

The Asset Owner 100

The most influential capital on the planet | Thinking Ahead Institute | November 2023



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Institute

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The Thinking Ahead Institute

The Thinking Ahead Institute (TAI) is a not-for-profit research and innovation network motivated to influence the investment industry for the good of savers worldwide and to mobilise capital for a sustainable future. Since its establishment in 2015, almost 90 investment organisations have collaborated to bring this vision to light through designing fit-for-purpose investment strategies, working towards better organisational effectiveness and strengthening stakeholder legitimacy.

The Thinking Ahead Group research team



Marisa
Hall



Tim
Hodgson



Roger
Urwin



Jessica
Gao



Andrea
Caloisi



Isabella
Martin



Anastassia
Johnson



Tianyi
Lan

The Asset Owner 100

A Thinking Ahead Institute study which provides key insights and trends on the top 100 asset owners in the world

An asset owner has five qualifying characteristics:

- Works directly for a defined group of beneficiaries/savers/investors as the manager of their assets in a fiduciary capacity under delegated responsibility
- Works with a sponsoring entity (government, government affiliate, company or not-for-profit)
- Works within explicit law and possesses an implicit societal license to operate because of its societal trust and legitimacy
- Delivers mission-specific outcomes to beneficiaries and stakeholders in the form of various payments or benefits into the future
- Employs a business model that combines a governance budget (resources and processes) and a risk budget (reflecting the mix of financial assets that delivers on the mission)

Executive summary



Overview and key findings



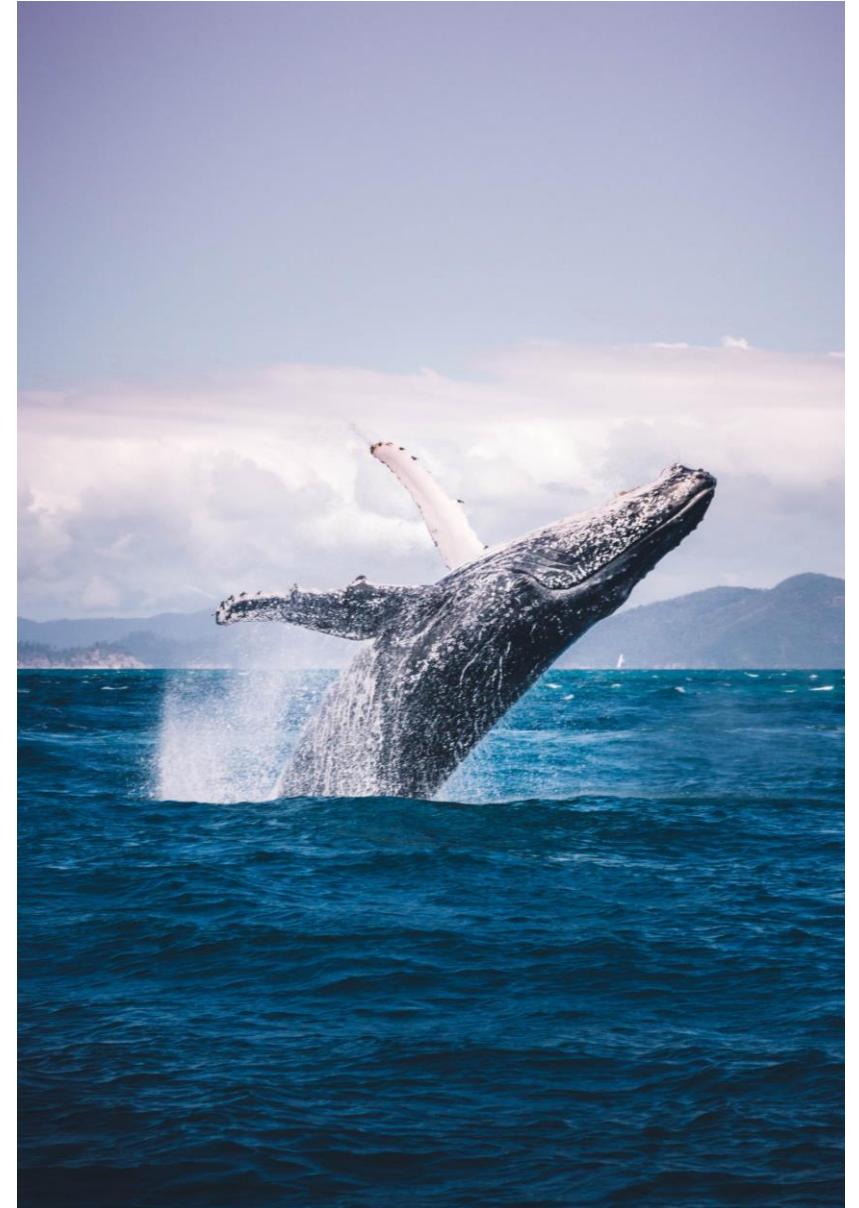
Figures to end 2022, unless otherwise stated.
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Key figures

- Assets under management (AUM) of the top 100 asset owners totaled US\$ 23.4 trillion at end-2022; experiencing a decline of 8.7% compared to the previous year.
- The top 20 assets owners made up 55.2% of total AUM in ranking in 2022 with US\$12.9 trillion
- The top 5 asset owners accounted for 24.4% of total AUM in our study with US\$5.7 trillion
- The top 3 remain unchanged, with the Government Pension Investment Fund (GPIF) of Japan retaining its position as the world's largest asset owner (AUM of US\$1.4 trillion). Norges Bank Investment Management of Norway comes in second (AUM of US\$1.3 trillion) and China Investment Corporation takes the third position (AUM of US\$1.1 trillion)

Key figures

- North America accounts for 33.9% of total AUM in the ranking, making it the largest region in this study, closely followed by Asia-Pacific with 33.7% of total AUM.
- The region of EMEA represent 32.4% of total AUM in the ranking
- Pension funds manage 52.8%, Sovereign wealth funds handle 38.9%, and outsourced CIOs and master trusts are responsible for 8.3% of total AUM in the AO100
- Pension funds continue to dominate in North America and Asia-Pacific and this year SWF dominate in EMEA.



Asset Owner 100

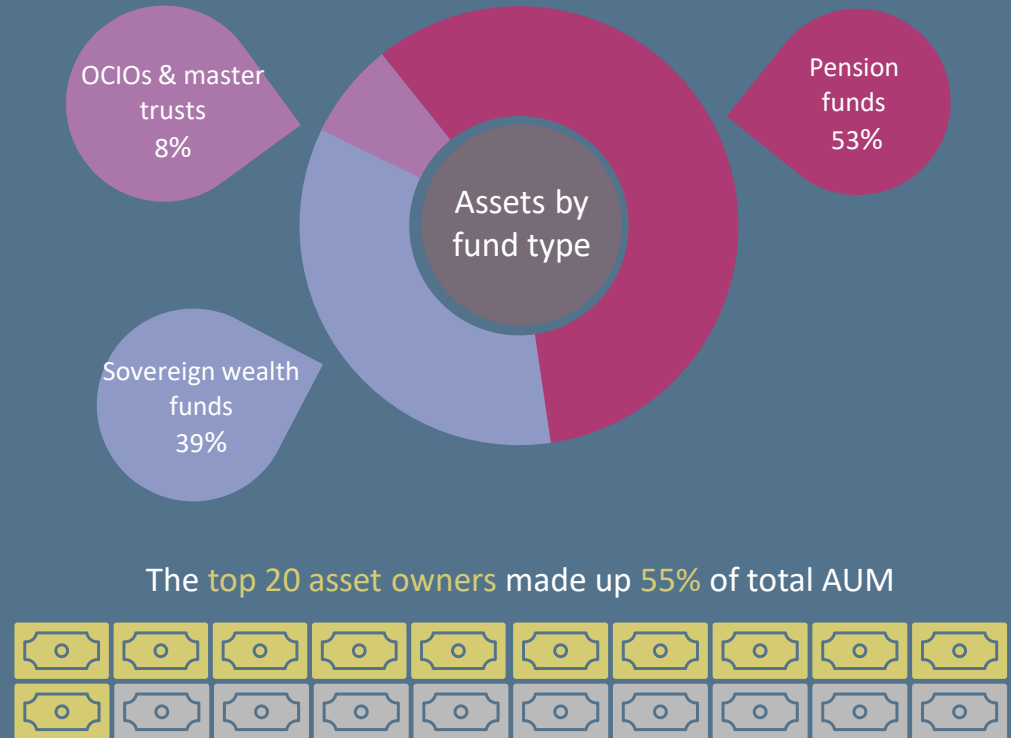
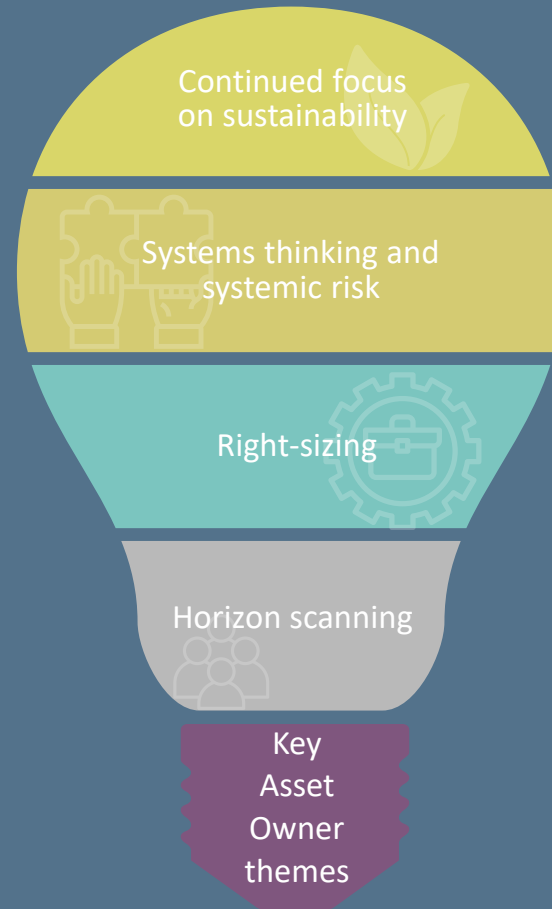
The most influential capital on the planet | November 2023

Embracing systems thinking

AUM of the top 100 asset owners totaled US\$23.4 trillion at end-2022

Leading asset owners strive to balance regulatory compliance and achieve positive sustainability impacts, while maintaining fiduciary integrity

The rise in systemic risk puts emphasis on the need for forward thinking and re-positioning strategy



This small group of investors are right on the front line of the investment community's fight to become net zero

Data to end 2022 and figures may not sum due to rounding
Source: The Thinking Ahead Institute

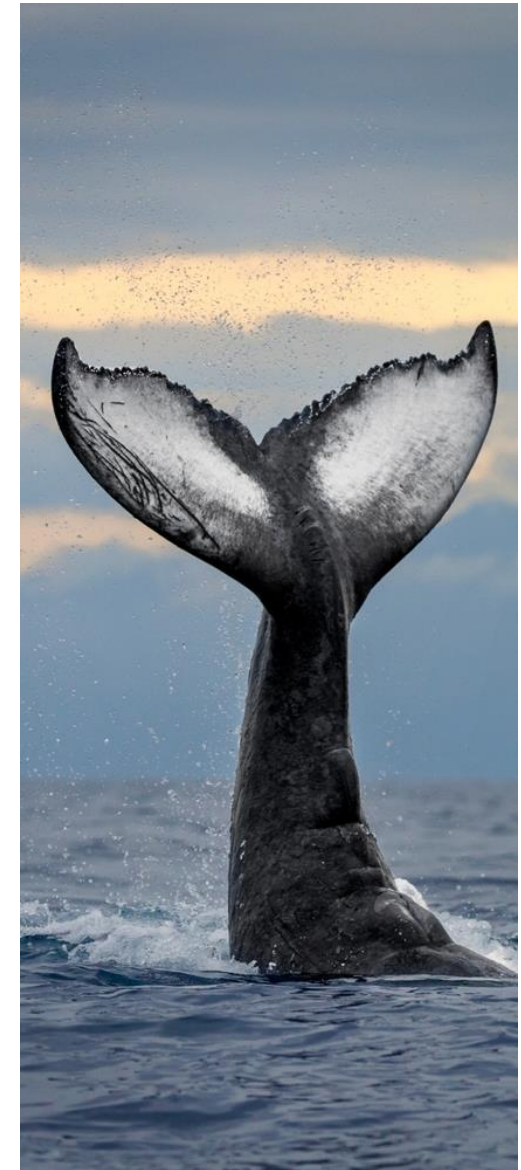
Key industry-wide observations (1)

Macro uncertainty:

Volatility and uncertainty in the global economy have been at their highest in a generation. The disruption caused by elevated inflation and increased interest rates has affected equity and bond markets on a global scale, putting extra pressure on asset owners to reassess and adjust their strategies. The shift from an era of low inflation and interest rates has given a rise to a new macroeconomic landscape that demands a fresh understanding and management approach.

Sustainability:

Climate has dominated the sustainable investing field ever since the first net-zero commitments were made in 2020. Since then, the industry has had to navigate through this new challenge at a pressured time scale and to learn a lot along the way. There is not yet an accepted playbook for net zero investing, the shift towards decarbonisation targets demands a significant transition from investment organisations, while still maintaining their asset allocation approach and fiduciary integrity. Climate and other ESG investing issues have stayed top of mind for investors, with increasing levels of regulation requiring significant attention and the challenges of politicisation growing as well.



