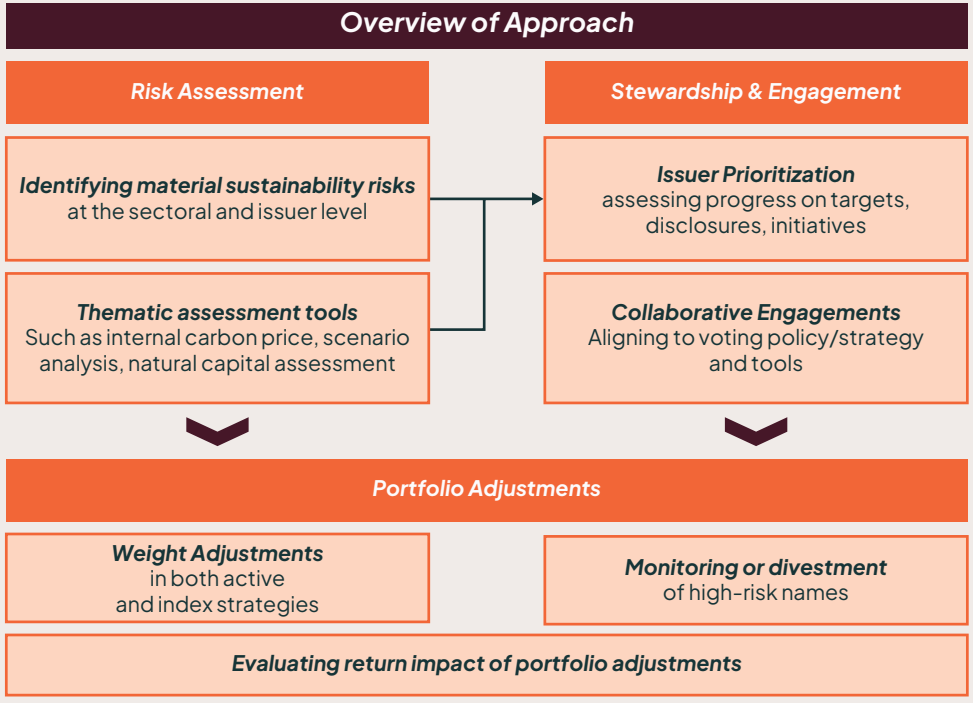
Approach 1: Climate Risk Integration (Across Listed Markets)

Financial materiality generally drives climate risk integration and incorporates transition and physical climate risks into fundamental analysis, valuation, risk assessment, and portfolio construction. While climate risk integration is integrated across the whole portfolio and across different asset classes, the focus is on climate risk integration across listed equities and fixed income, especially in actively managed strategies. It includes the capability to conduct risk assessment on sectors and issuers, linking identified risks to impacts on portfolio value. These insights inform stewardship and engagement priorities and guide actual portfolio adjustments. Some AOs also evaluate the impact of these adjustments on portfolio returns in response to sustainability risks.

The increased emphasis on linking material sustainability risks to financial outcomes and understanding how stewardship contributes to long-term value creation is a clear trend. Key elements include:

- **Portfolio assessment tools** that link sustainability factors to issuer-level financial exposures and portfolio-level impacts, enabling more consistent evaluation of their effects on returns.
- **Stewardship insights** that quantify how engagement influences issuer behaviour and financial outcomes. For example, a 2024 review by one AO found climate-focused engagement supported more credible targets, lower Scope 2 carbon intensity and better governance. These occur alongside improvements in market capitalisation and total shareholder return.[5–6,8]
- **Internal carbon pricing** allows better incorporation of transition risk costs into investment decisions by adjusting required returns, spreads or hurdle rates.[9]

Figure 7: Climate risk integration approaches[1,5–7]



Asset Owner Examples

Asset Owner	Estimated Amt (USD B)	Approach
EMEA Sovereign[7]	*$1.3T (70% of AUM in public equities)*	Sustainability risks are monitored across the equity portfolio and benchmark index, complemented by engagement, divestment, and a country-sector model assessing risks by primary market.
APAC Pension[5,6]	*$1.7T of which $680B in equities*	Enhancing long-term portfolio performance by reducing sustainability risks, improving market sustainability, and securing market-average returns, while assessing the impact of sustainability investments on portfolio returns.

Source: Invesco Analysis. For illustrative purposes only.

Approach 2: Portfolio Decarbonisation (Listed + Private)

This approach refers to AOs with a portfolio-decarbonisation objective, such as emission reduction (expressed as a percentage) by a specified timeline. It includes applying frameworks to assess and monitor issuers' transition progress, leveraging analytical tools to inform investment decisions and portfolio construction, and using stewardship and systemic engagement to improve issuer performance. Although portfolio decarbonisation techniques are most commonly applied to listed equities and fixed income, the underlying principles increasingly extend into private markets. This enables a consistent decarbonisation approach across asset classes.

Practical implementation typically involves:

- **Emissions assessment and monitoring** — starts with establishing emissions baselines using frameworks such as Partnership for Carbon Accounting Financials. It then builds on to understand the progress of emissions reduction using frameworks such as the Net Zero Investment Framework (NZIF) and Transition Pathways Initiative. Because inconsistencies exist between third-party estimates and company-reported trajectories, AOs supplement engagement insights with further research, linking emissions projections and transition plans to internal emissions modelling to assess credibility in line with stated targets.
- **Stewardship and forward-looking analysis** — engaging issuers to improve climate performance, governance and transparency beyond existing targets and disclosure. Forward-looking indicators (e.g. Capex alignment, medium-term targets, revenue mix shifts, technology deployment, transition-financing needs, board governance) need a balance between general and sector-specific indicators to distinguish transitioning issuers from structurally misaligned assets. Where a "transition score" is used, investors should understand its underlying components.
- **Transition financing** — assesses issuer activities at the entity level and tracks the outcomes of transition-finance efforts by applying relevant taxonomies or frameworks.

Figure 8: Portfolio-decarbonisation approaches[10–13]

Overview of Approach

Frameworks: Screen & Assess Transition Leaders	Monitor Portfolio Decarbonization Progress	Stewardship & Engagement
NZIF Alignment assessment based on ambition, targets, emissions performance and disclosures, decarbonization plan, capital allocation etc.	***Sectoral Mapping*** Peer benchmarking across sectors with OW/UW recommendations	***Issuer Prioritization*** assessing progress on targets, disclosures, initiatives
Transition Pathway Initiative Level 0–5 assessment of management quality and carbon performance	***Emissions Projection*** Based on issuers' initiatives and activities	***Collaborative Engagements*** Aligning to voting policy/strategy and tools
SBTI Assessing % portfolio with validated targets and reduction	***CF/Rev/Cost*** Understanding financial implications of initiatives on FCF, revenue and cost savings	
Transition Financing Assess corporate and asset level transition eligibility		

Asset Owner Examples

Asset Owner	Estimated Amt (USD B)	Approach
EMEA Pension[11]	~$10B fixed income mandate	Fixed income mandate with net zero alignment considerations alongside a focus on sectoral research and targeted engagements/stewardship.
EMEA Pension[10,12]	NA	Target of 100% NZ-alignment by 2040 and 50% reduction by 2030 across all corporate equities and bonds. Usage of both NZIF and TPI on transition assessment of companies.
APAC Insurer[13]	NA	Published Transition Finance Framework to support financing transition activities; evaluation of both corporate level reduction plans and asset level alignment.

Source: Invesco Analysis. For illustrative purposes only.

AOs need to consider balancing decarbonisation objectives, which are typically reviewed every 5 years, with implications for annual performance. Reviews may influence sector tilts, risk-factor exposures, and long-term return drivers depending on the chosen approach.

- In a **performance-first** approach, investors prioritise immediate and near-term performance while still maintaining longer-term decarbonisation goals. This typically involves less stringent screening and greater emphasis on sector and issuer analysis to inform portfolio weights and stewardship efforts, with quantitative equity strategies also able to incorporate factors such as value and momentum to enhance returns.
- In an **objective-first** approach, we define mandates so that decarbonisation is the primary objective. Portfolio-construction screens issuers for inclusion upfront, and we often assess performance against relevant climate benchmarks or indices.

Case Study 1: AIGCC: Asia 2030 Playbook: How Asian Asset Owners Can Deliver Targets and Capture Climate Investment Opportunities? (AIA Group Case Study)

In November 2023, AIA Group became the first pan-Asian insurance company to successfully have our near term SBTi targets validated. We are committed to having 31% of our in-scope listed equity and corporate bond portfolio by invested value setting SBTi validated targets by 2025 (based on SBTi's Portfolio Coverage Approach), reducing the GHG emissions intensity from the electricity generation sector within our listed equity, corporate bonds and project finance portfolio by 49.3% to 240kgCO_2e per MWh by 2030 from a 2019 base year (based on SBTi's Sector Decarbonization Approach).

To support our progress and deliver on our targets, we are using a range of levers, with a strong emphasis on engaging with our investee companies to support their alignment to committing to SBTi and SDA-compliant pathways. As a long-term investor, we believe in supporting our investee companies in their energy transition and broader sustainability journey to drive impactful change. Therefore, our team of credit, equity and stewardship analysts are actively engaging with our investee companies globally across all sectors; to track their progress, understand their ESG-related risks and opportunities.

Our analysts would then score these companies' progress using our proprietary framework and methodology following these dialogues to exchange insights and internal data-driven research reviews. All engagement notes and scores are uploaded on a common platform, customised to AIA's needs, for tracking and analysis; and fed downstream for senior management reporting.

To date, we are highly encouraged that a growing number of our investee companies are formally committing to SBTi and successfully validating their near-term SBTi targets. As at end Dec 2024, 30% of our in-scope portfolio of invested assets have validated their SBTi targets (from only 4% in our 2019 base year) and the GHG emissions intensity of our power generation portfolio has declined 46% (from the 2019 base year) to 258kgCO_2e per MWh.

In addition, our analysts conduct thematic engagements with our target companies on specific material ESG topics annually. Our most recent exercise involved conducting engagements with 53 investee companies in the global power generation sector on the topic of energy transition, to ascertain their strategies and to source out attractive investment opportunities to support transition. Our key findings, based on their responses, include the following: 1) Fossil fuel dependency is expected to decline from 47% in 2023 to 16% by 2050, in terms of energy mix, while renewables' share is expected to increase from 37% to 74% in the same period; 2) 88% are committed to net zero, with 73% having a clear decarbonization strategy to achieve their targets; 3) 53% are allocating more than 80% of their capital expenditure to renewables and green technologies; 4) 63% are proactive in their climate mitigation efforts and 55% are proactive in adapting to climate change having implemented significant initiatives to enhance resilience, based on AIA's assessment.

Overall, our thematic engagement findings indicate incremental progress in energy transition-planning but the companies also highlighted the key challenges they face, namely grid decarbonization limitations, high capital investment requirements for scaling low-carbon solutions and access to innovative technologies (e.g. carbon capture, green hydrogen).

At AIA Group, we remain committed to integrating climate considerations into investment decision-making and fostering long-term sustainable outcomes through responsible stewardship. To this end, we will continue to track our investee companies' progress on energy transition, engage on material ESG issues, prioritising companies with significant transition risks, advocate for enhanced climate disclosures, particularly in markets where transparency remains limited.

Approach 3: Index and ETF Approaches

Climate index and ETF approaches use systematic or index-linked methodologies to integrate climate considerations into benchmark-aware strategies (e.g. manage climate risk exposure and align assets with sustainability outcomes). While systematic, index-linked tools can consider the investment universe, tracking error, sector and geographical tilts, they are increasingly combined with more active portfolio construction processes to align with portfolio objectives in emissions reduction, forward-looking climate metrics, or defined transition pathways. This approach offers transparent, scalable tools to reduce portfolio emissions, enhance exposure to climate-aligned issuers or align with specific transition themes across equities and fixed income.[14-19]

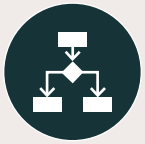
Figure 9: Climate index/ETF approaches[14-19]

Overview of Approach

Use Cases for Index

Benchmark: *Reference to evaluate performance on returns & climate*

Climate risk exposure: *Manage systemic risk, improve beta performance*



Sustainability outcome: *Decarbonization, increasing climate allocation*

Identify Approach

- ***Emissions reduction:*** *achieving a minimum reduction in GHG intensity (as compared to benchmark) or setting an average annual decrease.*
- ***Forward-looking metrics:*** *Assess transition readiness via TCFD-aligned disclosures, green revenues, or capex.*
- ***Exclusions:*** *Align with asset owner policies, excluding controversies and high-risk sectors (e.g. weapons, tobacco, coal, fossil fuels).*

Evaluation of Index

- ***Universe reduction and tracking error:*** *Assess how much the investable universe shrinks vs. the parent benchmark and the resulting tracking error.*
- ***Emissions reduction:*** *Compare strategy's emissions reduction to benchmark — key for achieving portfolio decarbonization goals.*
- ***Sector and geographic tilts:*** *Evaluate performance impact of any significant allocation shifts.*

Asset Owner Examples

Asset Owner	Type	Bench-mark	Risk Mgmt	Out-come	Investment Amt (USD)	Details	Methodology
EMEA Pension[14]	Pension	Y	Y	Y	~$19B	Introduced climate indexes as new policy benchmarks since 2023 with the goal for investment portfolio to be carbon neutral by end of 2035. Benchmark used as performance benchmark for internally managed assets.	Index ranks companies in each sector based on climate criteria like targets, climate risk management
APAC Insurer[15,16]	Insurers	Y	Y		Co-invested into a ~$0.4B ETF	Co-invested in various ETFs including Asia ex Japan climate ETF. Utilizing low carbon index as benchmark for 20% of developed and emerging market public equities	Selection based on climate indicators and factors including approved science-based targets, management of climate risks, and green business revenue. Minimise portfolio exposure to carbon emissions related risks
EMEA Pension[17]	Pension		Y	Y	~$4B	Launched 2 climate ETFs that aligns with their climate objectives and investment strategy including geographic diversification of investments	Increasing the portion (relative to the parent index) of companies with active carbon emissions reduction targets (approved by the Science Based Targets Initiative — SBTi)
APAC Pension[18]	Pension Fund	Y	Y		~$1.6B	Announced mandate for management of 1.6B USD tracking World Climate index	Index includes requirement for companies to either meet emission threshold or have approved science-based targets

Asset Owner Deep-Dive

- ***Finnish Pension***[14] *with $64B USD AUM invested $4B USD through 2 ETFs — a $1.6B global climate ETF and a $2.4B North America climate ETF (largest ever ETF at launch)*
  - *Index aligns with pension's approach of using SBT for climate target setting while also allowing for cost efficiency in asset allocation and geographic diversification*

Source: Invesco Analysis. For illustrative purposes only. Invesco Asia Pacific, Asset Owners Insights: Climate Index & ETFs, Jun 2025, https://www.invesco.com/apac/en/institutional/insights/esg/asset-owner-insights-climate-indexes-and-etfs.html[19]

Key features include:

- **Objective criteria** — such as emissions intensity, credible transition targets, exposure to climate-solution activities, or governance indicators
- **Portfolio-adjustment focus** — emphasises overweighting transition leaders and underweighting laggards, a shift from simple exclusions, to maintain diversification and manage tracking error
- **Integration with active processes** — where ETFs and index-linked strategies combine systematic climate screening with fundamental research and stewardship within portfolio construction
- **Flexibility to incorporate sector, factor or geographic tilts** — enables alignment with portfolio objectives while maintaining broad market exposure.