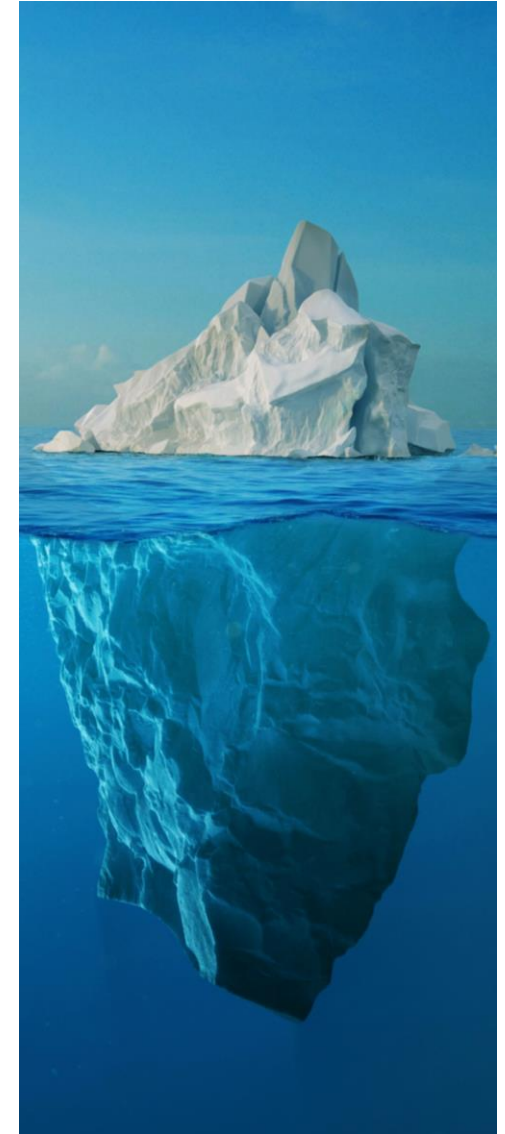
Key industry-wide observations (2)

Strategic Asset Allocation (SAA) and Total Portfolio Approach (TPA):

The majority of the AO100 funds continue to set asset allocation through policy portfolios in a methodology referred to as Strategic Asset Allocation (SAA). There is an alternative methodology that has growing support among leading funds referred to Total Portfolio Approach (TPA) in which goals are the central driving force and best ideas are incorporated through a competition for capital at the total portfolio level. The support for this approach stems from the opportunity to set allocations more dynamically and make greater allowance for sustainability considerations.

Technology:

There is a growing recognition of the significance of artificial intelligence (AI) and data-driven strategies among asset owners (see next slide for more detail). Investment organisations are enhancing their capabilities by leveraging both artificial intelligence (AI) and human intelligence (HI) to create inventive financial solutions, provide more precise reporting, facilitate greater organizational flexibility, and enhance the efficient sharing of knowledge. Embracing AI can introduce both challenges and opportunities for AOs as they seek better access to and application of decision-useful data in an investment ecosystem with increasingly influential technologies.



Emerging influence of technology and AI

Quotes from the top 20 funds

Among 9 of the top 20 asset owners, as ranked, there is a growing recognition of the significance of artificial intelligence (AI) and data-driven strategies in investment and decision-making processes.

11 owners mentioned widening Investment in Technology and supporting innovative initiatives.

2 owners mentioned supporting climate action using AI.

AI's Impact on Business Efficiency

“Our data strategy and investment insights groups work with our investment teams to leverage data and analytics, including those based on machine learning and artificial intelligence, to enhance our investment decisions and processes.”

GIC Private Limited

“Our goal is to harness the synergy of AI capability and human maturity—the dynamic duo—to elevate customer service excellence. Augmented AI-powered automation is set to propel the CPF Board into becoming a more trusted and respected social security organization, committed to enabling Singaporeans.”

Central Provident Fund

Data and AI Governance

“[Data and AI governance] use is an opportunity for companies and society, however, it has focused on its use being correct and “responsible” to avoid operational, reputational and regulatory risks that affect human rights such as privacy, security or personal freedom and do not increase the level of disinformation, deception and manipulation on a large scale”

Norges Bank Investment Management

Key asset owner challenges

Culture and governance:

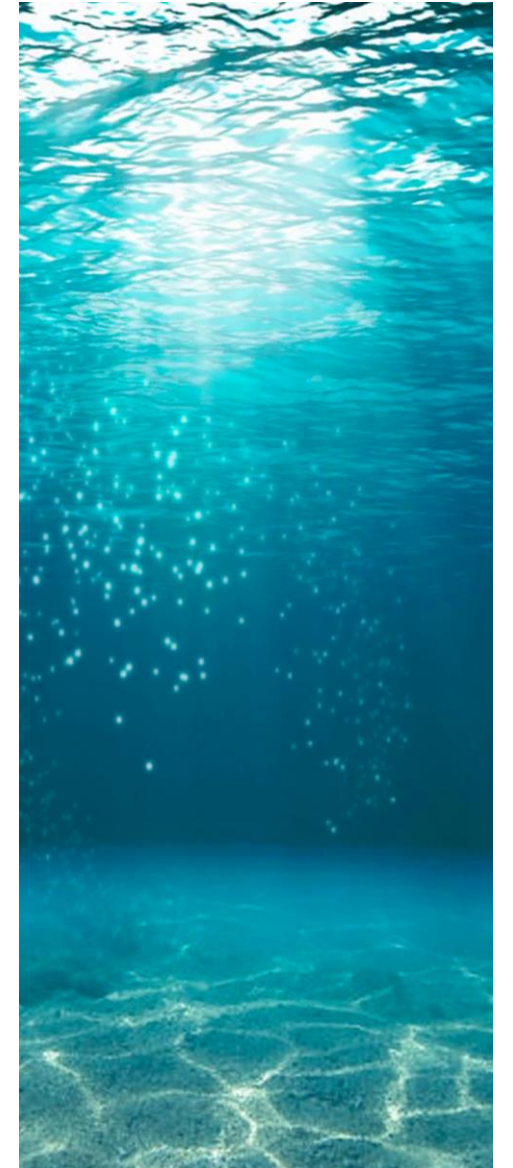
Operating in this new era of volatile, uncertain, complex and ambiguous conditions requires strong governance to maintain long-term stability and to ensure robust risk management practices and informed decision-making. A well-established governance structure helps define investment policies, align strategies with long-term objectives, and navigate complex financial landscapes. A positive culture ensures the organisation's values are exhibited in thinking, practices and behaviours. The AO100 have demonstrated growing awareness of the organisational alpha in culture and governance.

Being joined-up:

Being joined-up is the characteristic of being aligned towards one set of goals through coordination and coherence of thought; which in the investment industry means getting the fullest benefits from combinations across people, teams, organisations and ideas. The value added potential in collaboration is considerable but various organisational impediments tend to block the benefits from emerging, notably the tendency for siloes to develop.

Geopolitical risk:

Significant changes in geopolitical stability and a consequent decrease in globalisation have introduced new layers of risk and uncertainty for investors. The AO100 are increasingly concerned that geopolitical risk poses a threat to their future, or at the very least that returns may be lower than previously



New asset owner thinking

Horizon scanning:

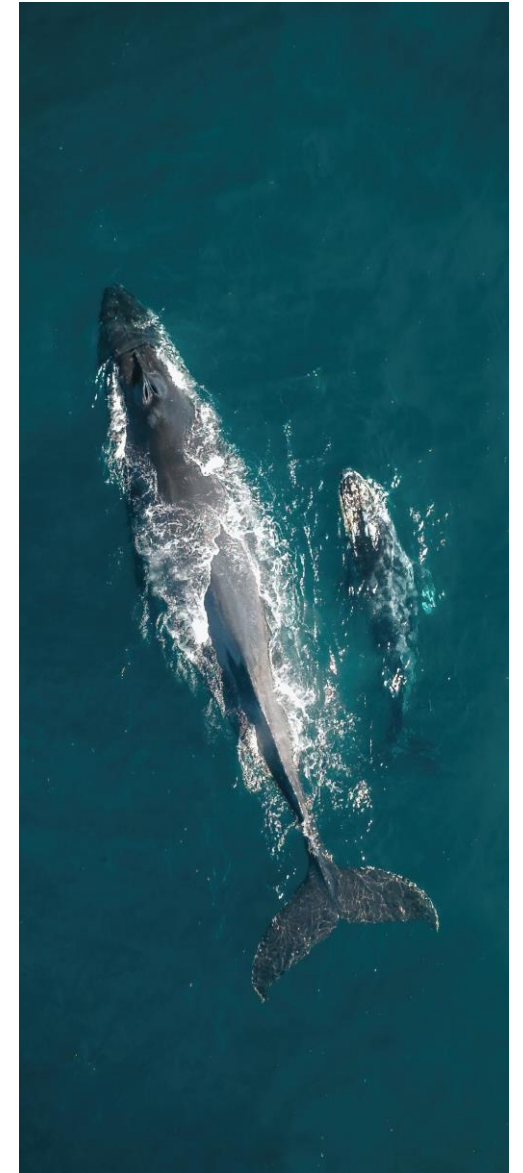
Horizon scanning is developing a strategic vision of the industry landscape over the next 5 or 10 years. The current 'all change' dynamic environment and additional sources and layers of risk make it particularly important for organisations to adopt a forward-thinking approach. Comprehensive horizon scanning can help investors assess and anticipate trends, identify opportunities and mitigate risks.

Right-sizing:

Rightsizing is a process of pinpointing the optimal level of ambition and commitment to sustainability in the specific context of each organisation. This requires a delicate juggling act as investment organisations strive to balance regulatory compliance, enabling positive sustainability impacts and navigating through the challenge of net-zero commitments, while also maintaining fiduciary integrity.

Systems thinking and systemic risk:

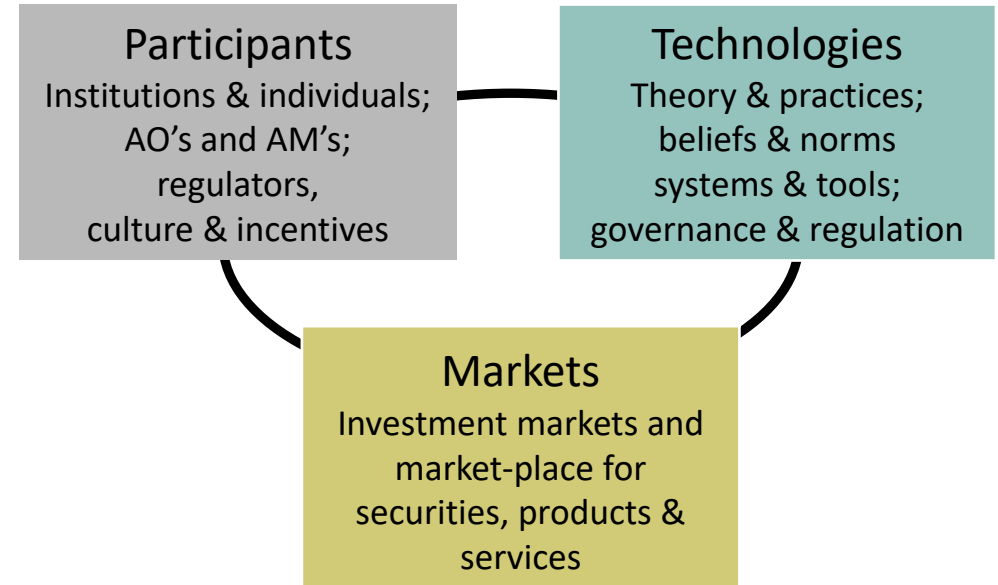
The rise in systemic risk puts emphasis on the need for forward thinking and re-positioning strategy with investment processes that are able to model, measure and adapt to systemic risk. The next step is for some funds to adopt a systems theory chain of thinking starting with investment policies that work directly on the sustainability of the system and its impacts on real-world outcomes, which can then link favourably through to longer term investment outcomes.



Focus section:
Systems thinking and systemic risk >

Systems thinking

- **Systems thinking.** The key aspects of systems thinking emphasise the whole over the parts, the collective over the individual:
 - Flux and flow are everywhere. *The state is dynamically changing and doesn't get to an equilibrium*
 - Everything connects, but nothing adds up. *The whole is more than the parts*
 - Data is messy. *The data is mostly soft*
 - Collaboration is crucial. *Stronger and smarter together*
 - Behaviours matter. *Variance in organisational and personal motivations and values*
 - Associations not causations. *With complex feedbacks, there are no simple causations*
- This thinking recognises the power of team connections, and supports making sure the conditions for better connections exist and behaviours deliver better connections
- The investment ecosystem is the interplay of participants, technologies and markets



The emergence of systemic risk

“Systemic risk refers to the risk of a breakdown of an entire system rather than simply the failure of individual parts. In a financial context, it denotes the risk of a cascading failure in the financial sector, caused by linkages within the financial system, resulting in a severe economic downturn” CFA Institute

- uncertain (limited data and as a result contested)
- pervasive (undiversifiable and unhedgeable)
- inter-connected (complex loops that can domino)
- non-linear (growing, potentially spiky, even runaway)
- endogenous (can be addressed and mitigated)



- Systemic risk historically has been about financial interdependency risks and geopolitical risks
- Systemic risk downside historically has been smallish but subject to bursts and spikes

- Systemic risks in the future are increasingly from climate, environmental and social sources
- Future systemic risk is likely to be orders of magnitude bigger than prior versions

Strategies for dealing with systemic risk

- 1 The regime shift.** Given the current shift in the macro regime, we need to reduce any backward-looking emphasis in strategy processes and concentrate focus on forward thinking. And factor in uncertainty and increasing inter-connectedness
- 2 Risk 2.0. System thinking.** If investing is better modelled as a system than a machine, then we need to work with new models, new understanding of reality that will go with them and new methods
- 3 Systemic risk and systemic-resilience.** Systemic risk is a product of a VUCA* world. Systemically-resilient models are big factors in successfully re-positioning strategy both in allocation and stewardship
- 4 TPA helps.** TPA (total portfolio approach) investment processes are best-placed to adapt to systemic risk and integrate resilience factors alongside models, and scenarios
- 5 Change required. New leadership.** Asset owners must adapt their approaches both in process and communications to incorporate these challenges. Critical new qualities are required in leadership to carry this out.

* VUCA - volatile, uncertain, complex, ambiguous

Systems leadership



'Systems leadership' is a set of skills and capacities that any individual or organization can use to catalyze, enable and support the process of systems-level change. It combines collaborative leadership, coalition-building and systems insight to mobilize innovation and action across a large, decentralized network (World Economic Forum definition)



There are three core capabilities that system leaders develop in order to foster collective leadership. The first is the ability to see the larger system. The second involves fostering reflection and more generative (=productive) conversations. The third centers on shifting the collective focus from reactive problem solving in the short-term to cocreating the future in the long-term



In the investment context, this concept chimes by applying systems thinking to the investment organisation as a complex living organism with its teams as its fundamental building blocks. Its application is critical to address the increasingly complex problems that asset owners face – like sustainability and climate change – that require collective action



System leaders catalyse their team colleagues to think more deeply about what is really happening, explore options beyond popular thinking, and search for higher leverage changes through progressive cycles of action and reflection and learning

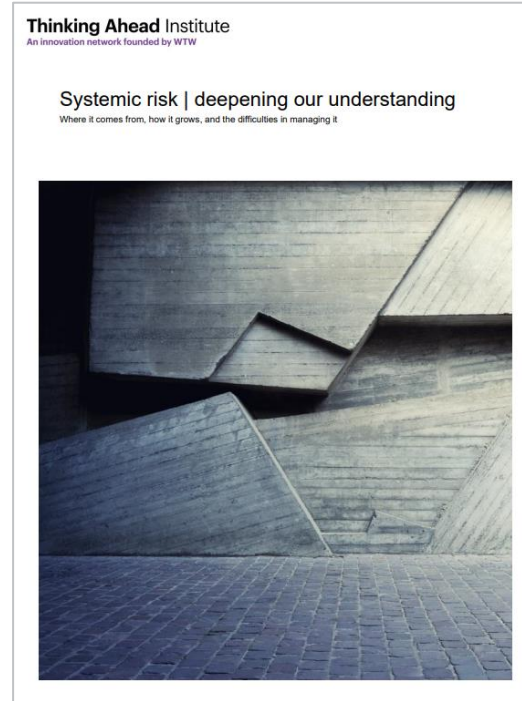
Thinking Ahead Institute's published research on systemic risk

Forthcoming



Systemic risk | adapting our practices

Why systemic risk should be our priority, and how we can retool our risk models and reshape our portfolio construction to deal with it



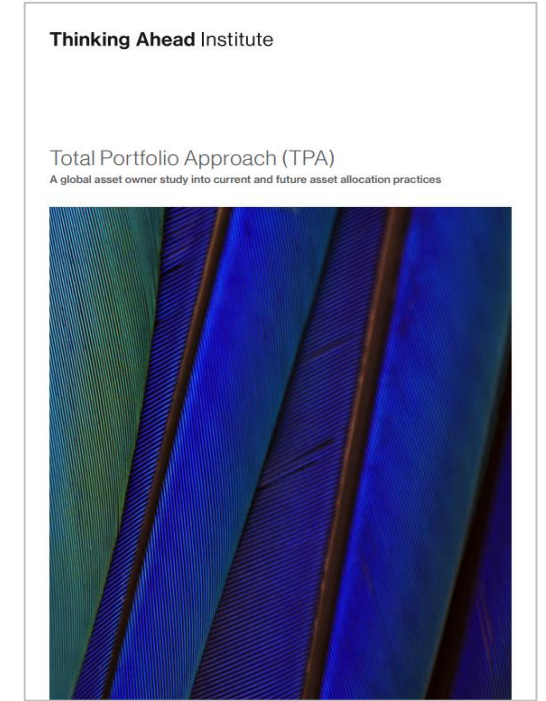
Systemic risk | deepening our understanding

Where it comes from, how it grows, and the difficulties in managing it



It's about time

Total portfolio thinking and practice



Total Portfolio Approach (TPA)

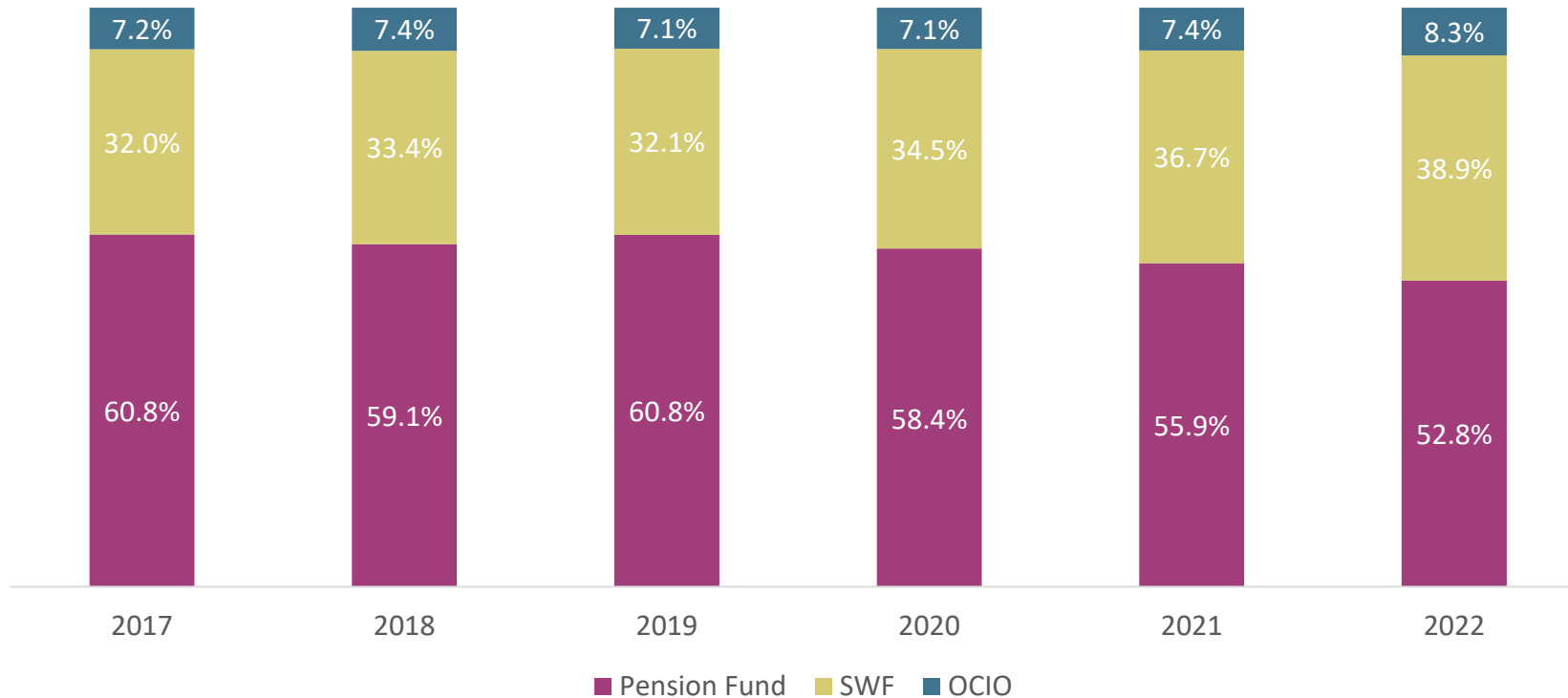
A global asset owner study into current and future asset allocation practices

Section 1 | Total value of assets



Evolution by fund type

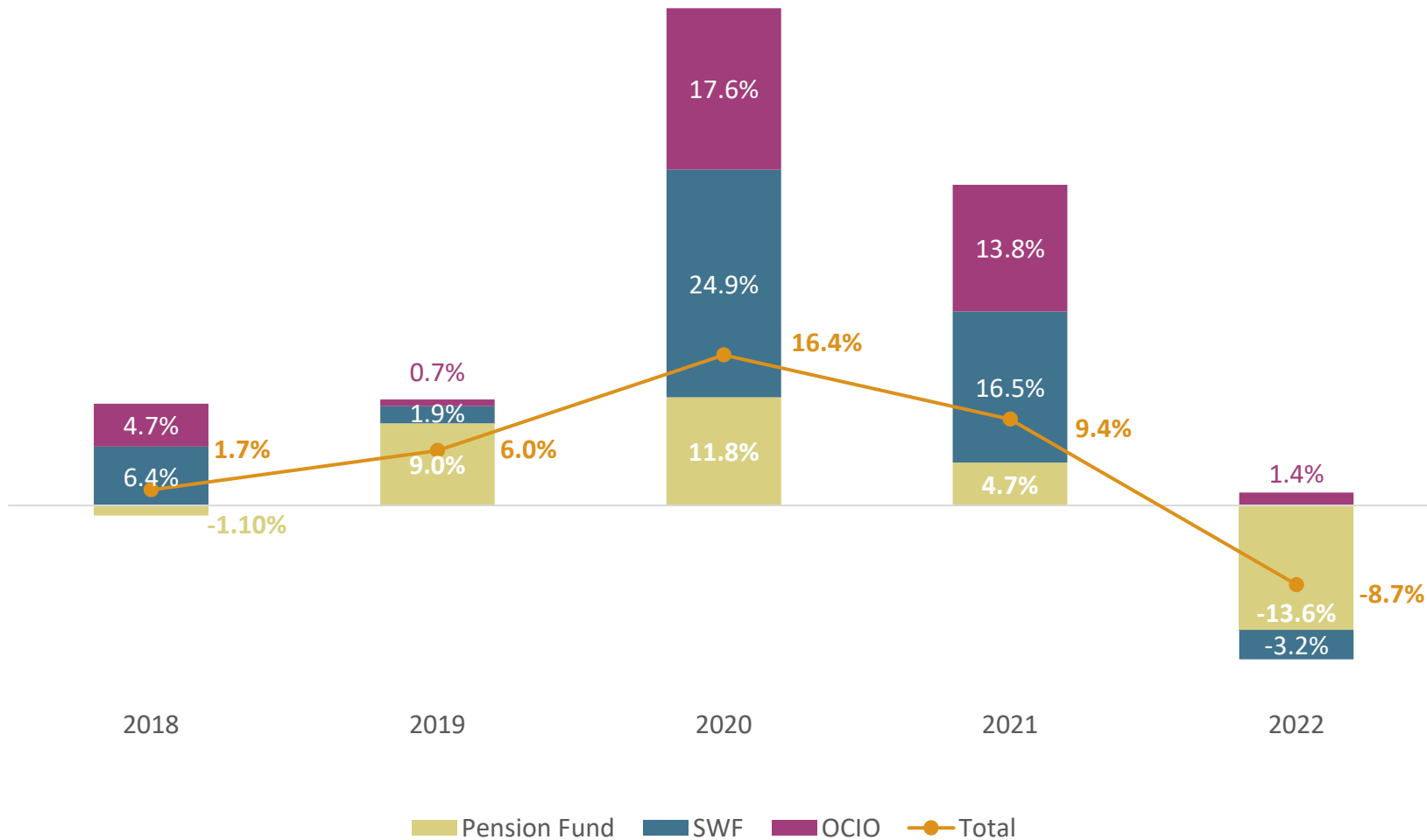
Distribution of total AUM



Pension funds dominate the AO100 and manage 52.8% of total AUM (US\$ 12.4 trillion).

Sovereign Wealth Funds follow with 38.9% of total AUM (US\$ 9.1 trillion).

Annual growth by fund type



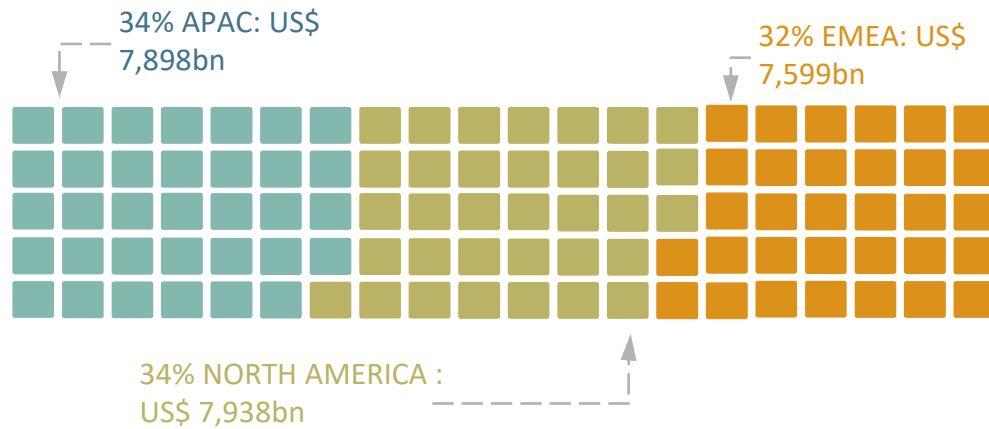
AUM suffered a hit in 2022, both Pension Funds and SWF experienced negative growth

OCIO experienced growth, 1.4% YoY.