Approach 4: Climate Solutions (Public + Private)

Climate-solution investing allocates capital to assets that contribute to mitigation, adaptation or broader sustainability outcomes. Allocations in climate solutions originated in private markets, particularly in private equity and venture capital. Still, opportunities increasingly cut across the entire portfolio — including listed equities, infrastructure, real assets and thematic credit. This allows AOs to align solution themes with asset class pipelines and risk-return profiles.[20-22]

Key elements include:

- **Defining climate solutions mapping** as a starting point to identify key prioritised technologies and business models aligned with the AO's mandate. AOs often also have their own taxonomy tools to assess alignment.
- **Broadening of investment themes** through a shift from focusing solely on climate mitigation (renewables, EVs) into broader themes relating to energy transition and security (e.g. industrials, manufacturing, grid, and infrastructure resilience), adaptation and resilience (e.g. agriculture and food security, water availability).
- **Including taxonomies and eligibility frameworks** to support consistent selection, due diligence, and reporting.
- **Cross-asset class application,** with private equity, infrastructure, and real assets as focused allocations, complemented by expanding listed opportunities.
- **Impact measurement and reporting,** where feasible, to assess how investments contribute to climate-related outcomes alongside financial objectives.

Climate solutions investing is central to achieving the "10" in 5/50/10, offering direct pathways to scale climate-aligned allocation.

Figure 10: Climate solutions approaches[20-22]

Overview of Approach

Deal Screening & Assessment

- ***1] Overall Objectives:*** *climate/ allocation targets, transparency/ disclosures*
- ***2] Investment thesis/mapping:*** *Mapping of key investment areas*
- ***3] DD process:*** *ESG integration assessment*
- ***4] GP assessment/collaboration***

Portfolio Monitoring

- ***Value creation and supporting on transition planning***
- ***Climate risk assessments***

Broader Components

- ***Portfolio data and reporting***
- ***Policy advocacy/industry initiatives***

Illustrative Example
NA Pension — Climate solutions map

Mitigation	*Adaptation*	*Transition*
Renewable Energy Solar, wind, hydro	***Water management*** Water supply, manage droughts/floods	***Cement production*** Alt materials, energy efficiency, carbon capture
Carbon capture & storage CCS	***Agricultural adaptation*** Drought resistant crops	***Aviation*** SAF, electric/hydrogen powered aircrafts
Waste management Recycling/methane capture	***Disaster risk reduction*** Early warning systems, extreme events preparedness	***Transition of fossil fuels*** CCS retrofitting, nuclear, renewables

Asset Owner Examples

Asset Owner	Estimated Amt (USD & as % of AUM)	Objective	Approach
NA Pension[20]	$100B target by 2030	Financial performance driven	Target to increase investments in climate solutions with a 2030 investment target of $100B across areas of mitigation, adaptation and transition.
EMEA Pension[21]	~$1.1B in climate & energy transition solutions *(<1% of AUM)*	Strategic Objectives, Financial performance, risk management, sustainability outcomes	3D investing approach looking at return, risk, sustainability across themes of climate, people & health and nature & biodiversity. Climate & energy solutions focusing on infrastructure and private equity with domestic market focus alongside health investments to improve efficiency and alleviate pressure on public healthcare system.
APAC Sovereign[22]	*~$19B AUM*	Strategic objectives, Financial performance	Supporting countries' decarbonization and net zero targets through investing in greener energy, energy efficiency, natural capital/carbon sequestration

Case Study 2: Income Insurance Limited Case Study for AIGCC's Asia 2030 Playbook

Financing the Climate Transition

Income Insurance Limited ("Income Insurance") is one of the leading composite insurers in Singapore, offering life, health and general insurance.

Established in Singapore to plug a need for essential insurance in 1970, Income Insurance continues to serve the protection, savings and investment needs of individuals, families and businesses today so that we help build the collective resilience of people in Singapore through our actions, products and services.

Our Sustainable Investment Strategy

Income Insurance applies a **three-prong approach** towards sustainable investment.

Firstly, we seek to **understand** the sources of climate-related risk, opportunities and GHG emissions in our investments. Next, we identify and **act** on areas of priority and where we can drive meaningful outcomes most within our investment portfolio. Finally, we use our clout as an asset owner to **influence** positive change, in and through our external fund managers ("EFMs").

Importantly, our approach focuses on enabling real-world decarbonization outcomes rather than just short-term reductions in portfolio-level emissions.

What We Have Done So Far

In 2023, we pledged to allocate S$1b from our investment portfolio to finance the climate transition. We started with fixed income, given that it makes up a significant share of our portfolio and this asset class is also a key contributor to the financed emissions ("FE") in our public assets (listed equities and corporate bonds). We aim to leverage our sizable investment in Asia, to support the transition in a region that is a major source of global GHG emissions and where climate financing is urgently needed to mitigate and adapt to the damaging effects of climate change. This allows us to play a meaningful role, while capitalising on opportunities that are offered by the climate transition financing gap.

We have incepted an Asia Fixed Income ESG portfolio that is managed against the J.P. Morgan ESG Asia Credit Index which has a lower carbon footprint than its parent J.P. Morgan Asia Credit Index. The portfolio was intentionally designed to over index on green bonds to incentivise sustainable financing that aligns with climate change solutions.

In addition, the portfolio uses negative screening to exclude issuers involved in thermal coal (production and electricity generation), oil sands, as well as weapons, tobacco and companies that violate the United Nations Global Compact principles. To ensure that our investments are driving meaningful transition in the real economy, the mandate allows exceptions for third-party labelled green bonds that are issued by high-emitting companies that are in thermal coal and oil sands sectors as we recognise the importance in enabling these hard-to-abate issuers to transition towards more sustainable business models over the long term.

Beyond public markets, another area of focus for Income Insurance is on private markets, where patient capital and a longer time horizon offer a wide scope and exciting investment opportunities for innovative solutions to finance climate transition. This is why we co-anchored Fullerton Fund Management's Carbon Action Fund in 2024 as its Asia-focused strategy, which aims to advance decarbonisation outcomes in its portfolio companies while delivering attractive risk-adjusted returns resonated well with us.

The Carbon Action Fund is a private equity fund that focuses on investing in Green Beneficiaries and Green Enablers across large, fast-growing economies in Emerging Asia such as India and South-East Asia. Its sustainable investment themes include renewable energy value chain which facilitates clean energy transition; recycling and circular economy to drive supply chain sustainability; green mobility to accelerate the adoption of electric vehicles and green production systems to optimise efficiency in resource-intensive sectors.

For example, the Fund recently invested in a leading Indian AI-driven Corporate Transport-as-a-Service company that optimises employee commutes for large enterprises. By addressing inefficiencies in traditional employee transportation, it reduces emissions through higher vehicle occupancy and fewer redundant trips. The company also accelerates the transition to cleaner mobility by integrating electric vehicles into its fleet, driving EV adoption in one of the world's fastest-growing transport markets.

What Has Resulted

- Of the S$1 billion that we committed to financing the climate transition, more than S$750 million has already been deployed into green and climate-related investments.
- By incorporating ESG discipline in the investment process and restricting investments in the most carbon intensive companies, our Asia Fixed Income ESG portfolio, has a lower carbon footprint relative to the Asia Fixed Income mandate it was carved out from as well as the standard Asia Fixed Income benchmark, while actively channelling capital into green bonds and transition instruments.
- Our co-anchoring of the Carbon Action Fund has further expanded our role in advancing decarbonisation outcomes in Emerging Asia. The fund's investments will help to address critical areas such as clean energy, supply chain sustainability, electric mobility, and more efficient resource use in energy-intensive industries.
- These outcomes help to reinforce our broader ambition of supporting climate transition financing in Asia where it is most urgently needed, while also ensuring attractive risk-adjusted returns for our policyholders and stakeholders.

Looking Ahead

As we progress along our sustainability journey, Income Insurance will continue to refine and enhance our sustainable investment approach, drawing from our experience and the expertise of our EFM partners and ecosystem players such as AIGCC.

Case Study 3: Developing La Caisse's CAD 400 Billion Sustainable Investment Target by 2030

La Caisse, (formerly Caisse de dépôt et placement du Québec, CDPQ)[i] manages the funds of 48 depositors, with CAD 496 billion under management (AUM) as at June 30, 2025. In June 2025, it announced a new ambitious sustainable investment target of CAD 400 billion in climate action by 2030[ii]. To achieve this, the organisation focuses on real-world decarbonisation — investing in companies that embed climate considerations into their business models- while broadening the definition of 'green' investments to include future-oriented climate solutions

At present, roughly 80% of green assets are concentrated in real estate and infrastructure. However, the new strategy will broaden the addressable market as decarbonation matters for the entire economy and therefore all asset classes. The current portfolio consists of roughly 70% equity and 30% debt, primarily focused on private markets (60%), with about 85% of the assets managed internally. The asset classes include REITs, equities, private equity and debt across corporates, real estate and infrastructure, as well as government bonds to maintain liquidity.

The climate journey began in 2017, with initial targets set to invest in green assets and reduce portfolio carbon intensity, purposefully tying targets to remuneration incentives. These targets were enhanced in 2021 and the new strategy announced in 2025. La Caisse exceeded its climate targets and the portfolio has achieved a 69% reduction in carbon intensity[iii] through three key actions: (1) investing in green assets that lowered average portfolio intensity, (2) selectively investing in lower carbon-companies to shift sector exposure, and (3) a 10–15% emissions reduction by portfolio companies thus supporting broader real economy decarbonisation.

La Caisse recognised that focusing exclusively on carbon reduction in its portfolio may lead to concentration in sectors such as IT, banking, and companies that provide services and healthcare. This approach could ultimately limit the range of investments opportunities and constrain portfolio construction while having very limited impact of the real economy and portfolio risk. La Caisse evolved to balance carbon goals with diversified sector exposure, reflecting multiple valid paths toward impactful decarbonisation.

The definition of 'green' has been broadened in line with the best international frameworks such as SBTi, TPI, GFANZ. It now encompasses transition activities, nature-based solutions, adaptation measures, and 'enablers' — investments critical to green objectives though not inherently green themselves, such as lithium mines, which are essential for electric vehicle batteries and the clean energy transition, with ongoing efforts to minimise environmental impacts.

Embedding sustainability is a core management priority. With this, La Caisse aims to increase its investments with Paris goals, while recognising that companies are progressing at different paces on their decarbonisation journeys. It actively aligns its climate strategy with national decarbonisation pathways, using each market's nationally determined contributions (NDCs) as benchmarks, and believes that climate change must be addressed through two levers: decarbonisation and adaptation. La Caisse also supports sector-specific emission reduction targets. For example, certain sectors like cement may only be able to reduce emissions by specified (lower) percentage by 2030 due to limitations including important drivers such as public policy. Rather than exclude these investments, La Caisse supports credible transition efforts, emphasising flexibility, rigor, and pragmatism, to balance investment credibility with the realities of different geographies, enabling decarbonization within what is achievable.

Ultimately, the goal is to ensure that its portfolio companies are optimally positioned to seize opportunities and mitigate risks related to the transition.

i La Caisse employs over 2,000 people and is headquartered in Quebec City, with offices in Montreal, Toronto, New York City, Mexico City, Sao Paulo, London, Paris, Singapore, Delhi, and Sydney.

ii La Caisse 2025–2030 Climate Strategy

iii Compared with 2017.

Case Study 4: CalPERS' $100 Billion Commitment to Climate Solutions

In November 2023, CalPERS announced a commitment to have at least $100 billion invested in climate solutions by the end of 2030.

CalPERS' approach to climate solutions spans three verticals:

- **Mitigation:** Encompasses low-carbon assets and enabling activities
- **Transition:** High emitting activities with a credible plan to decarbonize, aligned with science-based pathways
- **Adaptation:** Includes all solutions supporting resilience to the effects of climate change

CalPERS recognizes that countries and companies are on varying stages of decarbonization. Though we engage policymakers and portfolio companies to transition business practices and mitigate climate risks, many companies will need to adapt to a warming world and the corresponding impact that this could bring to their businesses, supply chains, and human capital. This adaptation will require capital and operational expenditures, which will provide ample investment opportunities.

According to the IEA's World Energy Investment 2025 Report, clean energy technologies, including renewables, nuclear, and energy storage, are set to attract $2.2 trillion in investments, twice the amount expected for fossil fuels. Collectively, mitigation, transition, and adaptation climate solutions provide a significant opportunity for investors in companies across industries and geographies.

Approach 5: Real Assets

Real assets — including infrastructure, real estate and natural assets — are central to climate strategies due to their direct exposure to physical risks and capacity to support mitigation, adaptation, and transition objectives. These assets typically provide long-duration cash flows and allow climate strategies to be implemented at the asset level. Research from major consultants[23] shows that particularly large institutions plan to increase climate-aligned real-asset allocations as they seek resilience to physical risks and alignment with net zero pathways.