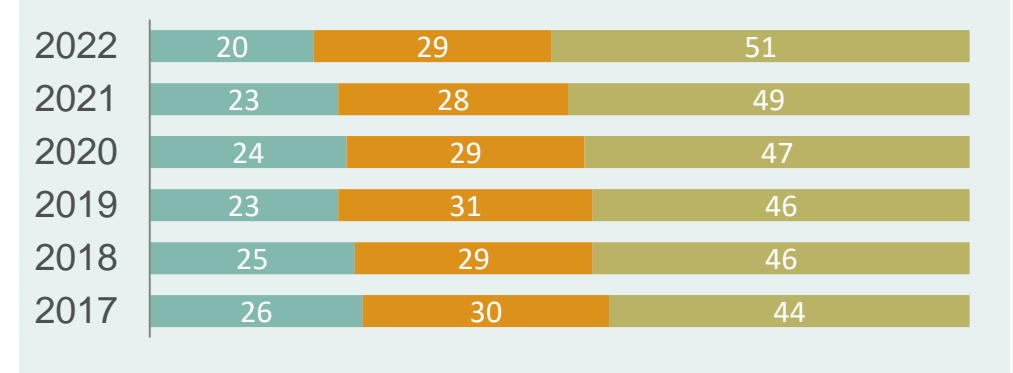
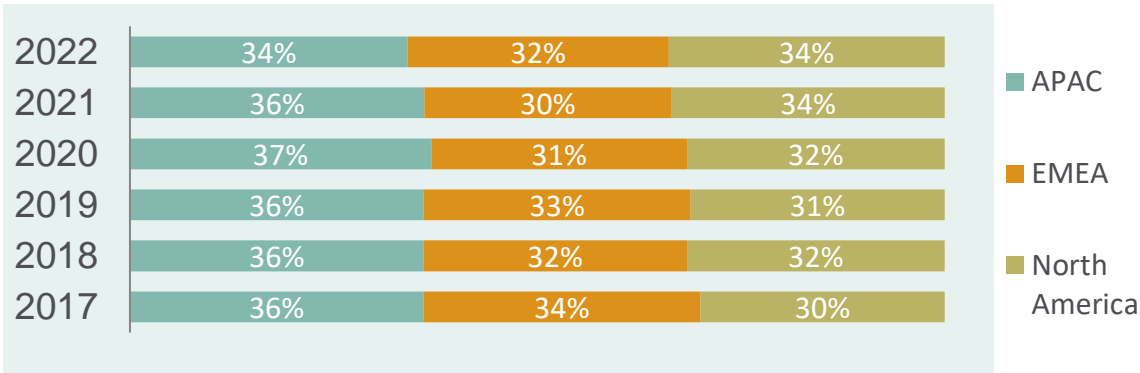
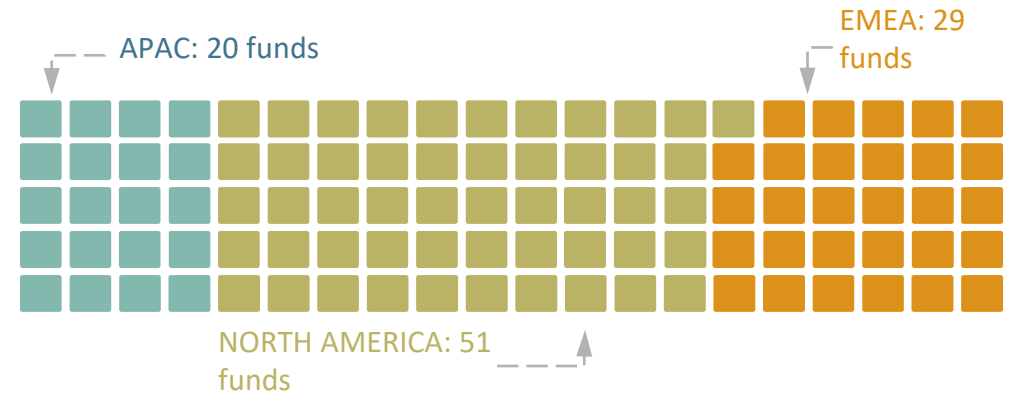
Changes in AUM are caused by a combination of organic growth and sample composition

Evolution by region

Distribution by assets



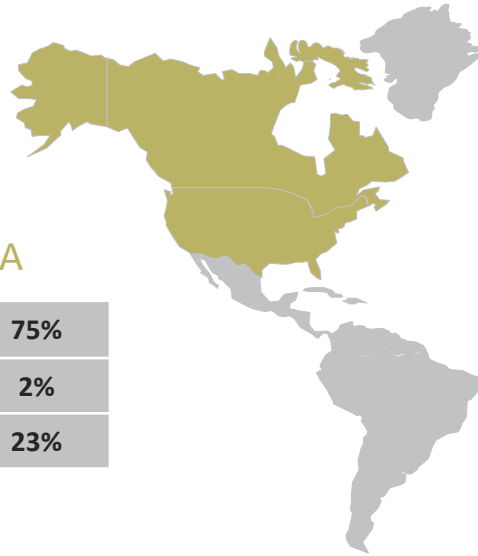
Distribution by number of funds



Split by fund type and region

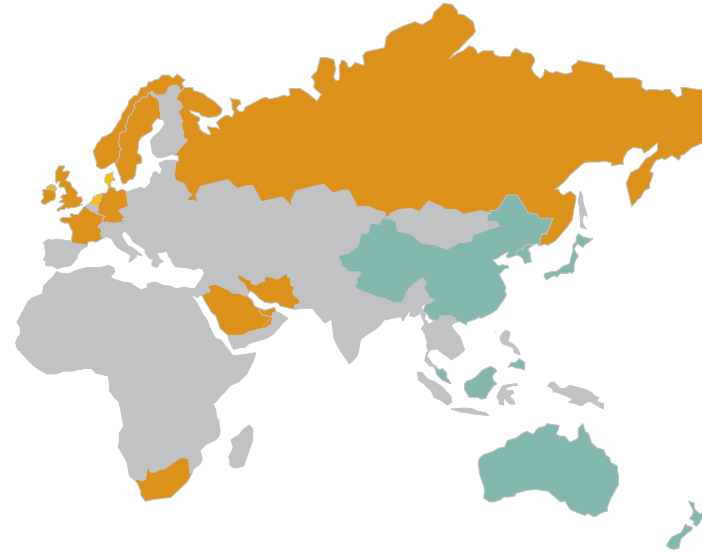
NORTH AMERICA

Pension funds	75%
SWF	2%
OCIO	23%



EMEA

Pension funds	29%
SWF	71%
OCIO	0%



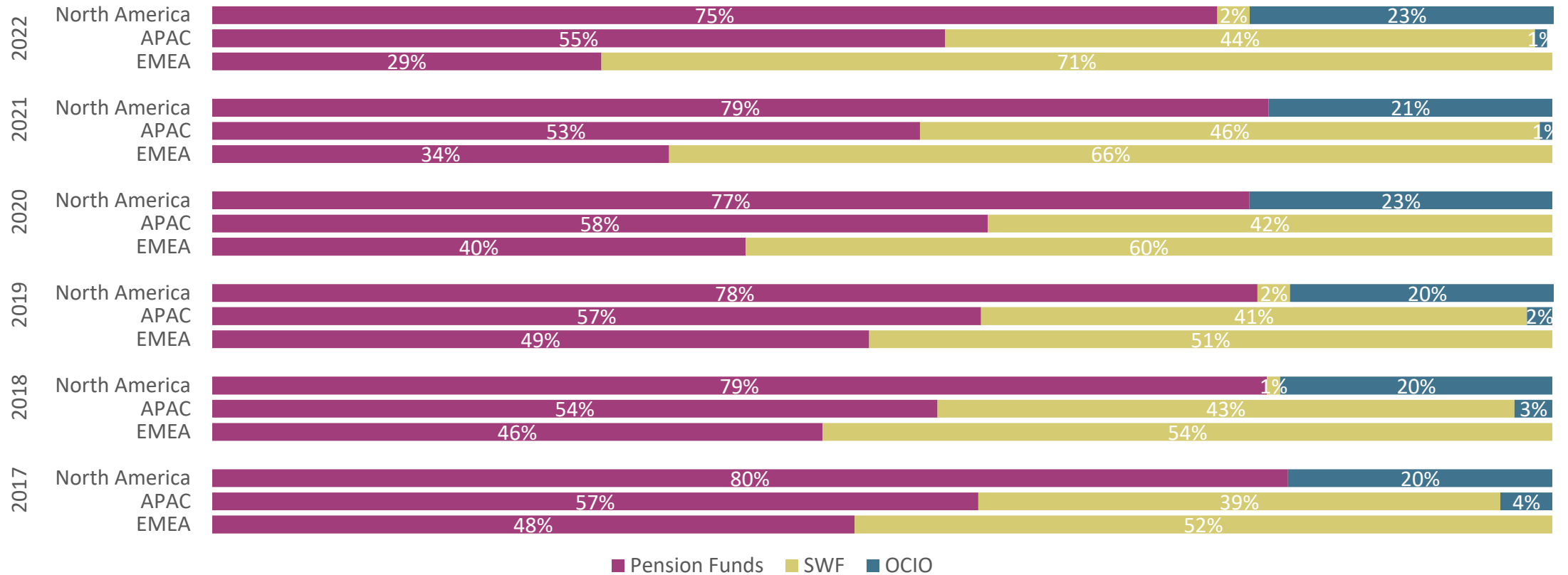
APAC

Pension funds	55%
SWF	44%
OCIO	1%

- Pension funds dominated in North America where they represent 75% of assets. Pension funds also dominated in APAC although to a smaller extent with 55%.
- Sovereign Wealth funds accounted for a significant share of the assets in the EMEA region (71%), in particular due to the Middle East sovereign funds.

Note: OCIO and Master trust assets are shown in the region of their corporate headquarters. We note that all OCIOs and Master Trusts have clients globally.

Evolution of split by fund type and region

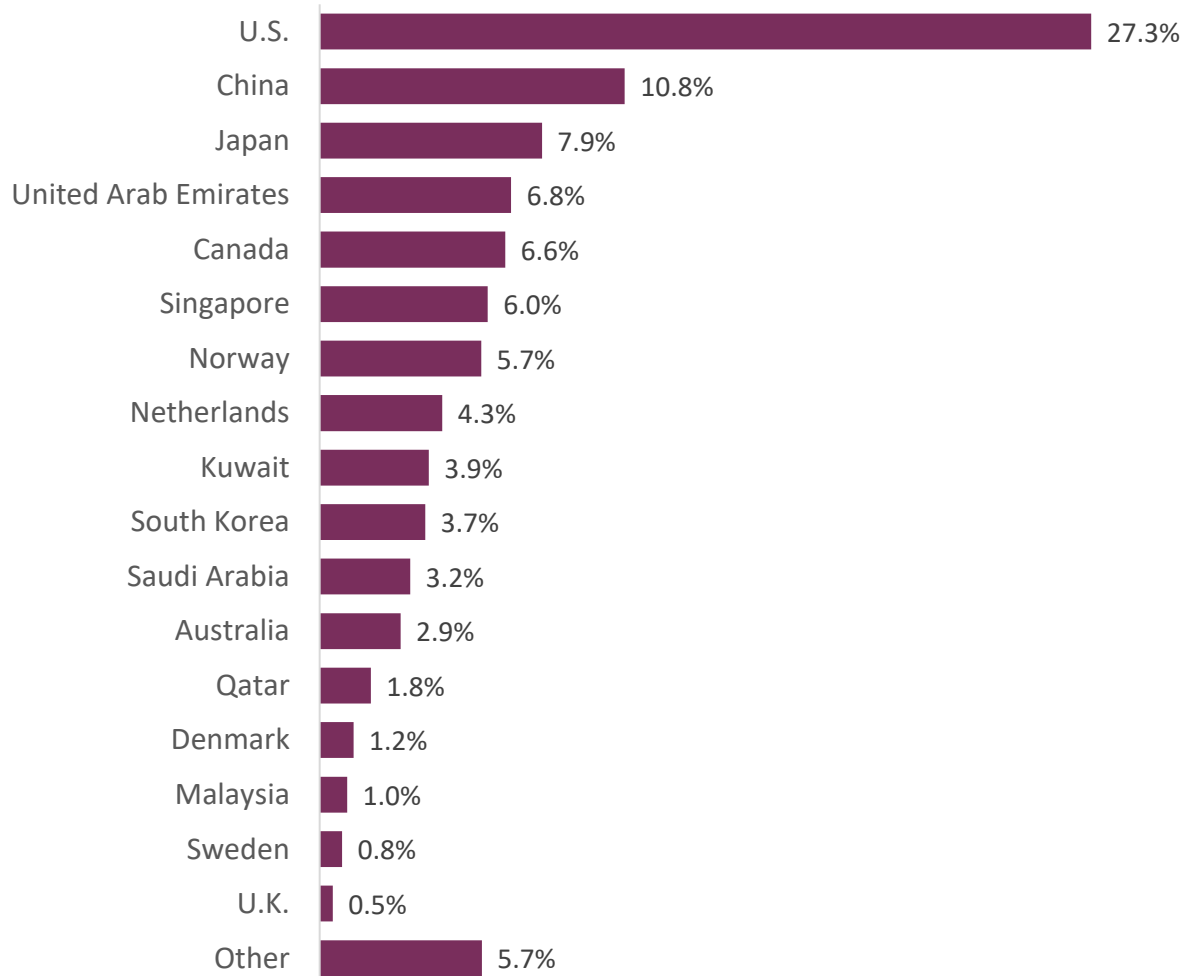


- For the period, Pension Funds dominated in North America with 75% on average, followed by APAC with 55% on average.
- OCIO and Master trust have more presence in North America with 23% on average for the period.

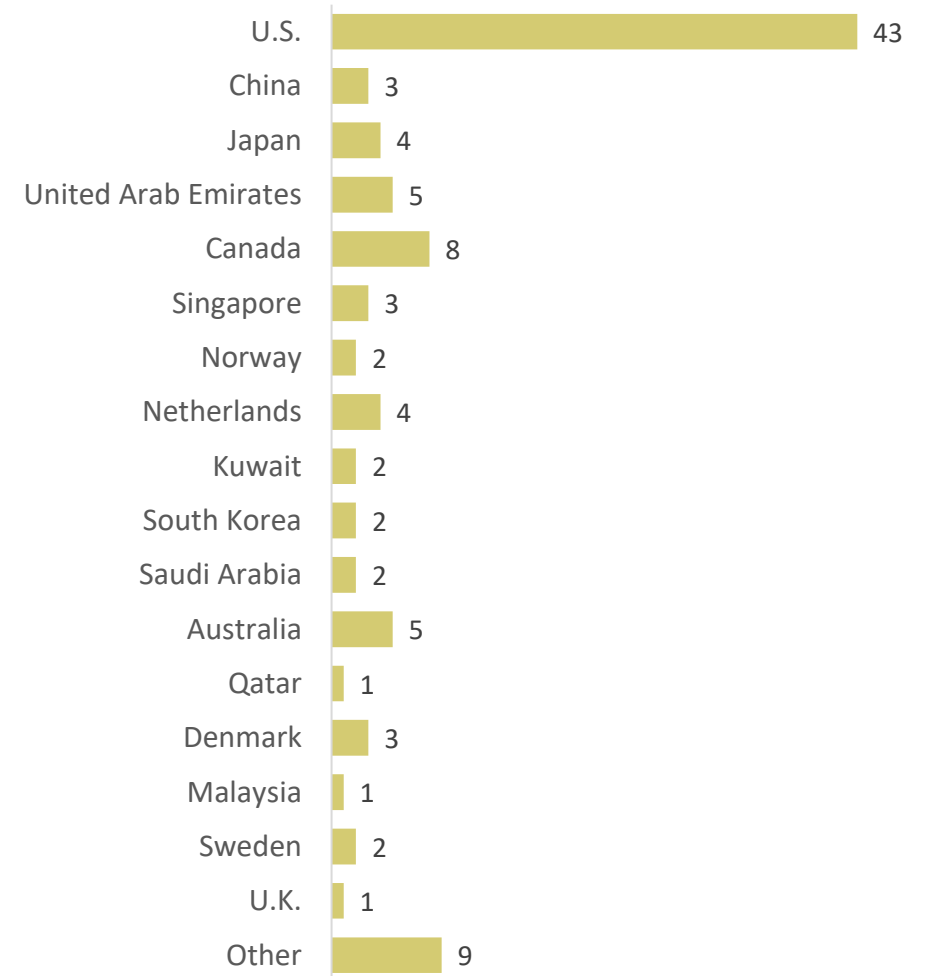
Note: OCIO and Master trust assets are shown in the region of their corporate headquarters. We note that all OCIOs and Master Trusts have clients globally.

Split by asset owner domicile

Share of top 100 discretionary assets



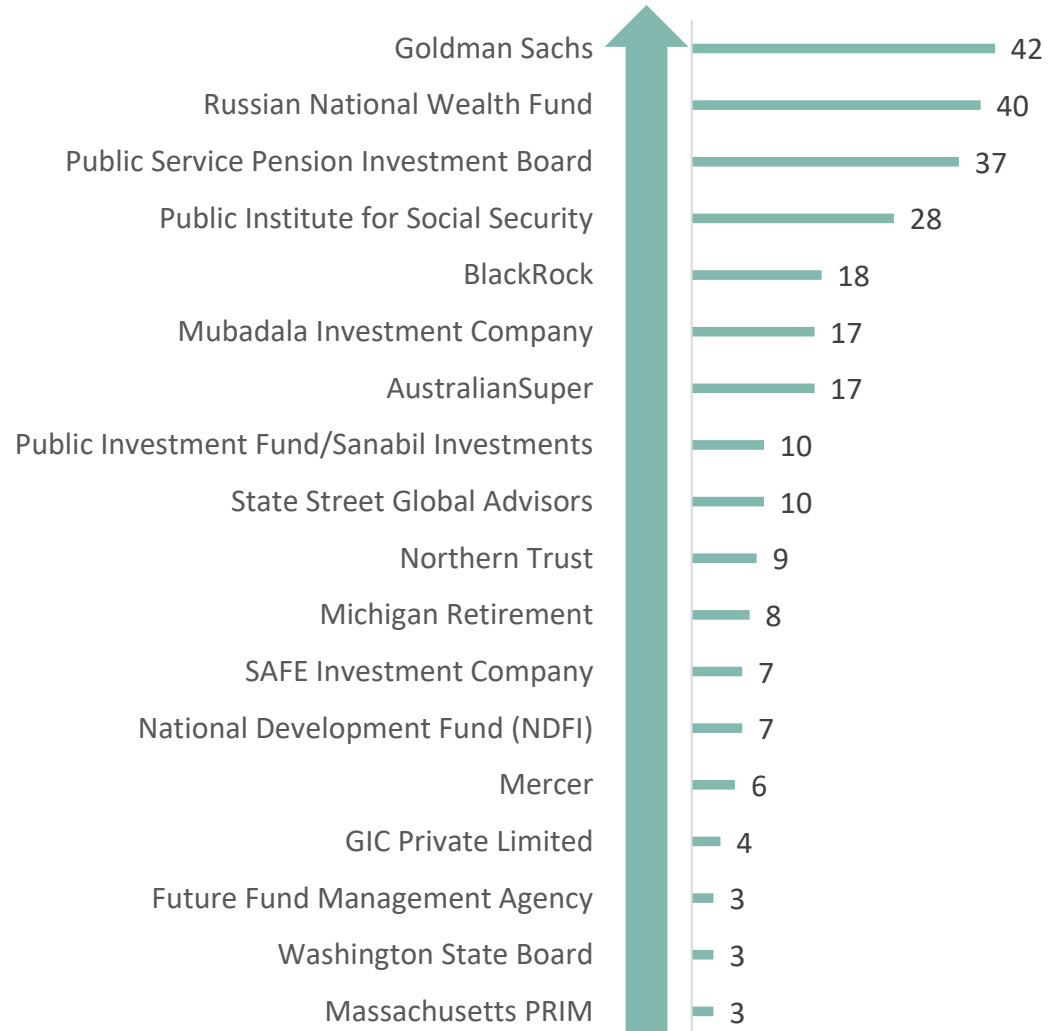
Number of funds per country



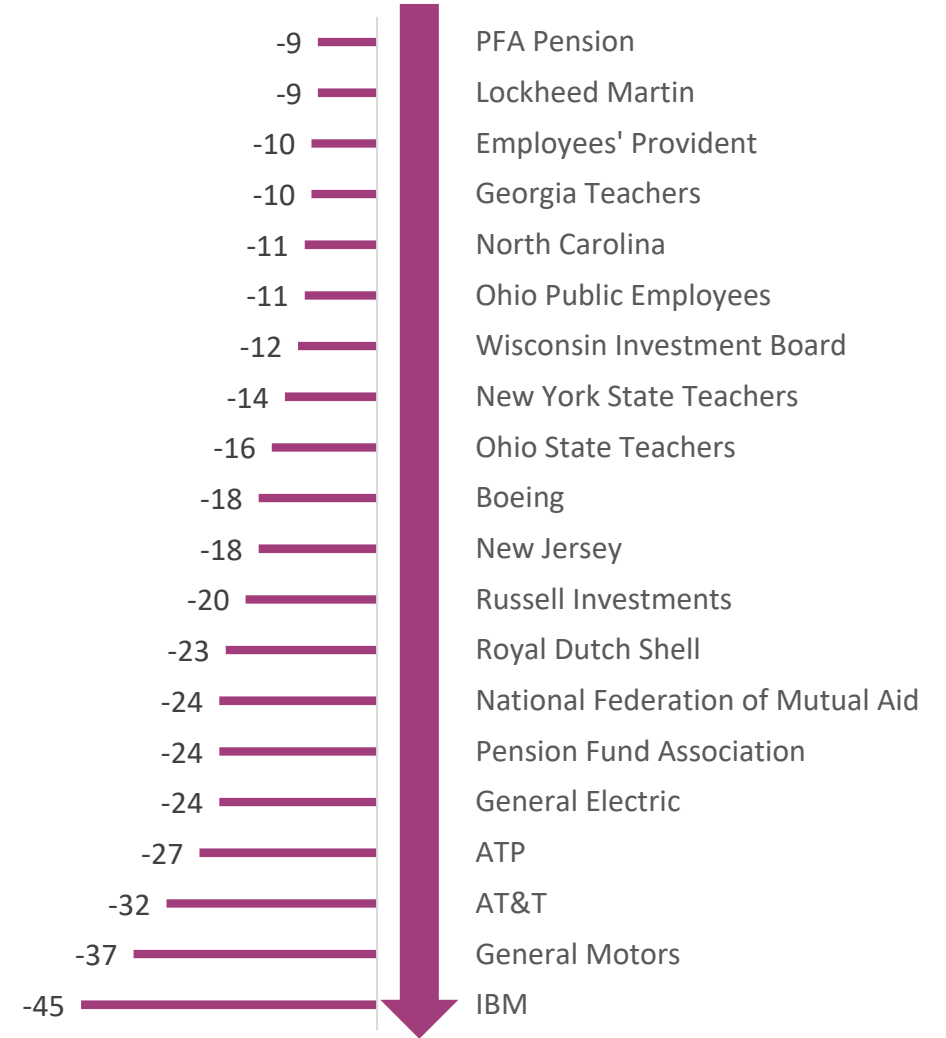
Note: 'Other' includes France, Germany, India, Iran, Israel, Russia, South Africa, Taiwan, and Turkey.

Change in ranking positions 2017 – 2022

Largest rank gains



Largest rank drops

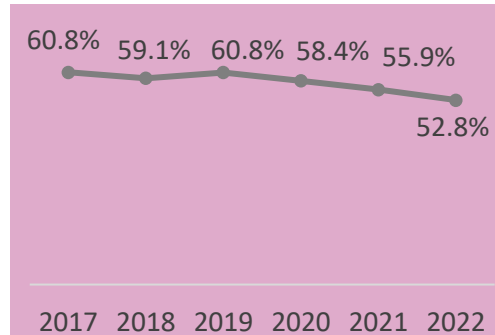
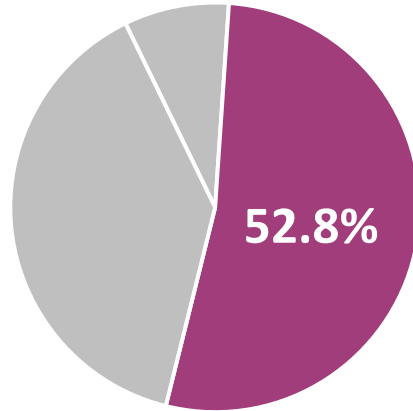


Section 2 | Pension funds

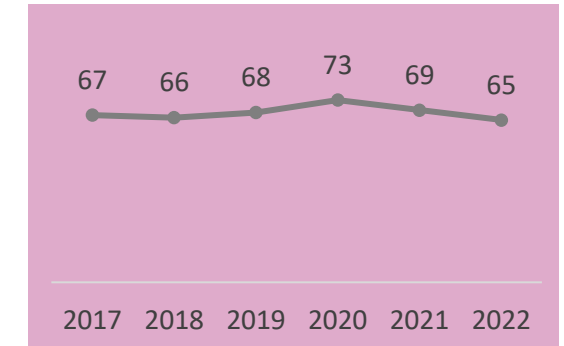
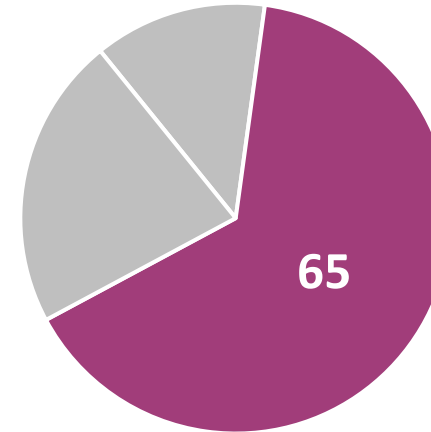


Pension funds

Percentage of assets



Number of funds



- Pension Funds represent 52.8% of the ranking's assets and 65% of funds.
- Pension funds assets decreased since 2017, when they represented 60.8%, and the number of funds also decreased by 2 funds in the AO 100 ranking.
- The average assets of Pension Funds account for US\$191 billion, below the average of US\$234 billion for all funds.

Top 10 pension funds

Total assets managed in US\$ billions

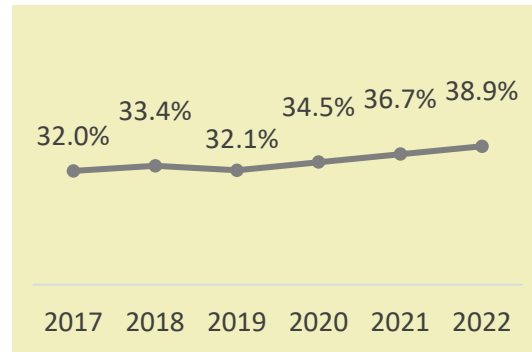
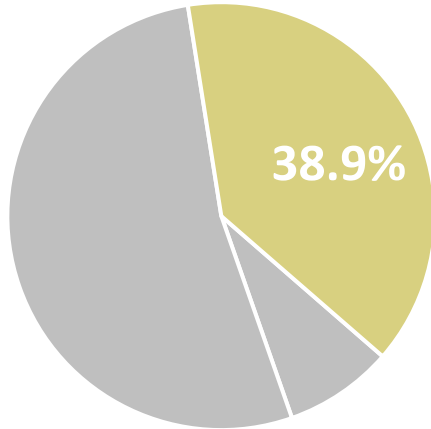
	Asset owner	Market	Est.	Total Assets (\$bn)
1	Government Pension Investment Fund	Japan	2006	1,449
2	National Pension Service	South Korea	1988	706
3	Federal Retirement Thrift	U.S.	1986	690
4	APG	Netherlands	1922	490
5	California Public Employees	U.S.	1932	432
6	Canada Pension Plan	Canada	1997	421
7	Central Provident Fund	Singapore	1955	407
8	National Social Security Fund	China	2000	347
9	CDPQ	Canada	1965	297
10	California State Teachers	U.S.	1913	290

Section 3 | Sovereign wealth funds

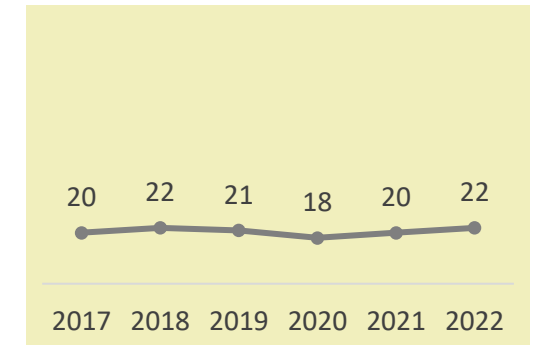
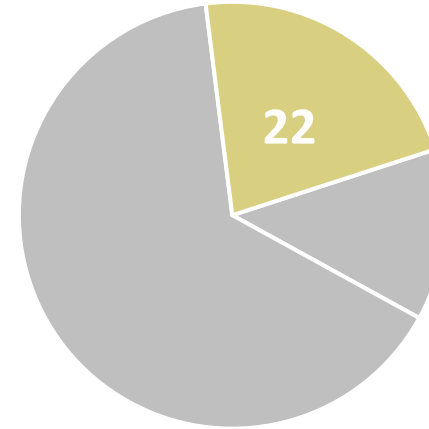


Sovereign wealth funds

Percentage of assets



Number of funds



- Sovereign Wealth Funds (SWFs) represent 38.9% of the ranking's assets and 22% of the number of funds.
- SWF's assets have increased their participation in total assets compared to 2017 and the number of funds ranked has remained relatively stable throughout time.
- The average assets of SWFs account for US\$414 billion, above the average of US\$234 billion for all funds.