Key sub asset class characteristics

- **Real estate**
  AOs increasingly focus on decarbonising real estate portfolios, supported by improved data tools to measure and monitor emissions — including external tenant data — and implementing reduction measures like energy-efficiency upgrades and new technologies. Some also assess chronic and acute physical risks to understand impacts on asset values.[28]
  - **Physical risk assessment**
    AOs are deepening their incorporation of physical risk assessments across all real-asset classes, evaluating climate impacts, and exploring how installing adaptation measures can generate cost savings. Cost-benefit analysis of resilience measures is becoming a standard practice in real estate due diligence and management.
    Landlord-tenant collaboration is becoming more common, including sustainability, data sharing, monitoring, and joint initiatives to improve environmental performance through building design or operational changes.
- **Infrastructure and other real assets**
  Infrastructure investments in energy, transport, utilities, digital networks, and social infrastructure are core building blocks for transition. Other real assets include investments in agriculture and other land-based systems that store carbon and support ecosystems. While some assets directly contribute to emissions reduction, many underpin portfolio-level decarbonisation. They are heavily influenced by transition policies, technological shifts, and climate-resilience considerations.
  - **Lifecycle approach to decarbonisation**
    There is a growing focus on whole-lifecycle decarbonisation in infrastructure. For example, one AO has mapped carbon measurement across the full infrastructure lifecycle — from construction to usage and operations through to end-of-life disposal. In addition to operational carbon, investors are increasingly assessing upfront carbon (emissions related to construction and materials) and embodied carbon (maintenance and end-of-life emissions).[29]
  - **Collaborations and partnerships**
    Given the scale and specialist expertise required, AOs are forming partnerships to expand investment reach and diligence capability. Recent examples include a joint program between an Asian pension fund and a major out-of-region pension fund to invest in developed-market infrastructure.[3]

Figure 11: Real assets approaches[24–27]

Real Assets

Real Estate

Data and monitoring systems *(e.g. tenant data)*	***Assessment of physical and transition risks*** *(geo-specific acute and chronic risks, regulations and tenant preferences)*	***Decarbonisation initiatives*** *(e.g. energy efficiency measures, in-suite heat pumps, sub-metering, HVAC)*

Infrastructure

Asset Classes
Green Energy & Transformation (e.g. EV chargers, solar, wind); Transport & logistics; Healthcare

Key Measures
Emissions reduction contributed by asset and measures (e.g. low-carbon materials, e-tolls)
Physical risks assessment and adaptation measures

Natural Capital

Asset Classes
timberland, forests, agriculture

Key Measures
GHG reduction pathways
Adaptation measures: e.g. crop diversification/rotation, cold storage
Natural capital accounting to quantify value of ecosystem services

Asset Owner Examples

Asset Owner	Estimated Amt (USD & as % of AUM)	Approach
NA Pension[24]	*$36B in Real estate (20%)*	Tracking of emissions since 2017 for all domestic owned properties; 20% reduction in energy consumption from 2007 to 2022; 2030 target to reduce domestic portfolio emissions by 50% and 2040 target to reduce global portfolio emissions by 50%
NA Pension[25]	*$35B in real estate (7%)*	Proprietary physical risk screen on 100% of private real estate holdings including geo-specific analysis assess impact of acute/chronic variables alongside abatement capacity assessment framework
NA Insurer[26]	*~$5B in sustainably managed timberland and agriculture*	Convened global decarbonization working group to develop pathways to reduce GHG emissions including detailed research on technologies such as precision fertilizers, biochar, trucking & machinery telematics etc. *Adoption of natural capital accounting to value material ecosystem services*
Asian Sovereign[27]	*$10B*	Invest across range of infrastructure including transport/ logistics (toll roads, ports), green energy (EV ecosystems), healthcare (hospitals, pharma) and digitization (data centres etc.)

Case Study 5: Indonesia Investment Authority (INA): Scaling Sustainable Growth: Indonesia Investment Authority Embeds ESG Considerations for Generating Sustainable Impact and Long-Term Value Creation

As Indonesia's first sovereign wealth fund, the Indonesia Investment Authority (INA)[iv] embeds Environmental, Social, and Governance (ESG) principles across all its investment decisions, not only to safeguard and ensure long-term value across its portfolio, but also to scale climate-led investments. INA's investments focus in the green energy and blue economy sector aims to support the government's mandate and climate agenda, which targets emission reductions by 2030 and net zero by 2060. Viewing sustainability as both a responsibility and opportunity, INA integrates ESG risk assessments to balance market-adjusted returns with positive impact.

Building on this foundation, INA goes beyond risk management to position sustainability as a lever for long-term value creation. INA actively leverages its influence to enhance the ESG performance of portfolio companies. In the toll road sector, for example, INA together with its consortium partners supports its toll road platform in adopting sustainability practices tailored to the context of an emerging market like Indonesia focusing on key aspects such as health and safety, energy management as well as GHG emissions related to the operation. This includes developing a sustainability roadmap and defining KPIs to guide the company's gradual transition toward more sustainable operations. As part of this journey, the toll road company is preparing its first submission to the leading global benchmark for sustainable real assets (GRESB).

Initially seeded with $5 billion in capital, INA and its investment partners have invested more than $4 billion to date and now manage approximately $9 billion. It is focused on 5 key sectors: Transportation, Logistics, and Infrastructure; Digital; Green Energy & Blue Economy; Healthcare; and Advanced Materials[v]. INA's Green Energy and Blue Economy Sector is anchored on three pillars:

1. Renewable energy and energy transition
2. Accelerating the private sector adoption of clean technologies
3. Capitalizing on natural capital and blue economy

In 2026, INA will continue applying a tailored investment structuring approach, whether as a direct investor, a Strategic LP, a co-GP, or a provider of hybrid capital solutions, depending on what best suits each investment. These collaborations help bring in additional capital, strategic insights, technical expertise, and risk sharing.

One example is INA 2023 co-investment with Masdar, a global renewable energy leader, in PT Pertamina Geothermal Energy (PGE). This investment contributes to increasing Indonesia's geothermal installed capacity by supporting PGE in accelerating its geothermal capacity expansion. Additionally, Masdar will also provide knowledge transfer as part of this partnership. This investment supports Indonesia's target of increasing renewable power capacity by 50GW target by 2034, and also demonstrates INA's approach to advancing complex and strategic projects at scale.

Beyond capital deployment, INA recognises the need to scale up upfront capital and is exploring ways to support projects from their early stages through to implementation — especially for climate-led investments — including through mechanisms such as blended finance.

iv Established in 2020 and operational since 2021, Indonesia Investment Authority (INA) operates under a special legal status and reports to the President of the Republic of Indonesia. With a mandate to attract foreign direct investment (FDI) and build future wealth, INA's governance system features a two-tiered board structure: a Supervisory Board, chaired by the Minister of Finance, ensures alignment with national interest and compliance, while a five-member Board of Directors oversees daily operations and makes final investment decisions.

v While investing in Indonesia remains the core focus, INA is exploring regional expansion opportunities across Southeast Asia and the Asia Pacific.

Approach 6: Whole-of-Portfolio Integration

Whole-of-portfolio approaches aim to integrate climate considerations consistently across all asset classes and investment processes. Rather than applying climate tools in isolated portfolio segments, this approach establishes common objectives, metrics, and governance structures that guide organisation-wide investment decisions.[1,31–33]

A whole-of-portfolio perspective recognises that climate risk behaves similarly to structural macroeconomic or systemic risks, affecting valuations, discount rates and sector exposures across all asset classes. This approach ensures climate considerations are not applied in isolated silos but are reflected in enterprise-level objectives, portfolio-wide analytics and cross-asset decision frameworks.

Figure 12: Whole-of-portfolio integration approaches[1,31–33]

Overview of Approach

Targets & Priorities

- ***1] Investment Objectives:*** *Climate targets, allocation targets, performance targets*
- ***2] Implementation approach:*** *Satellite strategy (separated AUM bucket) vs embedding in each asset class*
- ***3] Team setup and KPIs:*** *Sustainable investing team, relevant KPIs and to-dos*

Strategy Design

- ***1] Thematic priorities:***
  - ***Climate: mitigation, adaptation, transition***
  - ***Nature***
  - ***Inclusive growth***
- ***2] Asset class expression:*** *public equities, fixed income, private equity, infrastructure etc.*
- ***3] EFM collaborations***

Supporting Tools

- ***1] Frameworks on transition:*** *assessment and evaluation*
- ***2] Taxonomies:*** *defining/categorizing investments*
- ***3] Stewardship/value creation:*** *enhance portfolio value through active ownership*
- ***4] Policy advocacy:*** *e.g. on carbon markets*
- ***5] Reporting***

Asset Owner Examples

Asian Insurer Financing Transition Framework[31]

Aligned and Aligning	Transitioning	Climate Solutions
Companies already aligned or aligning to 1.5/2C pathway	Carbon-intensive sectors in EM reducing emissions intensity	Solutions contributing to mitigation, adaptation, resilience outcomes

Portfolio Construction	Monitoring & Engagement	Reporting
Composite transition screen, DNSH	Milestones, social considerations, disclosures	On engagements, transition screen, exposure

Asian Sovereign Transition Framework[32]

Manage risks from potential stranded assets	Support credible transition strategies from companies	Capital to green solutions and enablers

Targets, align with business strategy, governance, reporting

Asian Sovereign Climate Strategy[33]

Invest in sustainability	Net zero	Investing for low-carbon economy
Evaluate risks and opportunities		
Engaging portfolio companies	Nature Positive	Encouraging decarbonization in portfolio companies
Advance institutional sustainability		
Collaborate for progress	Inclusive Growth	Enabling carbon markets solutions

Source: Invesco Analysis. For illustrative purposes only.

Key components include:

- **Overall targets and priorities:** how these align with broader investment objectives.
- **Strategy design:** such as asset classes, priorities, and thematic focus areas, as well as whether this is a new satellite strategy as compared to being embedded within existing asset classes.
- **Portfolio-level objectives and targets,** including emissions reduction, climate-solutions allocation, or portfolio alignment.
- **Cross-asset frameworks,** such as centralised climate risk assessments, dashboards, or factor models, enable comparability across asset classes.
- **Integration into investment processes,** including portfolio construction, monitoring, risk reviews, manager selection, and performance and impact evaluation.
- **Governance and accountability,** clarifying roles across investment committees, chief investment officer (CIO), sustainability teams, and investment teams.

Whole-of-portfolio integration helps AOs provide the foundation for sequencing and evaluating climate-related risk and actions, alongside other risk factors and priorities, as many AOs need to consider diverse mandates and time horizons.

Case Study 6: Permodalan Nasional Berhad (PNB)'s RM 10 Billion Commitment in New Green and Transition Assets by 2030

Permodalan Nasional Berhad (PNB) is one of the largest fund management companies in Malaysia with assets under management (AUM) exceeding RM300 billion. PNB's portfolio covers strategic investments in Malaysia's leading corporates, global equities, private investments, and real estate. For over four decades, PNB remains focused in contributing to the wealth of Bumiputeras and all Malaysians and is dedicated to fulfilling its purpose to uplift the financial lives of Malaysians across generations. PNB is committed to sustainability, responsible practices, and the creation of an inclusive future that benefits both its stakeholders and the communities it serves.

Pragmatic Evolution in Setting Sustainability Targets and Strategies

In 2022, PNB launched its Sustainability Framework comprising 10 ESG Commitments. Clear climate targets were established: achieve a net zero portfolio by 2050, reduce investment emissions intensity by 30% by 2030, ensure 70% of portfolio companies have credible net zero targets by 2030, and commit RM10 billion to new green and transition assets by 2030. From the outset, PNB understood that to scale climate investments meaningfully would require raising targets over time and actively integrate this as part of their climate investment strategy.

Driven by its climate aspirations, PNB aims to adopt an integrated stewardship approach to decarbonise its investment portfolio through: (1) Stewarding companies to decarbonise and establish their own net zero commitments and strategies, (2) Increasing investments in new green and transition assets and (3) continuously evaluating portfolio emissions impact as part of its pre-investment due diligence. The initial RM10 billion commitment serves as a vital step to shift capital towards greener assets, hedge against climate transition risks while setting a clear direction towards long-term net zero alignment. As its assets under management grow, PNB will consider scaling-up this commitment accordingly. Efforts are also underway with other teams, particularly in equities and infrastructure, to expand green investments in these asset classes.

To guide investment decisions, PNB developed an internal Green Taxonomy[vi] and identified four focus sectors covering Green Transportation, Renewable Energy, Green Buildings, and Agriculture, Forestry and Other Land-Use (AFOLU)[vii]. External managers are assessed for alignment with SFDR 8 or 9[viii] criteria, as well as whether they have strong mandates in green and transition assets. The approach is sector-agnostic and risk-return focused, with climate considerations employed across all asset classes.

Progress and Focus on Real Estate

Approximately RM 5.5 billion (~55%) of the commitment has been fulfilled. Initial progress was driven by its real estate investments which are aligned with established green building standards (e.g. GRESB and LEEDS). In an evolving climate taxonomy landscape, green building standards provide verifiable criteria in assessing environmental performance, reducing risks of greenwashing, while enabling PNB to invest in green buildings with attractive risk-return traits.

Broadening Climate Transition Investments Considerations

To further strengthen its climate integration approach, PNB is currently considering applying internal carbon pricing, carbon budgeting, and expanding ESG considerations in strategic asset allocations over time. For investments not classified as green, PNB assesses whether companies have credible net zero commitments and transition plans to inform voting decisions. PNB also developed internal "House View" which incorporates macro-level analysis on energy transition outlook to ensure climate considerations are part of its investment decisions.