Top 10 sovereign wealth funds

Total assets managed in US\$ billions

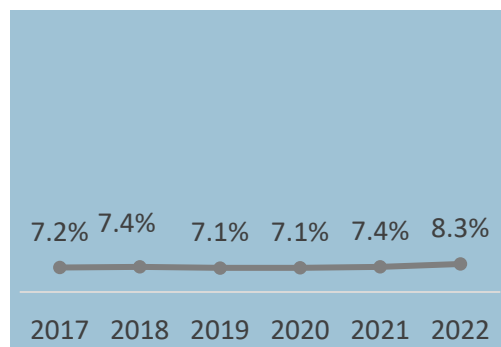
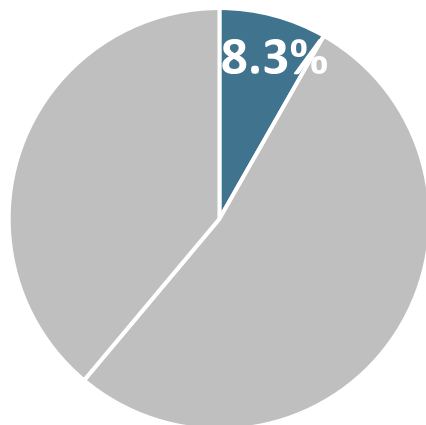
	Asset owner	Market	Est.	Total Assets (\$bn)
1	Norges Bank Investment Management	Norway	1997	1,250
2	China Investment Corporation	China	2007	1,149
3	SAFE Investment Company	China	1997	1,034
4	Abu Dhabi Investment Authority	United Arab Emirates	1967	831
5	Kuwait Investment Authority	Kuwait	1953	769
6	GIC Private Limited	Singapore	1981	690
7	Public Investment Fund/Sanabil Investments	Saudi Arabia	1971	620
8	Qatar Investment Authority	Qatar	2005	425
9	Temasek Holdings	Singapore	1974	298
10	Mubadala Investment Company	United Arab Emirates	1984	276

Section 4 | OCIO

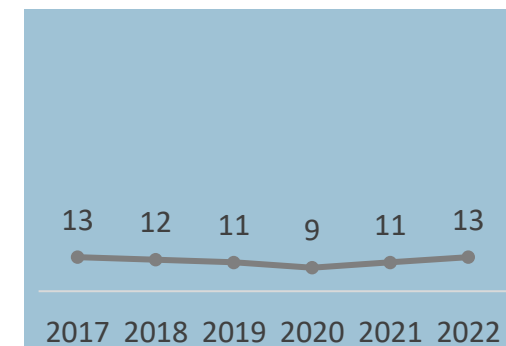
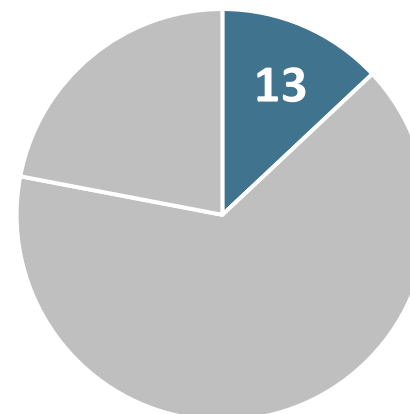


OCIOs and master trusts

Percentage of assets



Number of funds



- OCIOs and Master Trusts represented 8.3% of the ranking's assets and 13% of the number of funds.
- OCIOs and master trusts' have a slightly higher participation in total assets compared to 2017 and the number of funds ranked remains the same for the AO 100.
- The average assets of OCIOs and master trusts accounted for US\$149 billion which is below the average of US\$234 billion for all funds.

Note: OCIO and Master trust assets are shown in the region of their corporate headquarters. We note that all OCIOs and Master Trusts have clients globally.

Top 10 OCIOs and master trusts

Total assets managed in US\$ billions

	Asset owner	Market	Total Assets (\$bn)
1	Mercer	U.S	338
2	The Goldman Sachs Group Inc.	U.S	247
3	BlackRock Inc.	U.S	197
4	AON	U.S	178
5	WTW Investment Services	U.S	165
6	State Street Global Advisors	U.S	153
7	Russel Investments	U.S	152
8	Northern Trust Corp.	U.S	92
9	J.P Morgan Asset & Wealth Management	U.S	88
10	SEI Investments	U.S	87

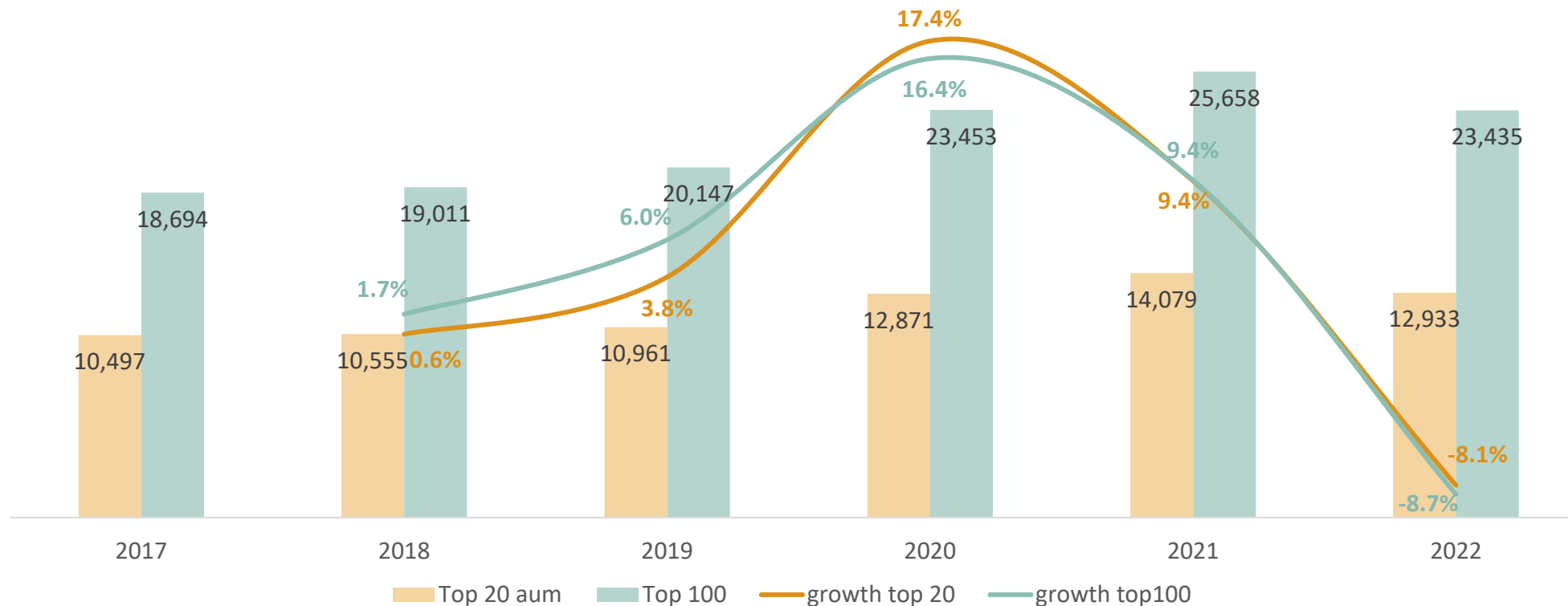
Note: OCIO and Master trust assets are shown in the region of their corporate headquarters. We note that all OCIOs and Master Trusts have clients globally.

Section 5 | Top 20 Asset Owners



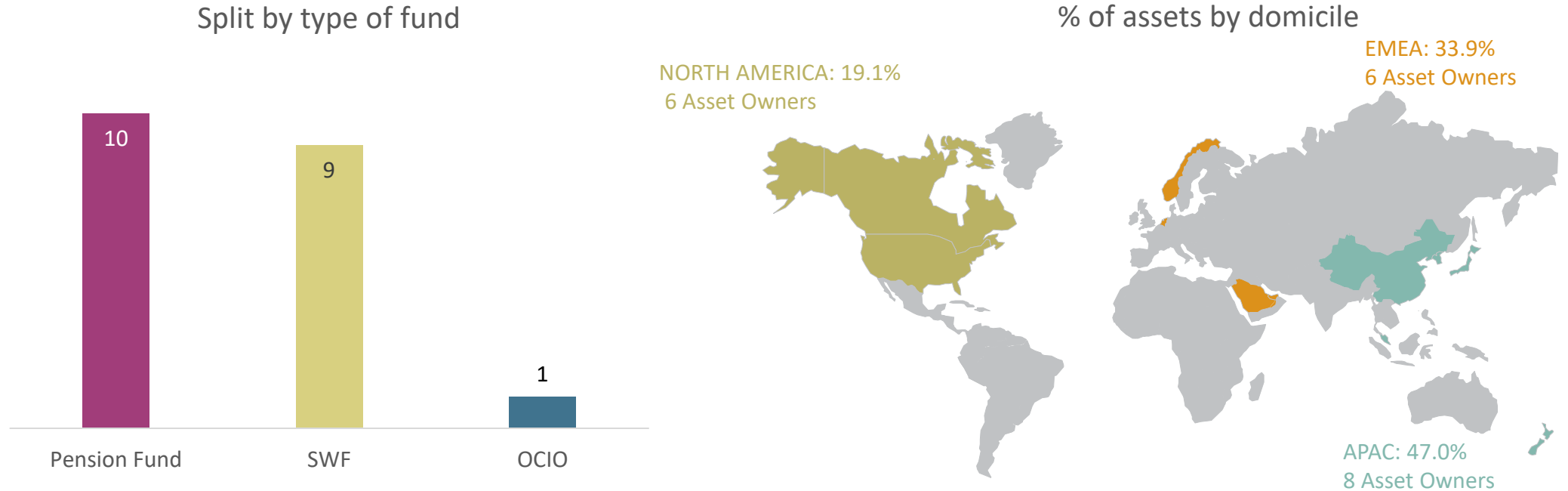
Top 20 fund assets

Value of assets and asset growth (US\$ bn) Top 20 vs Top 100



- The top 20 funds AUM totals US\$12.9 trillion and represent 55.2% of the total AUM in the AO100.
- In fact, the top 5 funds have an AUM of US\$5.7 trillion, which makes up 24.4% of the total AUM in the ranking.
- The 5-year CAGR of the top 20 was 4.3% versus 4.6% of the top 100.

Top 20 split by type of fund and domicile

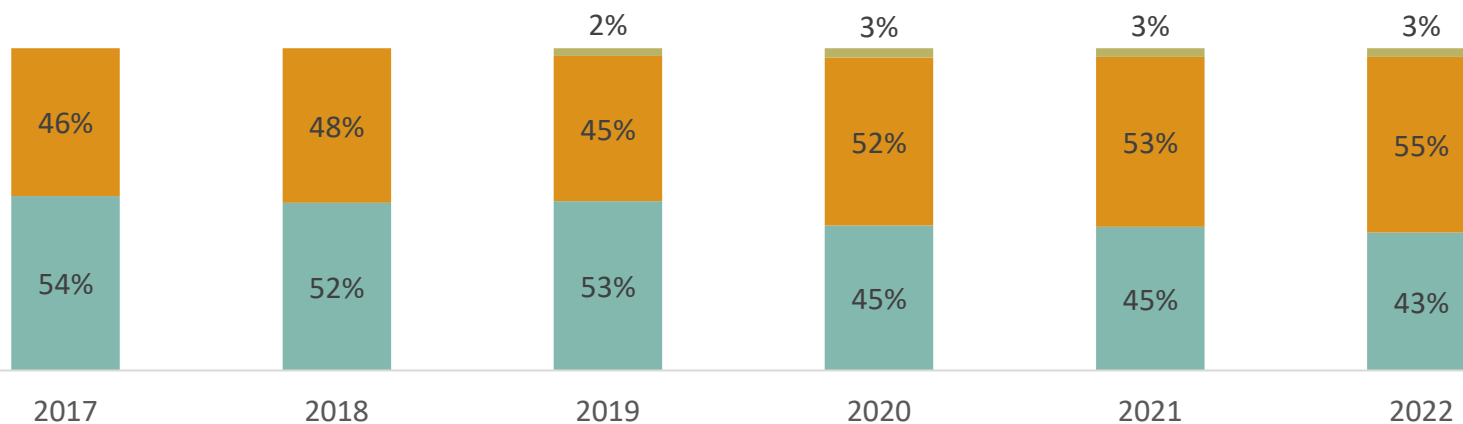


- Of the top 20 funds, 9 are sovereign wealth funds (54.6% of AUM in top 20), 10 are pension funds (42.8% of top 20 AUM) and 1 is an OCIO (2.6% of top 20 AUM).
- There are 6 asset owners from North America and EMEA and 8 asset owners from APAC in the top 20.