PNB's pragmatic and incremental strategy balances meeting climate targets with practical investment realities to drive sustainable development and economic growth.

vi PNB's internal green taxonomy was developed based on SRI taxonomy and Climate Change and Principle-based Taxonomy (CCPT).

vii PNB Annual Integrated Report 2023, p. 83

viii Sustainable Financial Disclosure Regulation (SFDR) articles 8 and 9

Approach 7: Impact Investing

Impact investing directs capital towards activities that generate measurable positive environmental and social outcomes alongside financial returns. Within climate strategies, this typically includes investments supporting mitigation, adaptation or resilience across sectors such as clean energy, sustainable land use, circularity and nature-based solutions — initiatives such as the Sustainable Development Goals.[39]

AOs adopting an impact allocation should define clear objectives supported by an impact investment thesis — often articulated through a theory of change — and a structured approach to impact measurement and monitoring. This ensures alignment between intended outcomes, investment processes, and reporting. Where impact strategies depend on issuer behaviour or operational improvements, AOs may use targeted stewardship to reinforce impact objectives. This includes engagement on transition plans, outcomes-linked key performance indicators (KPIs), and governance practices that underpin delivery.

Key considerations include:

- **Broaden capital spectrum:** In practice, impact investing spans the full capital stake. Given that over 70% of climate finance has historically been deployed through debt,[40] AOs can broaden their focus beyond venture capital and infrastructure to private debt and project financing. Many development finance institutions have been active in this space, as the potential for additionality and scale may be more readily achieved.[40]
- **Blended finance structures and instrument-level innovations:** Growing use of guarantees, catalytic capital, and outcomes-based financing is increasingly used to scale impact, particularly in Southeast and South Asia. AOs can consider understanding the range of capital providers and potentially partner with development finance institutions (DFIs) and other specialist capital providers.

Impact investing complements other sustainable investment approaches by enabling AOs to target specific climate outcomes across public and private markets.

Figure 13: Impact investing approaches[1,34–38]

Overview of Approach

Define Objectives

- ***1] Strategic Objectives:*** *support strategic and development objectives for where the asset owner is based*
- ***2] Client & Stakeholders Interests:*** *Catering to clients and stakeholders' interests of the asset owners*
- ***3] Risk Management & Growth:*** *Better management of portfolio risks and capturing long-term opportunities*
- ***4] Business Synergies:*** *Investment portfolio also creates synergies for asset owners' broader businesses*

Identify Approach

- ***Impact thesis formulation***
- ***Allocation style: core or satellite approach***
- ***Asset class priority: e.g. fixed income or private markets***
- ***Thematic selection***

Impact Measurement

1] Impact targeting: *Metrics/indicators to optimize or monitor on*

2] Impact rating: *scoring or rating scale based on range of input criteria*

3] Impact monetization: *quantify impact into monetary basis*

Asset Owner Examples

Asset Owner	Estimated Amt (USD & % of AUM)	Objective	Approach
APAC Sovereign Fund[35]	Undisclosed	Strategic objectives, sustainability outcomes	Dedicated impact investing allocation into various impact investment strategies. Have also created broader network and ecosystem to build capacity on impact investing including thought leadership, workshops and research grants. Supporting development of regional impact investing hub, generating positive impact for underserved communities while achieving market rate returns.
APAC Sovereign Fund[36]	$1.4B *(4% AUM)*	Strategic objectives	Through impact investment strategy enhance national economic competitiveness while delivering positive socio-economic impact. Investments include supporting early-stage companies, emerging fund managers and enabling small-medium sized enterprises to grow.
APAC Pension[37]	~$0.6B *(1% of AUM target by 2026)*	Client & stakeholders interest	Investments made in members' best financial interest to provide financial return while also providing positive and measurable impact to society and environment. Sectoral focus across agriculture, renewable energy, conservation and affordable services like housing, healthcare and education.
APAC Insurer[38]	$0.2B *(<1% of AUM)*	Business Synergies	Investing into healthcare focused impact strategies in EM. Partnership includes collaboration on developing products and services at intersection of financial services, healthcare and climate solutions.

Asset Owner Deep-Dive

- ***SEA sovereign fund***[36] *with $36B USD AUM allocating $1.4B to create impact investing strategy to enhance economic competitiveness while delivering socio-economic outcome*
  - *Strategies to support venture capital ecosystem including emerging managers and local tech startups, support financing and capacity building on small-medium enterprises in local economy and strengthening economy's position in global semiconductor value chain through direct investments/JVs and talent development*

Source: Invesco Analysis. For illustrative purposes only.

5. Mapping Approaches Across Asset Owner Types

This section summarises how AOs apply the seven investment approaches differently depending on their mandates, investment time horizons, risk appetites, investment objectives, and organisational capabilities. Figure 14 summarises these patterns. It shows where each AO type most commonly applies approaches and how structural characteristics shape implementation.

Global Allocators and Centralised Pension Schemes

These AOs typically invest across multiple asset classes and operate with longer time horizons. Their strategic priorities and stakeholder expectations generally align well with sustainability objectives, enabling most of them to deploy all seven approaches. Whole-of-portfolio integration is particularly relevant given their diversified asset class mix and investment strategy. Climate risk integration, portfolio-decarbonisation pathways, climate-index or ETF tools, climate-solutions allocations, and real-asset strategies can all be applied concurrently, supported by enterprise-level governance and cross-asset analytics.

National-Focused Sovereign Investors

National-focused sovereign investors tend to concentrate on private markets and strategic domestic development priorities. Approaches relating to private-market decarbonisation, real assets, climate-solutions investing, and impact investing are most prevalent among this group. They widely use climate risk integration and stewardship, whereas whole-of-portfolio approaches emerge where climate objectives are embedded within national strategies.

Selection Pension Schemes

Selection schemes face member-choice dynamics, shorter investment horizons and tighter tracking-error constraints. As a result, they rely most heavily on climate risk integration and index-linked climate approaches, using stewardship as a core lever where portfolio flexibility is limited. Private-market allocations and climate-solutions strategies are typically more constrained due to liquidity and product-design requirements. However, selective use of private markets is possible.

Life Insurers

Life insurers rely predominantly on fixed-income portfolios due to liability matching and regulatory capital considerations. Climate approaches, therefore, focus on decarbonising fixed-income holdings, which climate risk integration and stewardship support within fixed income and equities. Selective allocations to private markets (e.g. climate solutions, transition finance, resilience-focused investments, or impact investing) are emerging areas of interest.

Figure 14: Mapping across AO types and approaches[1]

		Sovereigns		Pensions		Life Insurers	Central Banks
		National Focused	Global Allocator	Centralized Schemes	Selection Schemes		
Active Equities	Thematic Strategies		Y	Y	Y	Y	
Active Fixed Income	Labelled Bonds		Y	Y		Y	~
Active Equities & Fixed Income	1 Climate Risk Integration		Y	Y	Y	Y	
	2 Transition & Portfolio Decarbonisation	Y	Y	Y		Y	
Indexes/ETFs	3 Climate Index Strategy		Y	Y	~	Y	
Private Markets	4 Climate Solutions (PE/VC/PC)	Y	Y	Y	Y		
	5 Real Assets	~	Y	Y	Y	~	
Whole Portfolio	6 Whole-of-Portfolio	Y	Y	Y	~	~	
7 Impact Investing		Y	Y	~	Y	~	
		Private markets opportunities in climate solutions, infrastructure	***Breadth of investment mandate allow considerations across approaches including whole-of-portfolio strategies***		***Indexes, engagements as key levers***	***Fixed income, ETF focused alongside growth in private allocations***	***Primarily risk considerations in fixed income book***

Source: Invesco Analysis. For illustrative purposes only.

6. Four Archetypes

This section illustrates the four most common strategic archetypes. We base this on the seven approaches explained in Section 4, from risk-focused adoption to whole-of-portfolio integration.

Archetype 1: Risk Integration

Risk integration prioritises integrating financially material risks — both transition and physical climate risks — into investment decisions. Universal owners and investors mostly apply this archetype in listed equities and fixed income, with tighter tracking-error or mandate constraints. The focus is on identifying exposures, assessing materiality, and adjusting where risks are financially significant. Stewardship and voting play a central role in monitoring and supporting value creation.

Key characteristics include:

- Developing and applying proprietary frameworks to identify, assess, and monitor climate-related financial risks
- Adjusting portfolios selectively where risk assessments indicate material impacts to value or volatility
- Understanding financial linkages between climate risks and portfolio-level outcomes, including implications for sector exposures and emissions profiles.

This archetype generally applies to Approach 1; the selective use of Approaches 2 and 3 depends on mandate design and portfolio flexibility.

Archetype 2: Portfolio Decarbonisation

Portfolio decarbonisation builds on risk integration by incorporating explicit emissions reduction objectives into broader investment objectives alongside other return objectives. AOs using this archetype set portfolio-level targets and use issuer- or asset-level assessments, along with forward-looking indicators to guide decision-making. While they often apply this to listed equities, fixed income, and real estate portfolios, decarbonisation principles increasingly extend to other private markets as data quality and methodologies improve.

Key characteristics include:

- Using frameworks to set portfolio-level emissions targets and assess transition and decarbonisation progress on the holdings-level
- Understanding potential near-term trade-offs and other possible performance implications on the portfolio
- Adjusting for emerging market exposures to address systemic bias
- Structuring stewardship with time-bound escalation linked to transition milestones
- Adjusting to sector-, issuer- or asset-level exposures to align with defined decarbonisation pathways
- Considering the use of climate-focused indices and ETFs as a benchmark.

This archetype generally applies to Approaches 2, 3, and 5. At the same time, it builds on Approach 1 with selective use of Approaches 4 and 5 depending on mandate design and data maturity.

Archetype 3: Financing Solutions and Transition

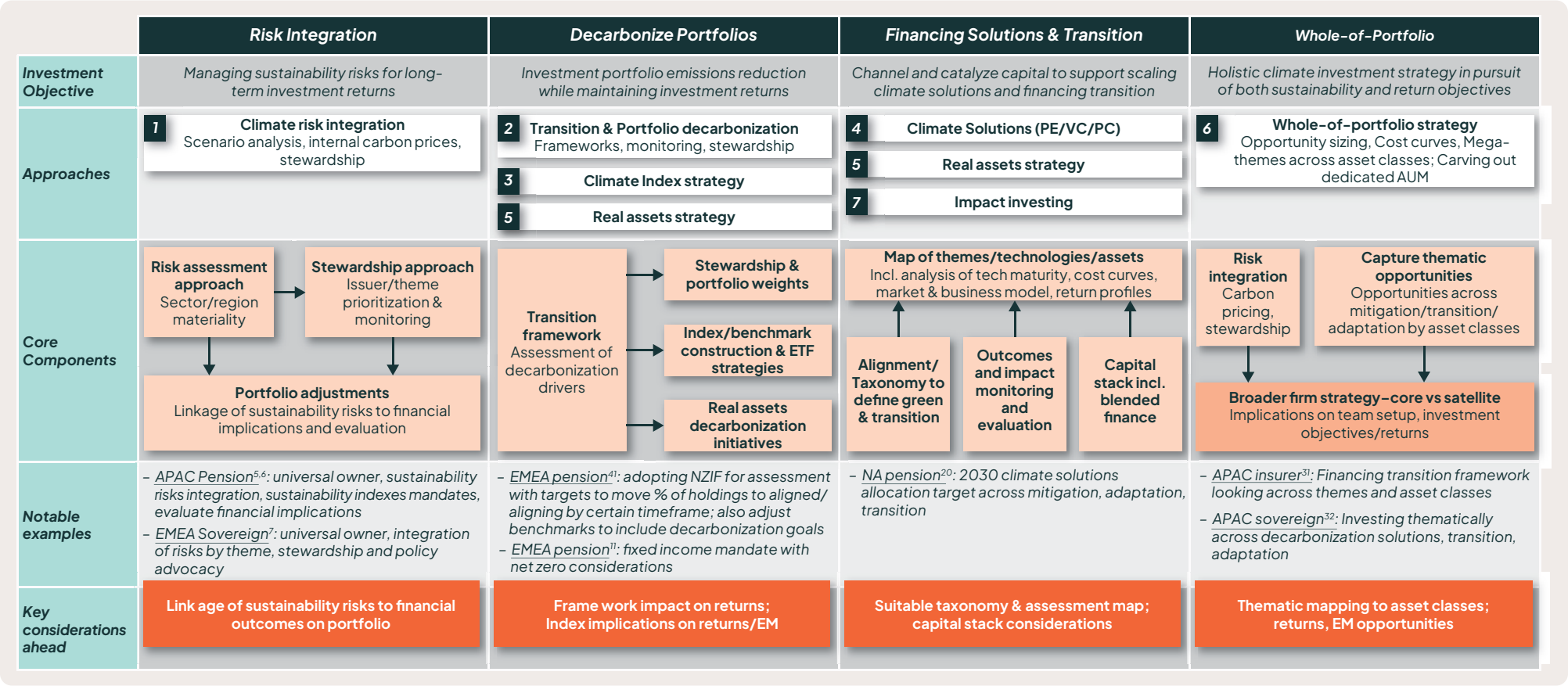
The climate solutions and transition financing archetype shifts from portfolio alignment to proactive capital allocation. AOs use this archetype to invest in activities that enable mitigation, adaptation, or transition outcomes, seeking to capture climate-themed alpha and support long-term value creation. Allocations often originate in private markets, including PE, VC, infrastructure, and private credit. But they increasingly extend across listed equities, private credit, and other real assets as solution themes become mainstream.

Key characteristics include:

- Identifying green and transition assets aligned to taxonomies, sustainability-linked instruments, labelled debt, and evaluating outcomes from using thematic filters, technology readiness assessments, and sector-transition framework mechanisms
- Focusing on capturing solution-driven alpha and supporting asset classes aligned with long-term transition pathways
- Deploying across the full capital stack, while monitoring ongoing developments in blended finance.

This archetype generally applies to Approaches 4, 5, and 7. The complementary use of Approaches 1 and 3 depends on portfolio constraints and opportunity sets.

Figure 15: Archetypes and linkages[1,5–7,11,20,31,32,41]



Source: Invesco Analysis. For illustrative purposes only

Archetype 4: Whole-of-Portfolio

Whole-of-portfolio integration treats climate considerations as enterprise-level and systemic factors that influence risk, return and capital allocation across all asset classes. AOs with longer investment horizons and lower investment or regulatory constraints mostly adopt this archetype.