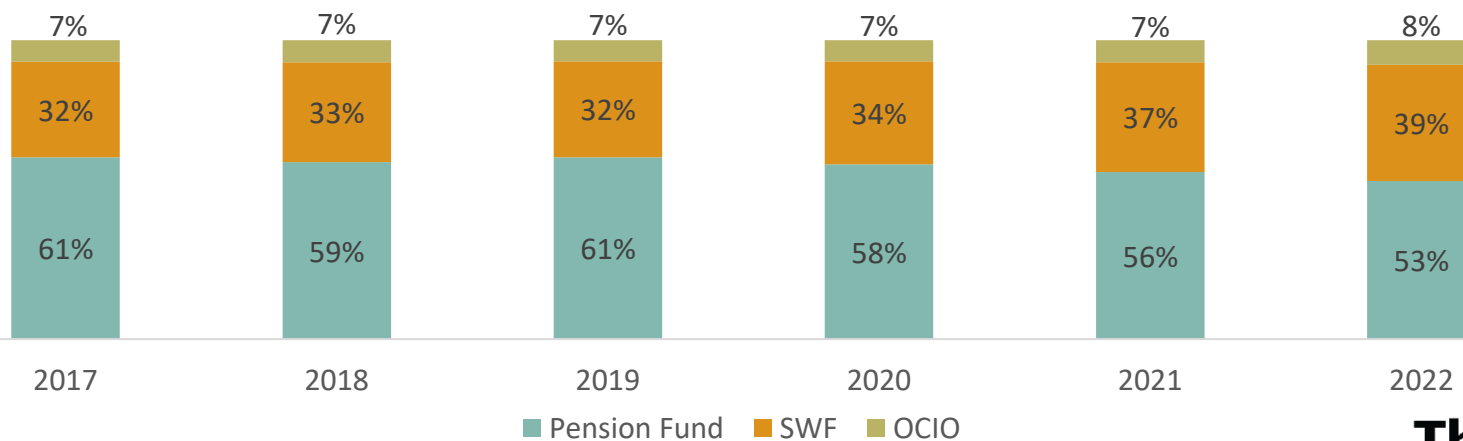
Top 20 fund assets

Value of assets (%) by region Top 20 vs Top 100

Top 20

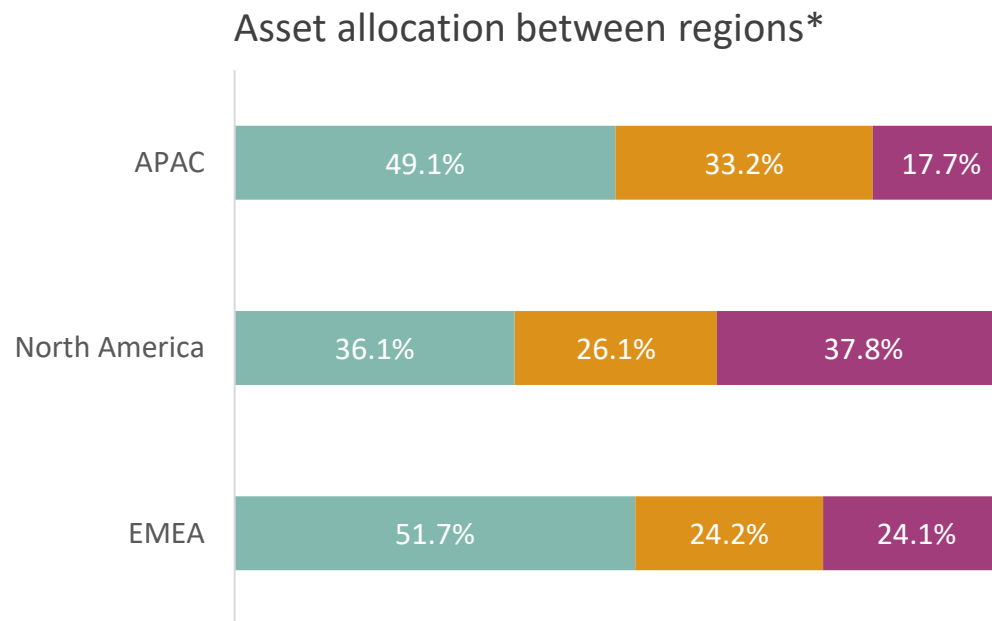
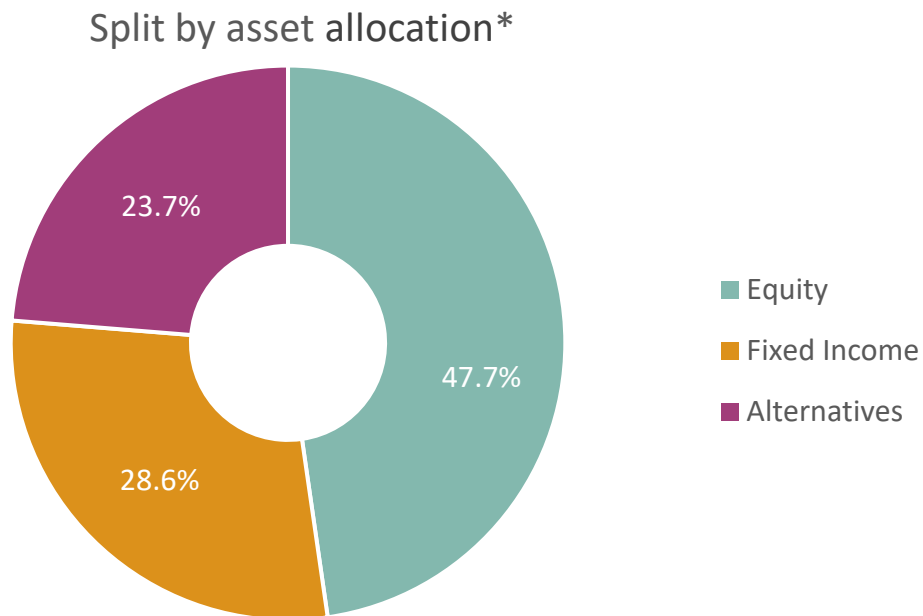


Top 100



- OCIO's have a minor weight in both the top 20 and top 100.
- SWF have increased their participation in the total value of assets in detriment of Pension Funds, more so in the top 20, where it is the predominant type of fund.

Top 20 split by asset allocation and fund domicile

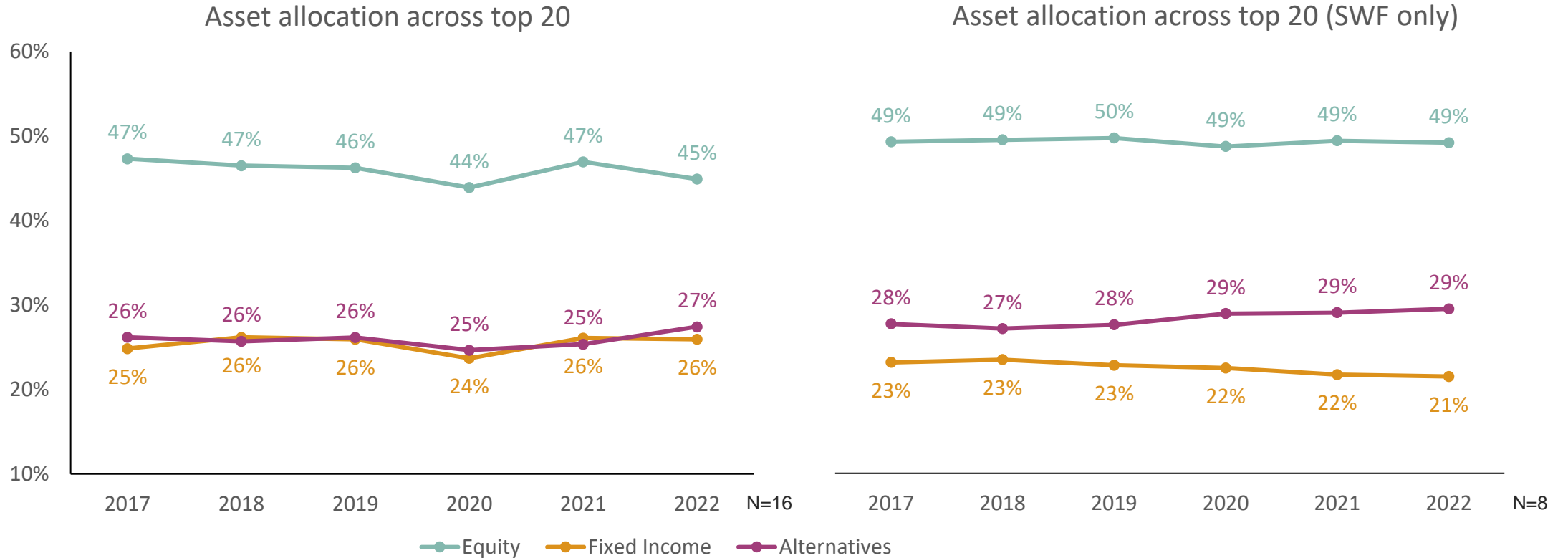


*Weighted average

- The average portfolio for the top 20 funds shows the highest proportion of assets were invested in equities, followed by fixed income securities and lastly, alternative assets.
- Asia-Pacific funds have 49.1% of assets allocated in equities, followed by fixed income (33.2%).
- North American funds have predominantly invested in alternatives (37.8%) closely followed by equities (36.1%).
- EMEA funds have invested a majority share in equities (51.7%), followed by allocation to fixed income (24.2%).

Note: Fixed income includes debt and cash; Alternatives include: private equity, real estate, hedge funds and other.

Top 20 vs SWF asset allocation historical evolution



- Historical asset allocation shows allocation remained mostly unchanged during the period.
- For SWF investments, these funds have a higher allocation to alternatives and lower proportion of fixed income, compared to the Top 20.

Note: Fixed income includes debt and cash; Alternatives include: private equity, real estate, hedge funds and other. For 2020 and previous years, cash is included in Alternatives for: GPI (Japan), National Pensión (South Korea), APG (Netherlands), Federal Retirement Thrift (U.S), California Public Employees (U.S), Canada Pensión Plan (Canada) and California State Teachers (U.S.). 4 funds from the top 20 were excluded due to lack of data availability.

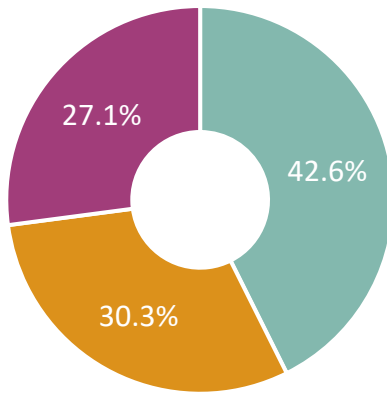
Section 6 | Asset Allocation

AO 100

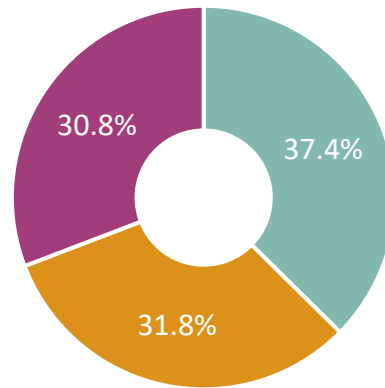


Split by Asset Allocation

Weighted Average



Simple Average

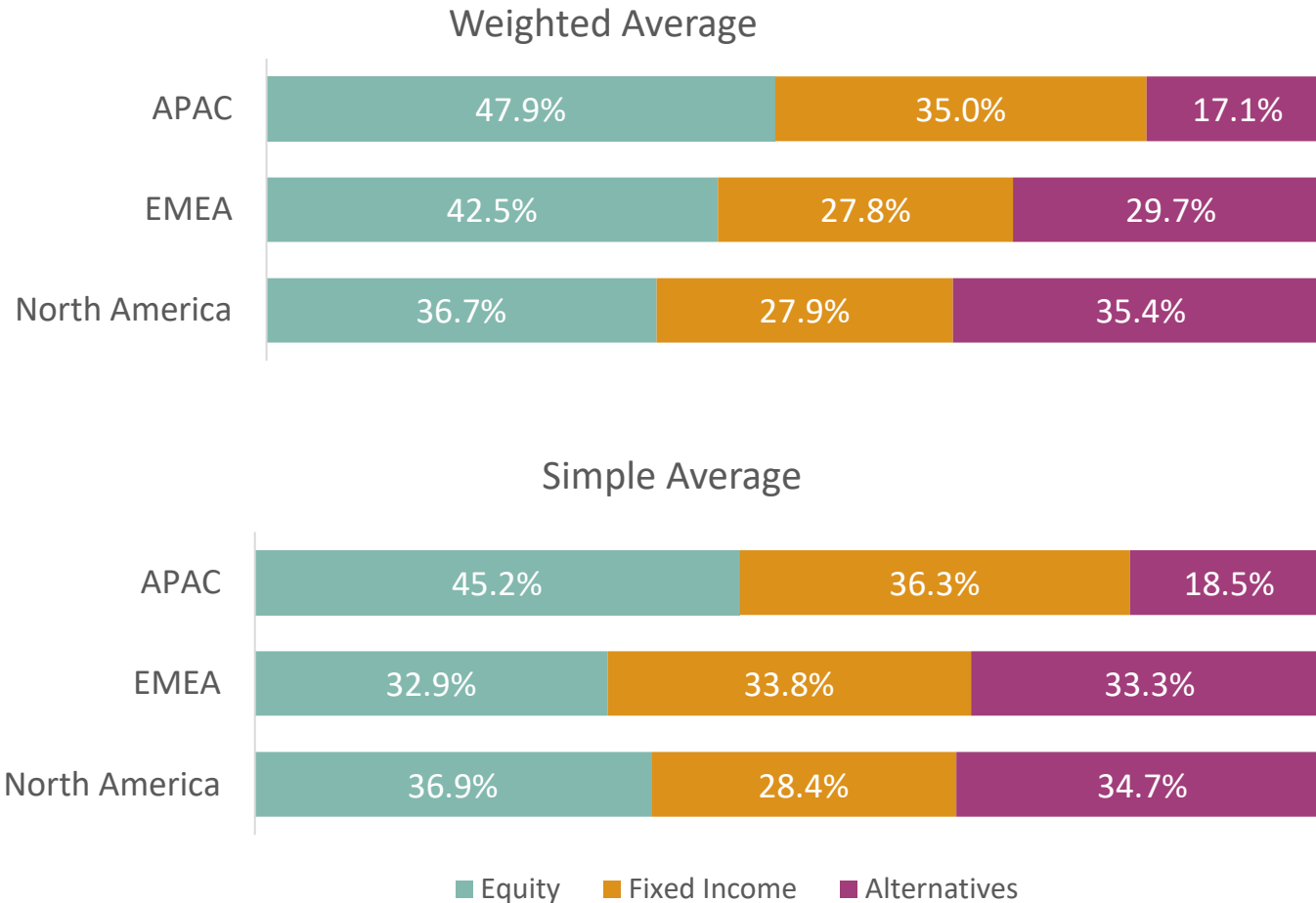


■ Equity ■ Fixed Income ■ Alternatives

The average portfolio for the top 100 owners invested mostly in equities, followed by fixed income including cash securities, while the lowest allocation was to alternatives in 2022

Note: Asset allocation was available for 80 of the Asset Owners ranked in the AO100
 Note: Fixed income includes debt and cash; Alternatives include: private equity, real estate, hedge funds and other.