Implementation often follows a core–satellite structure. *Core* embeds climate risk integration and thematic investment opportunities within existing asset class-focused investment teams. While *satellite* allocations are carve-outs, managed solely for climate or sustainability, with defined thematic priorities.

Key characteristics include:

- Embedding climate objectives in strategic asset allocation, investment beliefs and enterprise risk frameworks
- Using a core–satellite structure, with climate-integrated in core investment teams complemented by higher-conviction solution, transition and impact-focused satellite carve-outs
- Integrating risk, decarbonisation, solutions, stewardship and impact tools into a unified portfolio strategy
- Using scenarios and long-term transition outlooks to inform allocation, risk management and engagement.

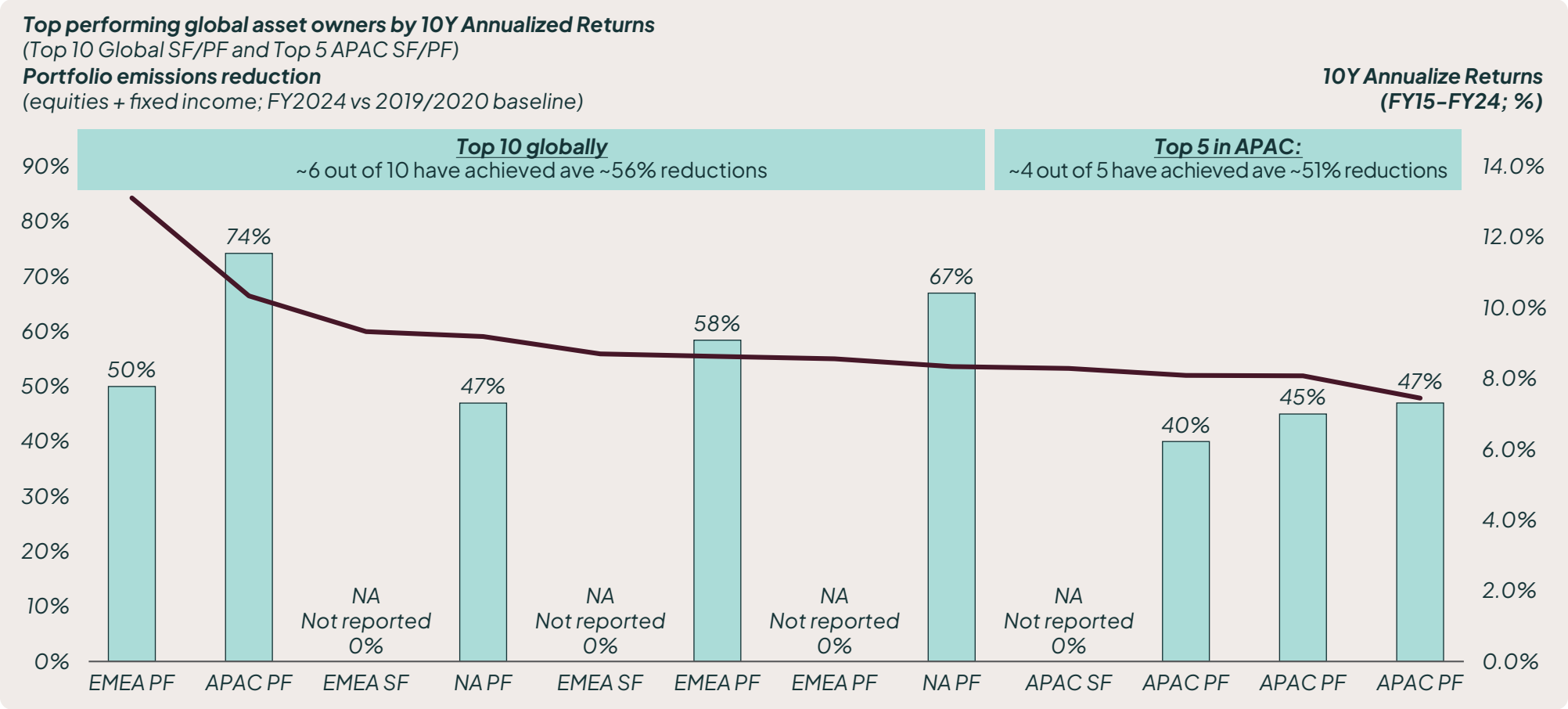
This archetype refers to Approach 6 but generally applies to Approaches 1 through 7 in combination. The emphasis is on sequencing and coherence across asset class teams and between core and satellite allocations.

7. Linking Approaches to Returns (Beta and Alpha)

Climate factors influence investment returns through both risk-related beta and opportunity-driven alpha. Understanding these linkages helps AOs prioritise, design, and sequence the seven approaches and determine how climate considerations fit within broader portfolio objectives and risk-return profiles.

Figure 16 analyses 10-year annualised returns from the top-10 performing AOs globally and the top-5 performing in APAC.[1,4] It reveals that many of the highest-performing funds simultaneously achieved significant portfolio reductions through their risk-integration practices. They delivered **10-year annualised returns above 6%** while achieving

Figure 16: Targets delivery and investment returns[1,4]



Note: PF = Pension Fund, SF = Sovereign Fund.

Source: Invesco Analysis. For illustrative purposes only. Global SWF, GSR 2025 Report, https://globalswf.com/reports/2025gsr

30–40% reductions in portfolio emissions over the same period. This was supported by **climate-index usage**, incorporating climate considerations enabling broad market exposure, **asset allocation**, with increased allocations to labelled fixed-income products, and a more detailed, **consistent approach to stewardship** prioritising high-emitting companies and broader systemic engagement.

Two key drivers help understand the return drivers from sustainable investing, explained below.

7.1 Climate as a Driver of Portfolio Risk (Beta)

Evidence from global and Asian AOs shows that strengthening climate risk assessment within portfolio construction can reduce exposure to vulnerable sectors and support long-term beta resilience ("beta play"). Some AOs have started to quantify the value contribution of better sustainability risk management, supporting improved financial returns by understanding the:

- contribution of risk-based divestments and reweighting to enhance portfolio returns
- financial impact of systematic stewardship on price-to-book ratio and market capitalisation

7.2 Climate as a Source of Potential Return (Alpha)[48–49]

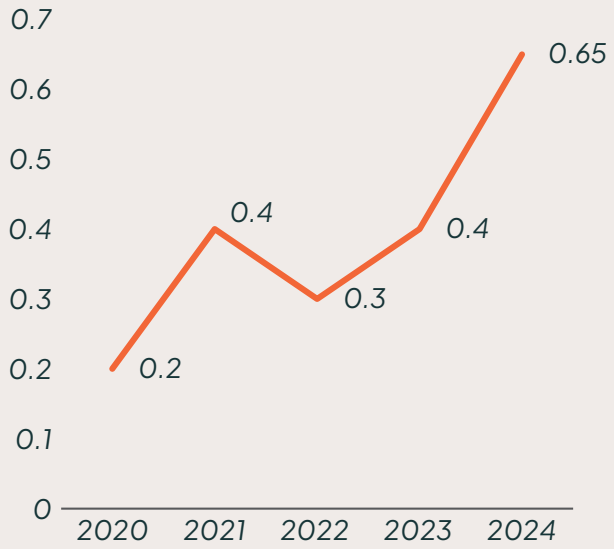
Climate-related mispricing, sectoral transitions, and structural growth themes create opportunities for outperformance by integrating climate factors into thematic allocations and others, such as security selection and valuation adjustments. AOs have achieved this through

Figure 17: Capturing beta from climate investing[46–47]

Beta Plays from Sustainability Risks Management

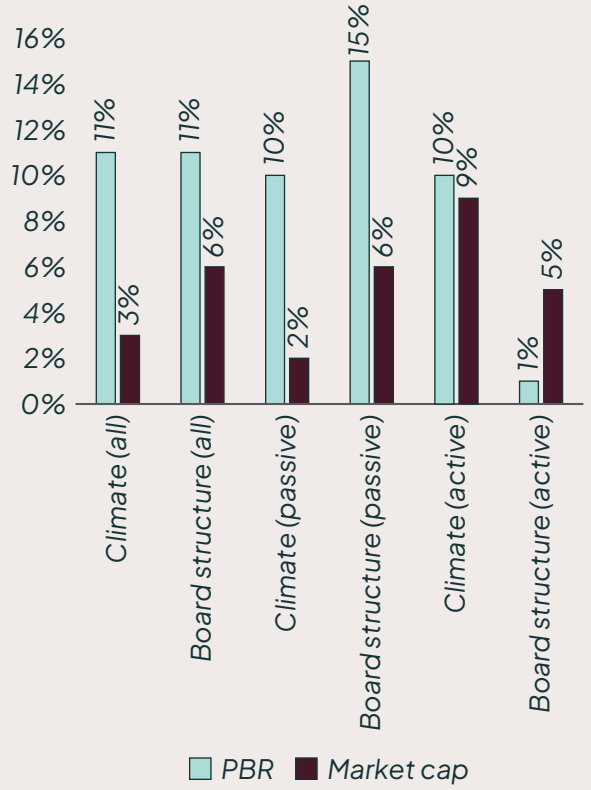
Risk Compression

Return impact of risk-based divestments for large EMEA Pension[46]
(percentage points contribution for portfolio adjusted for risks vs unadjusted)



Stewardship Value

Effects of stewardship on PBR & Market Cap for large APAC Pension[47]
(TOPIX 1000, estimated effect)



dedicated climate allocation investment targets, mostly in private markets, which have generated alpha through:

- allocations to climate solutions across private equity, venture capital and infrastructure
- overweighting transition-aligned issuers with credible pathways
- investments in adaptation-related real assets and resilience
- thematic strategies targeting emerging technologies and policy-supported sectors.

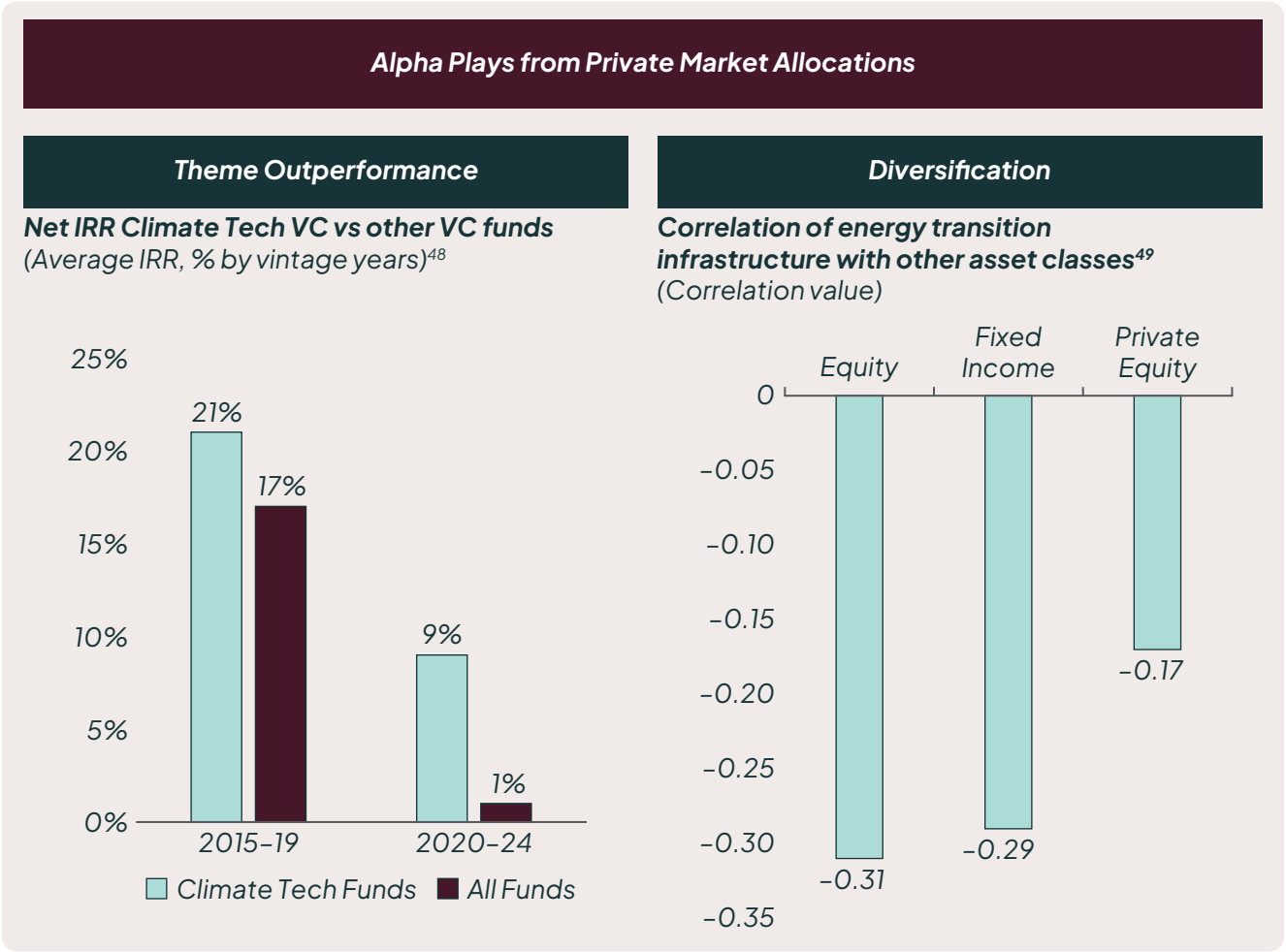
Examples exist in climate-themed venture investments that have outperformed broader generalist strategies. There is a notably lower correlation between energy transition infrastructure and other asset classes, which provides additional portfolio diversification benefits.[48–49]

7.3 Linking Return Drivers to Strategy Design

These return linkages help AOs identify which approaches to emphasise, and how to sequence risk integration, index-linked adjustments, stewardship, and climate-solutions allocations within 2030 strategy design. Understanding where climate factors influence beta, alpha or issuer behaviour informs prioritisation. It ensures the integration of climate objectives into portfolio construction, risk management, and long-term value creation frameworks. Understanding how these sustainability drivers impact financial performance and investment returns is a continued focus area for AOs in the future.

Top-performer evidence shows that combining several approaches (e.g. climate risk integration, climate-index tilts, targeted climate-solutions allocation, green bonds and active stewardship) can support both strong long-term performance and progress towards emissions reduction objectives.

Figure 18: Capturing alpha from climate investing[48–49]



Part III — Delivering 2030 Climate Strategies

Part III of the Playbook focuses on how AOs translate the approaches and patterns described in Part II into practical strategies and implementation plans suited to their mandates, investment objectives, risk appetite, operating constraints, and regulatory environments.

8. Designing a Climate Strategy

Designing a climate and sustainable investing strategy for effective climate action requires investment and operational alignment across portfolio objectives, investment processes, governance, and organisational capabilities with the AO's mandate and operating environment. This section sets out the key considerations, notably for CIOs and chief sustainability officers, in bridging the seven investment approaches with the practical steps and clear guidance on translating climate strategy into day-to-day investment activities.

8.1 Define Investment Objectives and Perimeters

Clear sustainable investment objectives guide climate strategy design and define how sustainability objectives influence return targets within regulatory or investment constraints, such as return targets, liquidity, and reference benchmarks. Considerations typically include:

- **Portfolio-level emissions reduction targets** to achieve a percentage reduction target by a specific timeline, grounded in credible baselines and aligned to long-term goals.
- **Allocation targets,** allocating a certain percentage of AUM to climate or sustainability investments, considering opportunity sets and portfolio constraints.
- **Scope and boundaries,** internally defining which entities, asset classes, geographies, benchmarks, or subsidiaries are in scope for climate objectives.
- **Risk appetite and constraints,** including tracking-error limits, liquidity needs, duration requirements, and asset liability management considerations.
- **Governance and oversight arrangements,** clarifying the roles of boards, investment committees, the CIO, and sustainability functions.

8.2 Design and sequence the Right Sustainable Investment Strategy Components

AOs often use multiple investment approaches concurrently. Part of an effective strategy design involves selecting the most relevant approaches and sequencing them around sustainability return drivers. As shown in Figure 19, this requires understanding how different approaches align with specific objectives and perimeters (see Section 8.1). The relevant components and sequencing depend on an AO's investment objectives, asset mix, and investment mandates. This enables it to balance between ambition and feasibility while embedding climate considerations consistently over the strategy horizon.

Common patterns include:

- **Quick-start actions:** climate risk integration, engagement and stewardship, and adopting index-linked climate strategies
- **Medium-term adjustments:** integrating decarbonisation strategies into portfolio construction, adjusting sector or issuer exposures, and considering climate or transition-aligned indices and ETFs
- **Long-term asset allocation targets:** allocating a certain percentage of AUM or amount to climate solutions, real assets, and private markets.

Typically, emissions reduction targets or asset allocation targets are stated in terms of a certain percentage of reduction or percentage of AUM by 2030 or 2040.

8.3 Investment Strategy and Team Set-up — *Core Versus Satellite Strategy*

AOs need to establish the right resourcing model to deliver on the strategy as reflected in Figure 19. Some integrate sustainability KPIs across asset classes within their core investment teams. In contrast, others adopt a satellite strategy, allocating a dedicated AUM bucket managed by a separate team.

Once the model is defined, AOs can identify how climate objectives can be considered as part of the investment strategy. This may include:

- incorporating climate metrics, targets and scenario analysis into due diligence, valuation and risk management
- integrating climate risks and opportunities into portfolio construction, optimisation and monitoring
- aligning external manager selection, mandates and oversight with climate objectives
- establishing cross-asset climate risk dashboards and analytics
- integrating physical risk insights into real-asset and infrastructure planning
- using internal carbon pricing to reflect transition risk costs where appropriate.

Figure 19: Strategy-design considerations[1]

Return Target
Target returns, liquidity/liability constraints, reference benchmarks

Implications on return targets | *Financial linkages/ contribution*

	Approaches	Sustainability Outcomes/ Climate Targets	Climate Allocation Targets	Beta/Risk Management	Alpha and Capture Returns
Risk Integration	Climate Risk Integration	Y		Y	
Decarbonize Portfolios	Portfolio Decarbonization	Y		Y	
	Index/ETF Strategy	Y	Y	Y	
	Real Assets Strategy		Y		Y
Financing Solutions & Transition	Climate Solutions PE/VC/PC		Y		Y
	Real Assets Strategy		Y		Y
	Impact Investing Strategy	Y	Y		~
Whole Portfolio	Whole Portfolio Approaches	Y	Y	Y	Y

Strategy and Team Setup

Embedded within asset classes (Sustainability KPIs for each team) **VS** *Satellite Strategy (Separate AUM bucket)*

1) Investment objectives and perimeters
A) Return drivers vs sustainability targets
B) Investment constraints — return target, liquidity, reference benchmarks

2) Components in investment strategy
Understand how relevant approaches link to different objectives; identifying suitable blocks based on asset class and investment mandate
Other best practices that can be adopted more broadly

3) Investment strategy and setup
Core vs satellite strategy

Investment and sustainability team setup

Source: Invesco Analysis. For illustrative purposes only.

8.4 Governance, Operating Models and Organisational Capabilities

Effective delivery requires organisational structures that support coordination and accountability for effective strategy execution. Key elements include:

- **Clear decision-making and accountability** across the AO's Board, Investment Committee, CIO and sustainability teams are essential
  - Clear responsibility for integrating climate risks and opportunities
  - Establishing integrated thematic teams, integrating sustainability teams into investment teams to enhance greater collaborations and influence asset allocation.
- **Integration of KPIs** (where appropriate) — that reinforce accountability for climate objectives
  - Encouraging each investment and asset class team to have climate and sustainability-related KPIs, including identifying investment opportunities, relevant theses, and financially material risks by asset class and region
- **Robust data and systems** — including portfolio-wide dashboards, centralised data, and analytics environments supporting emissions measurement, physical risk analysis, issuer-level assessments, benchmark comparison, and reporting
  - Using AI screening for sustainability metrics from corporate filings
  - Forward-looking modelling to understand which companies might lose climate certifications and the corresponding impact on investment decisions
  - Transparency on current coverage and limitations of data, particularly in evolving areas like physical risks and nature assessment.
- **Consistent reporting cycles** — enabling oversight and realignment with strategy
- **Internal capability development** — across investment teams (e.g. climate risk assessment, scenario analysis, real-asset decarbonisation, transition finance)
  - Stakeholders sharing transition plans and targets, including assessing high emitters, engagement progress and implications on portfolio returns.

These enablers ensure climate considerations are embedded sustainably within the organisation and supported by appropriate operating-model practices to help deliver climate strategies consistently.[29]

8.5 Ecosystem Partnerships and Collaborations

Implementation requires navigating practical constraints through partnerships and collaborations that strengthen alignment with long-term objectives. This includes:

- **External manager selection on:**
  - Developing holistic climate investment approaches and co-creating specific strategies, including defining investment and climate objectives alongside preferred frameworks, data, and stewardship approaches
  - Clear communication on stewardship mandates on priority themes and issuers, with standardised frameworks for monitoring on stewardship status to external managers. These could include annual stewardship surveys with external managers for input on market development and risks/opportunities of focus.
- **Index providers:** Closer collaboration with external index providers, including feeding into consultations on index and rating methodologies. These include building an internal database and knowledge of various indexes and tracking performance.
- **Broader strategic priorities on regulatory consultations:** such as increasing financially material disclosure across markets and encouraging adoption of transition plans.
- **Research:** Some AOs have had an open call for research on sustainability topics and academic evidence. This is particularly helpful for emerging topics such as assessing financially material nature-related risks or understanding financial enhancements from stewardship.

These considerations help AOs engage with stakeholders across the regulatory environment, aligning on climate and sustainability investing objectives while adapting to market depth, risk constraints, and operational realities.

9. Best-Practice Evidence: What Leading AOs Demonstrate

Successfully implementing climate strategies depend on translating high-level objectives and approaches into disciplined, repeatable processes across asset classes. This section highlights best practices and considerations that AOs globally and in Asia use to help deliver the 2030 climate goals. These practices complement the seven investment approaches and the strategy-design steps outlined in Section 8.

Financial materiality is now the primary driver of implementation — Evidence from leading global and Asian AOs shows that climate-related risks and opportunities influence returns both through "beta" (broad market risk) and "alpha" (capturing value from specific business models or technologies). As a result, investors focus on implementing financially material exposures.

We present empirical insights from top-performing global, APAC, and EMEA AOs in the sections below. They highlight notable practices and approaches these AOs use, reinforcing the importance of integrating financial materiality, systematic tools, and active stewardship into day-to-day implementation as AOs plan for 2030.

9.1 Financial Linkage First

AOs that embed climate factors into valuation, risk management, and portfolio construction tend to show stronger long-term beta resilience and clearer risk-adjusted outcomes.

Some AOs are starting to develop frameworks that show the linkages between sustainability risks and opportunities to financial implications on their portfolios. Figure 20 presents two examples: 1) Returns from stewardship[8] and 2) Climate linkages to financials.[42]

Large, diversified owners (e.g. universal owners) particularly emphasise stewardship to better manage risks.[8]

Shareholders protect and increase their returns by:

- driving issuer changes to enhance sustainability impact (e.g. emission targets, climate initiatives, and effective boards)
- linking financial impact to enhance corporate value (e.g. ROE, PBR, and equity spread)
- enhancing investment return (e.g. total shareholder return, market capitalisation)

Key practices for climate linkages to financial linkages include:[42]

- Assessing how different climate risks and opportunities impact financials and, by extension, investment returns
- Focusing on special financial dimensions such as:
  - Revenue and topline: e.g. green revenue opportunity vs brown demand destruction; revenue exposed to physical risks
  - Bottom line: e.g. internal carbon price and bottom-line impact, costs from physical risks, and synergies with existing businesses
  - Financing & cashflow: e.g. Capex and free cash flow, credit rating and capital costs
  - Balance sheets: assets (e.g. demand shift, inventory write-downs, physical risks impact on residual value and useful lives) and liabilities (e.g. potential taxes or fines).

In the case of an APAC pension that is a universal owner with large, diversified investments, recent development areas include the following:

- value of stewardship linked to financial materiality of climate risks and opportunities is to manage risk better[8,42]
- effectiveness of stewardship on enhancing shareholder returns
- impact of climate risks and opportunities on financials and, by extension, investment returns.

9.2 Climate-index Adoption

Climate-aligned index approaches constitute significant allocations among some of the largest top performers. They are used in a variety of ways, whether as reference benchmarks or as direct investments in passive strategies. These indices allow both customisation of sustainability metrics while managing tracking-error constraints, reducing systemic climate risk exposure, and maintaining broad market coverage. These tools enable systematic portfolio reweighting and reduce the risk of missing market-driven alpha.

Figure 20: Financial linkages: Frameworks to demonstrate linkages of sustainability risks and opportunities to financial implications on portfolios [8,42]

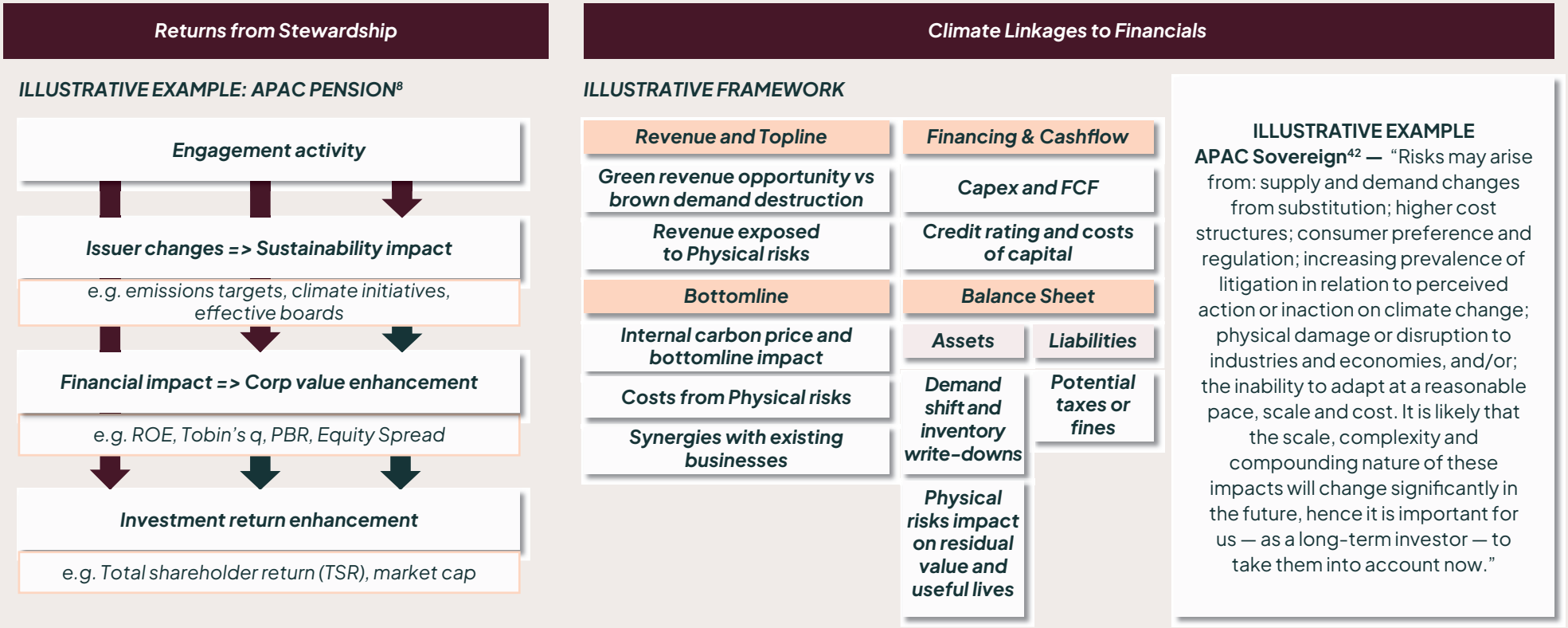
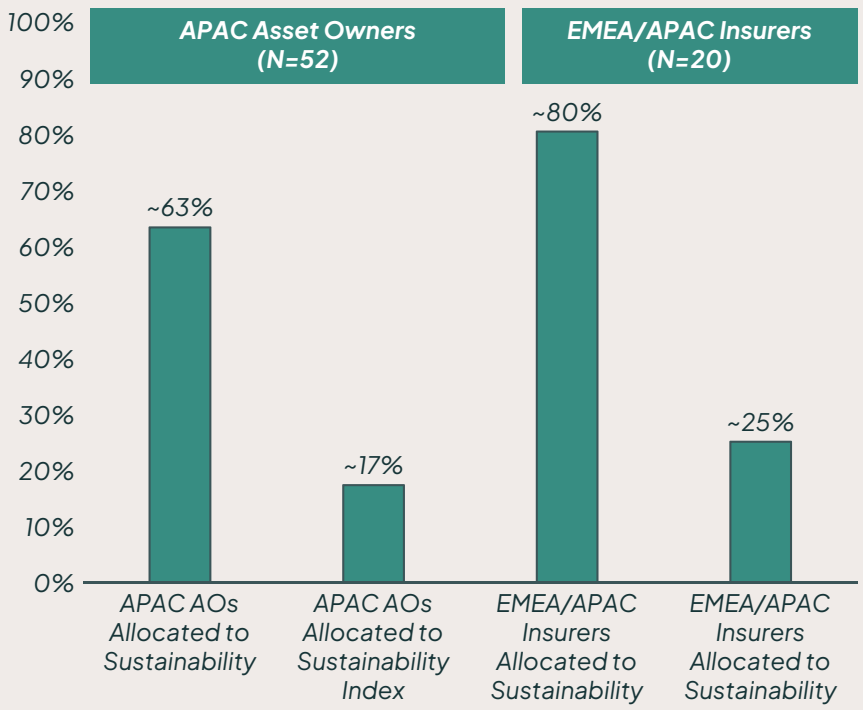


Figure 21 illustrates research on APAC asset owner approaches to ESG and climate investing.[43] It shows notable sustainability index and ETF allocations from their overall allocation to sustainability investing.[44] It further highlights how AOs use various approaches to indices. allowing customisation of sustainability metrics while considering adjustments to tracking error and other investment exposure constraints.

Additional areas under conceptualisation using indices:

- **Reference benchmarks:** using indexes that include transition considerations. We can consider emerging markets as a standalone strategy alongside a global index to more objectively reflect regional exposures
- **Quant portfolios and active ETFs:** using quantitative multi-factor exposure through quantitative strategies to potentially enhance risk-adjusted returns
- **Fixed-income index innovations:** created based on metrics that are most financially material. A range of focus areas exists, including:
  - Emissions targets: e.g. intensity reduction, targets, disclosures (including Scope 3 phase-in), alignment to standards
  - Transition risk: selecting the most relevant metrics to assess transition risk and exposure, carbon pricing, and policy
  - Green revenue and credible transition plans: green revenue exposure, climate solutions exposure, Capex allocation alignment
  - Physical risk: assessing the impact of physical risk.

Figure 21: Growing AO adoption of climate and sustainable indices[42,44,45]



Stewardship approaches

- ***Reference benchmarks:*** *Using indexes that includes transition considerations; combining both global World index with Emerging Markets Index*

> **APAC Sovereign —** "Board approved a wholesale shift of our passive listed equities portfolio into Paris Aligned Benchmark indices in 2022. This involved applying an off-the-shelf methodology… aimed at reducing exposure to climate-related risks, supporting transition of high impact sectors, and increasing exposure to climate solutions. This involved changing the benchmark of our passive equities portfolio to a combination of World and Emerging markets indexes"

- ***Quant portfolios & Active ETFs:*** *use of quantitative multi-factor strategies to both meet climate and return profiles*
- ***Transition:*** *selecting the most relevant metrics*

APAC Sovereign example metrics:

Transition Risks	*Green Opportunity*	*1.5 Alignment*	*Physical Risk*
Intensity reduction, exposure to high-impact sectors, scope 3, credible targets, improvement in transition scores	Green revenue exposure, green/ fossil fuel ratio, overweight solutions	Climate VAR, decarbonization %	Physical risk climate VAR

- ***Fixed income index:*** *innovations in fixed income indexes*

> **APAC Sovereign[42] —** "global bond market is evolving rapidly, and low-carbon or carbon-efficient bond indices are being developed. We opt to shift the corporate portion of our passive bond mandate to a Paris-Aligned Benchmark in the first quarter of 2024/25… including reducing emissions intensity, increasing holdings from companies actively investing in climate solutions… Will monitor options as more index solutions develop."

Source: Invesco Asia Pacific, APAC asset owner approaches to ESG and climate investing, Sep 2024, https://www.invesco.com/apac/en/institutional/insights/esg/apac-asset-owner-approaches-esg-climate-investing.html; Invesco Asia Pacific, Asset owner insights: Insurers' approaches to climate investing and asset allocation, Mar 2025, https://www.invesco.com/apac/en/institutional/insights/esg/asset-owner-insights-insurers-approaches-to-climate-investing-and-asset-allocation.html.

9.3 Stewardship Best Practices for Portfolio Decarbonisation

Sustained and prioritised engagement with high-emitting issuers, supported by structured escalation frameworks, has contributed to improved target-setting and governance standards. In some cases, it has enhanced risk-adjusted performance.

For AOs with portfolio-decarbonisation objectives, particularly in public equities and fixed income, stewardship is a critical lever alongside transition assessment frameworks and portfolio-construction tools.

Key practices include:

- **Prioritisation analysis**
  Most AOs identify priority issuers by analysing which holdings contribute most to portfolio emissions or transition risk. Concentration effects are common, with a small proportion of issuers driving the majority of portfolio emissions. This enables focused engagement strategies, clearer decarbonisation objectives, and setting issuer-level targets aligned with portfolio pathways.
- **Assessing and tracking issuer progress**
  Beyond monitoring actual emissions reduction and target ambition, AOs increasingly evaluate adopting and implementing frameworks like the NZIF 2.0[57] as a framework to monitor issuer-level transition plans. Tracking the credibility, governance, and execution of these plans provides forward-looking insights needed for stewardship escalation.
- **Applying cross-asset class stewardship**
  While we traditionally associate stewardship with listed equities, AOs increasingly extend these practices to fixed income. Evaluating issuers from various capital structures provides meaningful touchpoints to influence transition plans, capital allocation decisions, and KPI-linked outcomes.
- **Integrating escalation frameworks**
  Issuer prioritisation, assessment insights and transition indicators should feed into time-bound escalation approaches covering engagement objectives, voting, collaborative stewardship, and capital allocation decisions where warranted.

9.4 Asset Allocation and Partnerships in Financing the Transition

Asset allocations to support transition-finance instruments, enabling infrastructure (grids, storage, mobility) and emerging climate-solution platforms, provide diversified long-term return drivers and support real-economy decarbonisation.

Many global high-performing AOs have maintained strategic overweight positions in developed markets while incorporating climate considerations into fixed-income portfolios. This includes increased allocations to green- and sustainability-linked bonds.

- **Cross-portfolio integration:** These practices are reinforced when climate insights are embedded across asset classes rather than treated as siloed initiatives, strengthening both portfolio resilience and delivery of long-term climate objectives.

Key practices include:

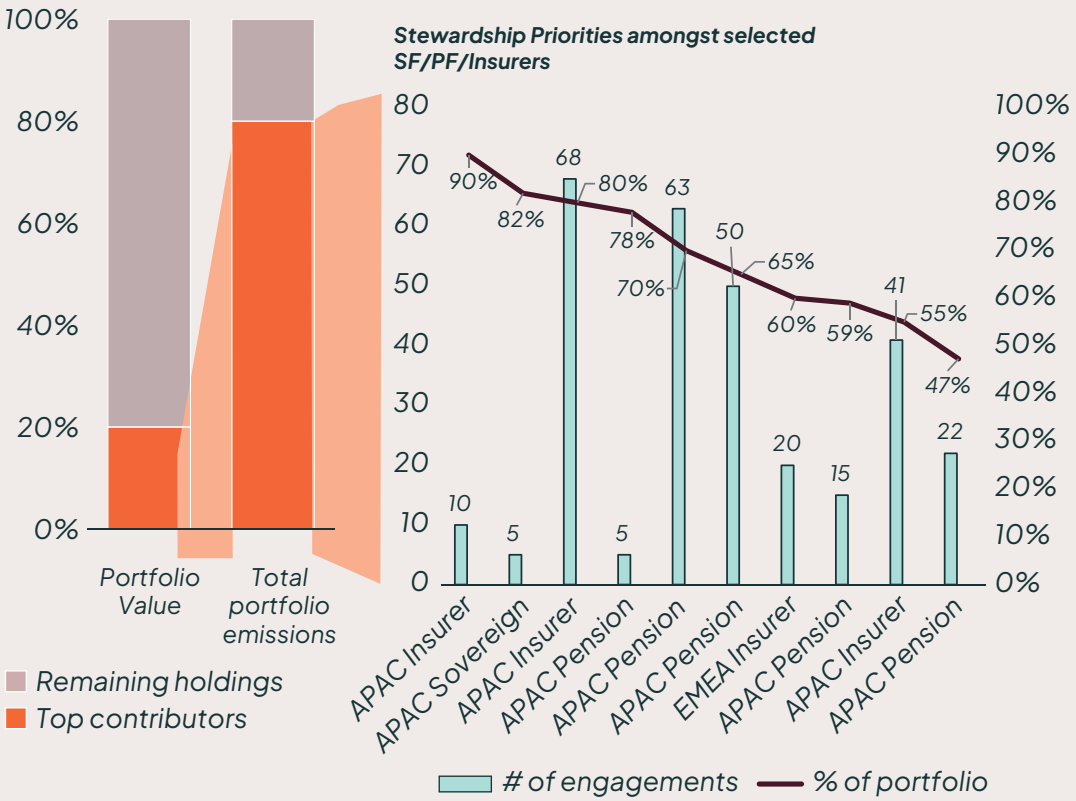
- **Thematic opportunity mapping** of key technologies, business models, and market sizing
- **Policy enablers**
- **Technological readiness**

Recent AO developments broaden climate and sustainability investments both thematically and regionally, with deepening collaborations for co-investment opportunities—especially for emerging markets. Various DFIs have publicly committed 2030 financing targets, including capital mobilisation goals and are looking to partner with AOs on opportunities and leverage blended finance for capital catalysation and enhancing returns. For AOs with such allocation targets, DFIs can consider broader AO investment, asset class and thematic priorities to identify potential collaboration opportunities. Co-investment, blended finance, or partnership structures that expand access to climate-solution pipelines, including in emerging markets, consider the following elements to achieve their objectives:

- **Asset class concentration** towards private markets relative to opportunities in broader asset classes. Further considerations on using blended finance and guarantees are also relevant
- **Risk and return considerations** in using blended finance or catalytic capital, relevance to the fund structure, investment time horizon and potential lockup periods
- **Broader collaborations and partnerships** for increasing capital mobilisation using DFI expertise, particularly in technical assistance, could provide interesting collaboration opportunities for AOs in connection with their investment or policy priorities.

Figure 22: Stewardship

In many asset owners portfolios, a significant proportion of total portfolio emissions are derived from a much smaller number of holdings–influencing prioritisation of top-emitting holdings for engagement.



Stewardship approaches

- ***Prioritization:*** *Concentration effect amongst top emitters in portfolio*

  APAC Sovereign[50] — "4 companies collectively contributed to ~82% of total portfolio emissions".

  EMEA Pension[41] — "4% of the companies in the total portfolio, corresponding to 10% of the managed capital, account for 70% of the carbon dioxide emissions (scope 1 and 2). These companies are prioritised in our active ownership".

- ***Assessing companies on initiatives*** *in addition to emissions and targets*

  ILLUSTRATIVE EXAMPLE

  EMEA Pension[41] — "Our goal is that by 2025, at least 50 percent of the companies with the highest emissions in our portfolio should conduct a credible transition work. For year 2030, the goal is 100 percent".

Not Aligned	Committed	Aligning	Aligned	Achieving
Companies not started transition	Long-term target	Disclosures, short/medium term targets, partial strategy	Emissions performance, decarbonization strategy, capital allocation alignment	Emissions on right trajectory; business model in line with decarbonization

- ***Cross asset class considerations***

  EMEA Pension[41] — "Stock and bond markets therefore complement each other well; shareholders can vote at the general meeting, while bondholders can place demands on companies when they provide financing".

Figure 23: Role of blended finance and partnerships

Thematic Mapping of Opportunities

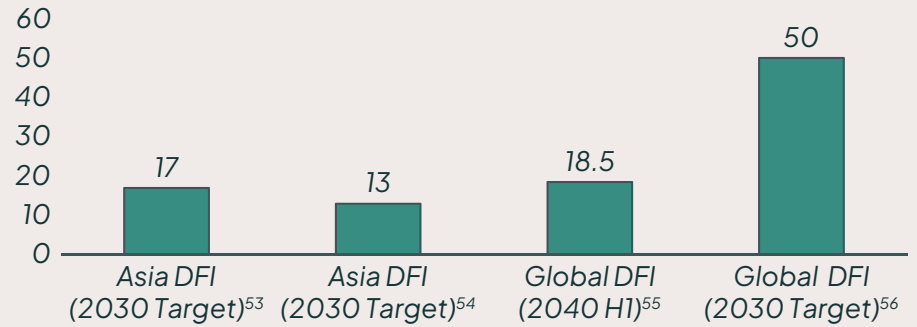
Market opportunity
Taxonomy/mapping of technologies/business models/opportunities
Market sizing and revenue pool & growth analysis[32]

Policy impact
Regulatory costs, policy support and subsidies

Tech Readiness
Maturity and cost curve analysis, decarbonization potential

Role of Blended Finance and Partnerships

Climate financing targets/invested by leading global and APAC DFIs
(USD B)



Asia Central Bank —
partnership with 3 DFIs to invest and catalyze financing in renewable energy infrastructure, energy solutions, sustainable transportation.[51]

Asia Central Bank —
blended finance initiative pledging $500M USD as concession capital to mobilize up to $5B USD focusing on green & transition investments, renewable/grid infrastructure, industrial transformation.[52]

Asia Pension —
partnership with EMEA pension to invest in infrastructure such as sustainable energy, fibre networks, transport, other infrastructure projects[30]

9.5 Other Considerations for Investment Analysis and Delivery

Effective delivery depends on connecting strategy design to day-to-day investment execution. Other considerations include:

- Climate incorporation
  - Internal carbon pricing for investment analysis; relatedly, it is more important to understand financially material emissions than emissions solely on their own basis
  - Analysis of cost curves on technologies and market sizing/total addressable market (TAM) for new technologies to better assess maturity, economics, and decarbonisation potential
  - Analysing top-down and bottom-up scenarios; top-down focuses on understanding implications and sensitivities under different investment theses and scenarios, complemented by bottom-up risk assessment in individual sectors and regions (e.g. carbon price impacts on individual holdings margins)
  - Incorporating Scope 3 into portfolio analysis, beginning with sectors with extended supply chains, prioritising financially material Scope 3 emissions
- Financial linkages of risks and opportunities
  - Understanding financial drivers of climate risks, including policy tailwinds/headwinds on markets, technological change, and impact on supply and demand changes and cost structures
  - Understanding performance impacts of investment decisions like over/underweights and exclusions (including risk vs conduct vs product-based exclusions)
- Transition assessment
  - Developing in-house transition frameworks and identifying forward-looking metrics, including capital allocation alignment, interim targets and green revenues; proprietary climate alignment scores internally
  - Developing expectation scores by assessing if companies disclose against a predefined AO checklist, such as climate risk management policies, biodiversity impact assessment, and water-related targets
- Stewardship:
  - Defining engagement types, such as a) understanding a company's plan, b) conveying risk assessments, c) relationship building with the Board, d) understanding and evaluating impacts of the company's initiatives
  - Developing a climate focus list of high emitters and significant shareholdings in the portfolio; evaluating the share of emissions that top emitters contribute, and their corresponding portfolio weights
  - Providing expectation documents for issuers through position papers on expectations for portfolio companies, such as detailing financially material risks and areas for companies to consider. This can be organised by sustainability topic, such as climate, water, nature, and supply chains
  - Surveying for issuers to understand stewardship activities of external asset managers, including focus and approach topics, stewardship quality and whether stewardship is of value-add to issuers
  - Conducting a transition assessment on whether companies have credible transition plans and targets feeds into voting decisions
- Asset allocation and asset class prioritisation
  - In allocating a risk budget to each opportunity bucket, incorporate climate factors in the analysis that feed into an "information ratio", risk budget allocation and up-weighting and down-weighting decisions. Up-weightage opportunities can translate into increased capital investment in climate solutions and transition financing
  - The role of the index is to spread risks more widely and lower costs while concurrently allowing for the customisation of relevant climate considerations in index construction
  - The fixed income is larger than the stock market. It reaches broader stakeholders like states and unlisted companies with a greater impact on companies' cost of capital. Green bonds and sustainability-linked bonds in particular tend to provide risk compression benefits and improved credit quality
- Climate solutions and financing transition
  - An internal taxonomy to evaluate the portfolio percentage that aligns with green or sustainability themes, in turn, allowing AOs to set and monitor AUM allocation targets
  - Thematically analysing trends across sectors and mapping markets of technologies/business models/economics

These linkages help AOs translate climate strategy into actionable investment decisions, assess progress and adapt to evolving market, policy, and climate risk conditions.

10. Looking Ahead

As we draw nearer to a critical juncture in climate action, climate investments will increasingly play a key role for AOs in the lead-up to 2030. Recent evidence from leading global and Asian AOs shows that strong long-term performance, substantial emissions reductions, and increased allocation to climate solutions can be achieved in parallel. Several AOs already deliver outcomes broadly consistent with the **5/50/10 framing**. They show that credible climate strategies can strengthen portfolio resilience and position portfolios ahead of evolving policy and market conditions. This momentum underscores the opportunity for Asian AOs to continue advancing by using tools and approaches to formulate a broader strategy most relevant to their markets.

References

1. Invesco Asia Pacific Analysis of Global Asset Owners.
2. AIGCC. State of Investor Climate Transition in Asia. 2025. https://www.aigcc.net/wp-content/uploads/2025/04/AIGCC-Climate-Transition-Report_April2025.pdf
3. AIGCC 2024 Analysis of Asset Owners.
4. Global SWF. GSR 2025 Report. Mar 2025. https://globalswf.com/reports/2025gsr
5. GPIF. Sustainability Investment Policy. https://www.gpif.go.jp/en/investment/26487392gpif/sustainablity_investment_policy_en.pdf
6. GPIF. ESG Report. Sep 2024. https://www.gpif.go.jp/en/investment/esg/gpif_publishes_the_2024_esg_report.html
7. NBIM. Responsible Investment 2024 Report. Feb 2025. https://www.nbim.no/en/news-and-insights/reports/2024/responsible-investment-2024/
8. GPIF. Evaluation Project on the Effects of Engagement. May 2024. https://www.gpif.go.jp/en/investment/esg_stw_project/project_report-1.html
9. Temasek. Temasek Review 2025. 2025. https://www.temasekreview.com.sg/downloads/Temasek-Review-2025-full-version.pdf
10. Brunel Pension Partnership. Responsible Investment and Stewardship Outcomes Report. 2024. https://www.brunelpensionpartnership.org/wp-content/uploads/2024/05/2024-Responsible-Investment-and-Stewardship-Outcomes-Report.pdf
11. TPP. Press Release. n. d. https://peoplespartnership.co.uk/media-centre/press-releases/the-peoples-pension-appoints-amundi-and-invesco-to-manage-28-billion-in-assets/
12. Brunel. Responsible Investment Report. May 2024. https://www.brunelpensionpartnership.org/wp-content/uploads/2024/05/2024-Responsible-Investment-and-Stewardship-Outcomes-Report.pdf
13. Nippon Life. Transition Finance Framework. Jun 2024. https://www.nissay.co.jp/global/pdf/20240611.pdf
14. Ilmarinen. Ilmarinen Adopts New Climate Benchmarks. Feb 2023. https://www.ilmarinen.fi/en/current-topics/news-and-articles/2023/ilmastoindeksi-kayttoon/
15. Singlife. Singlife Invest in Climate Action ETF. Sep 2023.
16. SingLife Benchmarked Against Low Carbon Indexes.
17. Varma. Varma Makes Record-Breaking Investment in a Climate Fund in the US Market. Dec 2024. https://www.varma.fi/en/this-is-varma/current-issues/news-and-articles/news/2024-q4/varma-makes-record-breaking-investment-in-a-climate-fund-in-the-us-market/
18. Asia Asset Management. Taiwan's BLF Opens Tender for US$1.6 Billion Climate Equity Fund. Feb 2025. https://www.asiaasset.com/post/29336-blf-0220
19. Invesco Asia Pacific. Asset Owners Insights: Climate Index and ETFs. Jun 2025. https://www.invesco.com/apac/en/institutional/insights/esg/asset-owner-insights-climate-indexes-and-etfs.html
20. CALPERS. Sustainable Investments Annual Program Review. Nov 2024. https://www.calpers.ca.gov/documents/202411-invest-agenda-item05d-01-a/download?inline
21. PGGM. Annual Reports. https://www.pggm.nl/en/about-us/annual-reports/
22. CEFC. Annual Report. https://www.cefc.com.au/annual-report-2023/
23. Mercer. Large Asset Owners Double Down on Private Markets as They Navigate Heightened Economic and Geopolitical Risks, According to Mercer. Apr 2025. https://www.mercer.com/about/newsroom/large-asset-owners-double-down-on-private-markets-as-they-navigate-heightened-economic-and-geopolitical-risks/
24. CPP. SI Report 2023. Dec 2023. https://www.cppinvestments.com/wp-content/uploads/2023/12/SI-Report-2023-EN.pdf
25. BCI. Annual Report 2022. https://www.bci.ca/wp-content/uploads/2018/01/2022-esg-annual-report.pdf
26. Manulife. Sustainability Report 2024. https://www.manulife.com/content/dam/corporate/global/en/documents/pas/2024/MFC_SR_2024_EN.pdf
27. INA. Annual Reports. https://www.ina.go.id/annual-report
28. GIC. Integrating Climate Adaptation into Physical Risk Models. 2024. https://www.gic.com.sg/thinkspace/sustainability/integrating-climate-adaptation-into-physical-risk-models/
29. CEFC. Infrastructure Net Zero — A Solid Foundation. 2025. https://www.cefc.com.au/media/zq1luihu/inz-a-solid-foundation-report.pdf
30. APG. Joint Investment Program (APG & GPIF). 2024. https://apg.nl/en/publication/apg-and-gpif-to-partner-on-joint-investment-program/
31. Prudential. Financing the Transition Framework. 2024. https://www.prudentialplc.com/en/news-and-insights/insights/financing-the-transition
32. GIC. Sustainability Report 2024/25. https://report.gic.com.sg/sustainability.html
33. Temasek. Sustainability Report 2025. https://www.temasek.com.sg/content/dam/temasek-corporate/sustainability/2025/Temasek-Sustainability-Report-2025.pdf
34. CIIP. Accessed Jun 2025. https://ciip.com.sg/about-us
35. Temasek. Our Community Approach. Accessed Jun 2025. https://www.temasek.com.sg/en/our-community/our-approach

36. Khazanah Nasional, Dana Impak. Accessed Jun 2025. https://www.khazanah.com.my/our-investments/dana-impak/
37. Rest. What is impact investing? Accessed Jun 2025. https://rest.com.au/investments/understanding-investments/what-is-impact-investing
38. FT. Hong Kong Insurer AIA Invests $200M into Impact Funds. Jun 2023. https://leapfroginvest.com/wp-content/uploads/2023/06/LeapFrogInvestments_FT_Jun2023.pdf
39. Sustainable Development Goals. Accessed Jan 2026. https://sdgs.un.org/goals
40. ADB. Climate Finance Landscape in Asia Pacific. Aug 2023. https://www.adb.org/sites/default/files/publication/901611/climate-finance-landscape-asia-pacific.pdf
41. AP7. Annual Sustainability Report. Mar 2024. https://www.ap7.se/app/uploads/2024/03/ap7-annual-and-sustainability-report-2023.pdf
42. NZ Super. Climate Report 2024. https://nzsuperfund.nz/public/assets/Publications/Annual-Reports/NZ-Super-Fund-Climate-Change-Report-2024.pdf
43. Chan, A. Invesco: APAC Asset Owner Approaches to ESG and Climate Investing. Sep 2024. https://www.invesco.com/apac/en/institutional/insights/esg/apac-asset-owner-approaches-esg-climate-investing.html
44. Invesco Asia Pacific. Asset Owner Insights: Insurers' Approaches to Climate Investing and Asset Allocation. Mar 2025. https://www.invesco.com/apac/en/institutional/insights/esg/asset-owner-insights-insurers-approaches-to-climate-investing-and-asset-allocation.html
45. Invesco Asia Pacific. APAC Asset Owner Approaches to ESG and Climate Investing. Sep 2024. https://www.invesco.com/apac/en/institutional/insights/esg/apac-asset-owner-approaches-esg-climate-investing.html
46. NBIM. Responsible Investment Government Pension Fund Global 2024. 2025. https://www.nbim.no/contentassets/ad990bb856b94063aa2165c3715a7a85/gpfg-responsible-investment-2024.pdf
47. GPIF. Evaluation Project on Effects of Engagement. May 2024. https://www.gpif.go.jp/en/investment/20240521_engagement_report_en.pdf
48. SVB. Climate Tech Report 2025. Apr 2025. https://www.svb.com/globalassets/trendsandinsights/reports/future-of-climate/2025/svb-climate-tech-report-2025.pdf
49. New Private Markets. Case for Concentrating Portfolio Allocation to Energy Transition Infrastructure. Jan 2025. https://www.newprivatemarkets.com/the-case-for-concentrating-portfolio-allocation-to-energy-transition-infrastructure/
50. Temasek. Engaging our Portfolio Companies. https://www.temasek.com.sg/en/sustainability/sustainability-in-our-investments/engaging-our-portfolio-companies#engaging-on-climate
51. HKMA. Strategic Partnership for Climate Investment. Nov 2024. https://www.hkma.gov.hk/eng/news-and-media/press-releases/2024/11/20241111-3/
52. MAS. Achieving Scale and Impact in Transition Finance. Nov 2024. https://www.mas.gov.sg/news/speeches/2024/achieving-scale-and-impact-in-transition-finance
53. Development Aid. AIIB Double Financing Target. Jun 2025. https://www.developmentaid.org/news-stream/post/197070/aiib-updated-strategy-17-billion-2030-climate-financing-infrastructure
54. ADB. ADB Climate Finance Targets by 2030. Sep 2024. https://www.esgtoday.com/adb-targets-100-billion-in-climate-finance-by-2030/
55. IFC. Work With FI on Climate Investments. Jun 2024. https://www.ifc.org/en/what-we-do/sector-expertise/financial-institutions/climate-finance
56. GCF. Meet Challenge in Climate Finance Goal. Nov 2024. https://www.greenclimate.fund/news/green-climate-fund-will-be-ready-meet-challenge-central-role-new-climate-finance-goal-says#:~:text=%E2%80%9COver%20a%20year%20ago%2C%20GCF,least%20%2450%20billion%20by%202030
57. Net Zero Investment Framework (NZIF 2.0). 2024. https://www.parisalignedassetowners.org/media/2024/06/PAII_NZIF-2.0_240624.pdf

AIGCC
ASIA INVESTOR GROUP
ON CLIMATE CHANGE

www.aigcc.net

linkedin.com/company/asia-investor-group-on-climate-change/

info@aigcc.net

Copyright and Disclaimer