Split by Asset Allocation and region



Asia-Pacific funds have the highest share in equities (47.9%), followed by allocation to fixed income (35.0%)

EMEA funds have invested a majority share in equities (42.5%), followed by allocation to alternatives (29.7%)

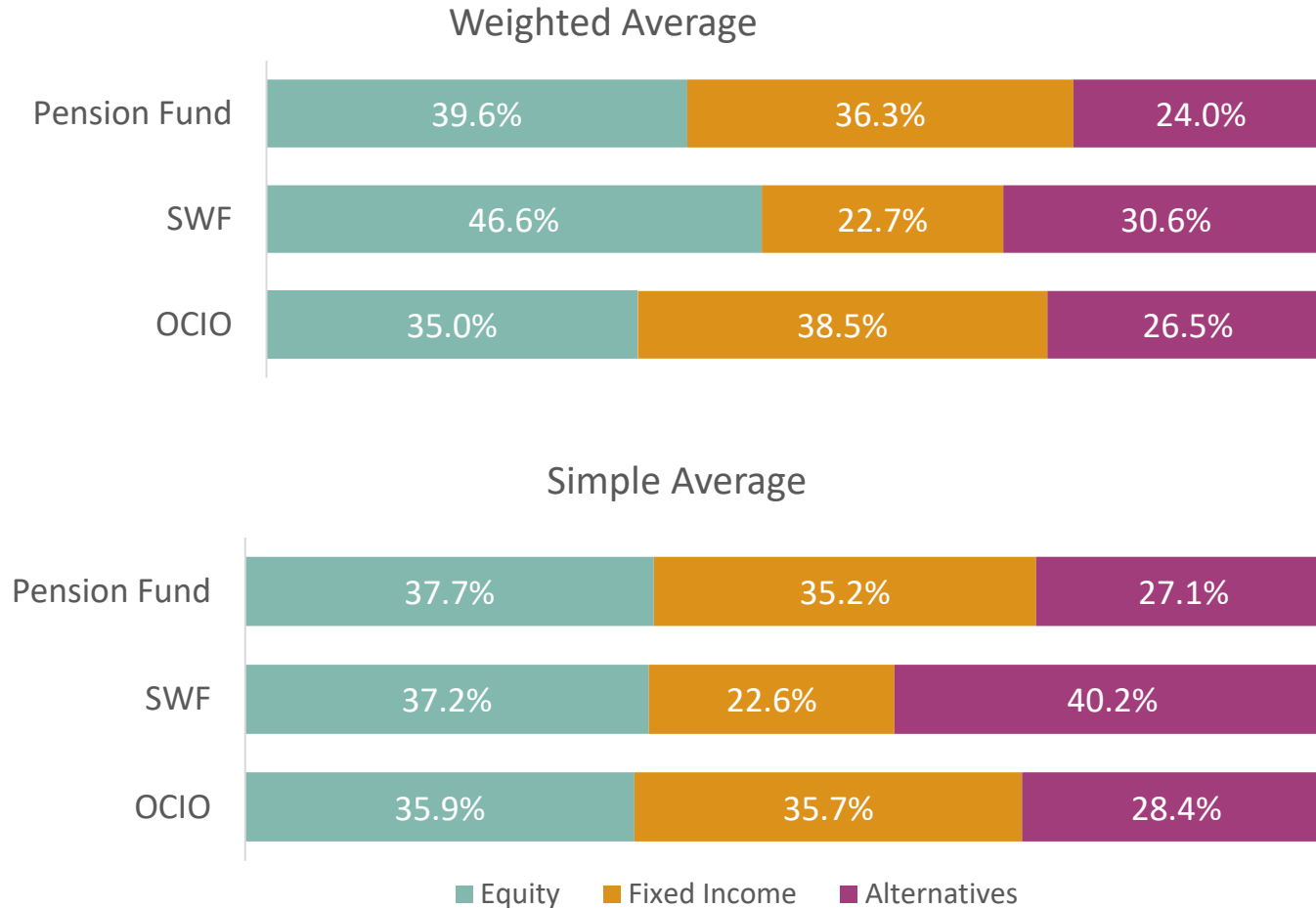
North American funds have predominantly invested in equities (36.7%), followed by alternatives (35.4%)

Note: Asset allocation was available for 80 of the Asset Owners ranked in the AO100

Note: Fixed income includes debt and cash; Alternatives include: private equity, real estate, hedge funds and other.

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Split by Asset Allocation and fund type



Pension funds have invested the majority of share in equities (39.6%), followed by allocation to fixed income (36.3%)

SWF have the highest share in equities (46.6%), followed by allocation to alternatives (30.6%)

OCIO's funds have the highest share in fixed income (38.5%), followed by allocation to equity (35.0%)

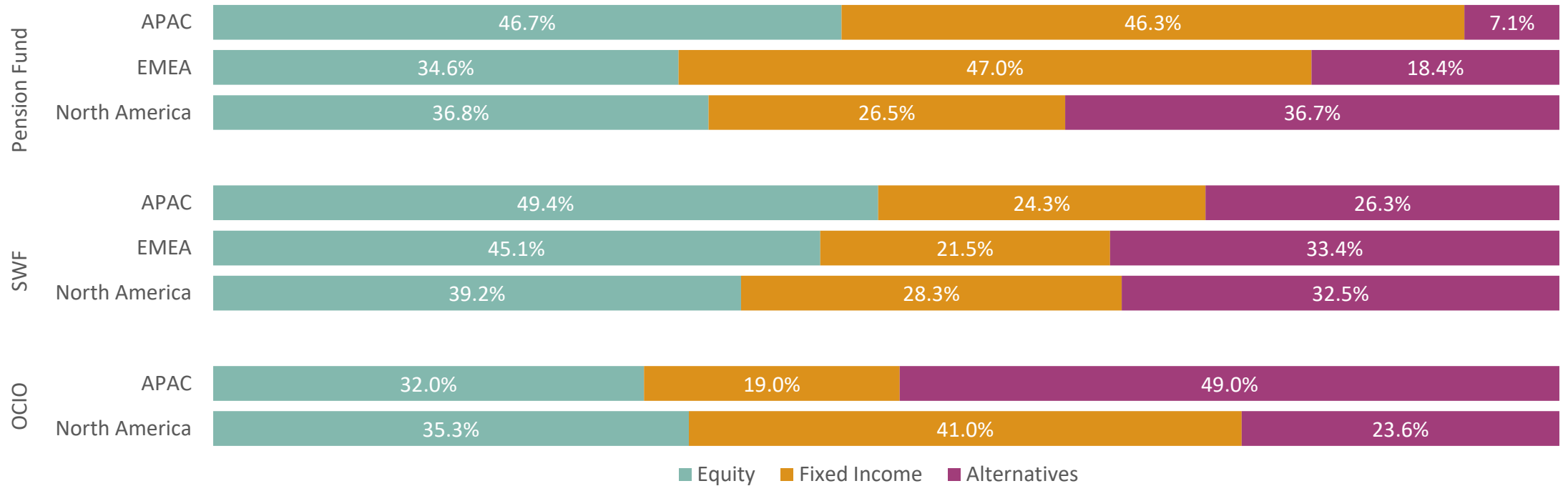
Note: Asset allocation was available for 80 of the Asset Owners ranked in the AO100

Note: Fixed income includes debt and cash; Alternatives include: private equity, real estate, hedge funds and other.

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Split by Asset Allocation, region and type of fund

Weighted Average



- The largest allocation to equity is held by APAC SWF’s with 49.4%, followed by APAC pension funds with 46.7%.
- The largest allocation to fixed income is held by EMEA pension funds with 47.0%, closely followed by APAC pension funds with 46.3%
- The highest share of alternative assets belongs to APAC OCIO’s with 49.0%, followed by North America pension funds with 36.7%.

Note: Asset allocation was available for 80 of the Asset Owners ranked in the AO100

Note: Fixed income includes debt and cash; Alternatives include: private equity, real estate, hedge funds and other.

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Section 7 | SIP



What are State Investment Platforms (SIP)?

- State Investment Platforms are institutional investors which are entrusted with managing and investing a pool of capital from various depositors or funds; and are usually based in one country.
- These depositors/funds can range from pension funds, insurance plans, sovereign wealth funds, endowment funds and other organisations. SIP governance structures are impacted by each depositor's investment policies
- State Investment Platforms should not be considered as a mutually exclusive category like the ones examined in above sections of this report, but as an additional layer to understand the nature of some funds
- The considerable size of AUMs of these platforms is why they warrant special consideration in our report

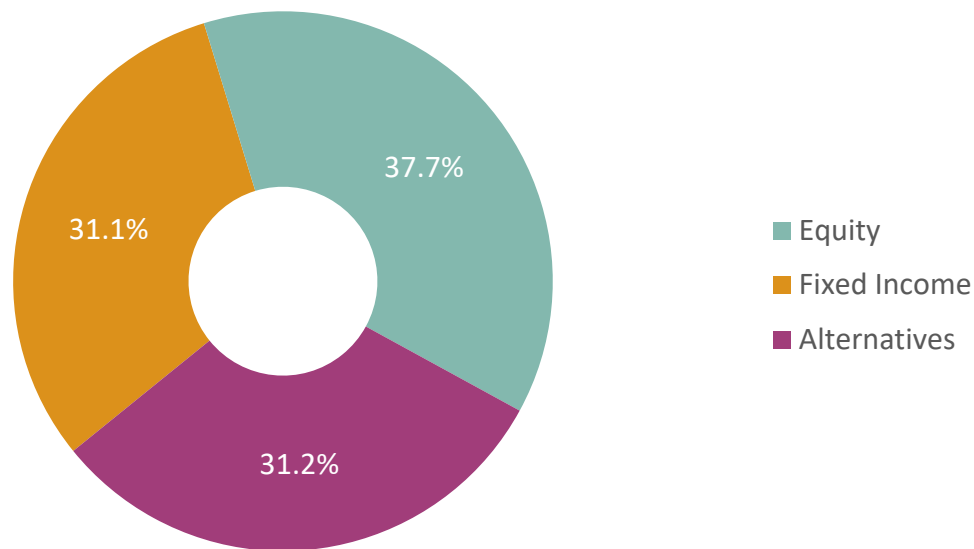
Top 10 State Investment Platforms

Ranking	Manager	Country	Total AUM million, US\$	Type of fund	Region
6	Kuwait Investment Authority	Kuwait	769,000	SWF	EMEA
11	APG	Netherlands	490,382	Pension Fund	EMEA
19	CDPQ	Canada	297,000	Pension Fund	North America
23	PGGM	Netherlands	243,000	Pension Fund	EMEA
24	New York State Common	U.S.	233,227	Pension Fund	North America
29	MN Services N.V.	Netherlands	207,000	Pension Fund	EMEA
31	BLF	Taiwan	195,000	Pension Fund	APAC
32	Public Service Pension Investment Board	Canada	185,000	Pension Fund	North America
37	Public Investment Corporation	South Africa	176,000	SWF	EMEA
39	Turkey Wealth Fund	Turkey	171,000	SWF	EMEA

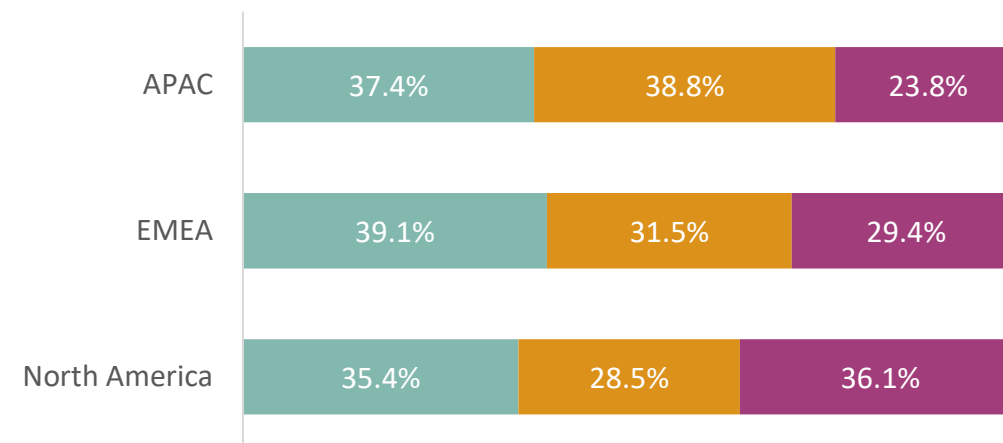
- We have identified 19 State Investment Platforms in the AO100 (based on the criteria on our previous slide), representing total AUM of US\$ 4.0 trillion.
- There is usually one fund which forms the majority of AUM in any SIP. This majority fund is used to categorize a SIP, for example, PGGM from Netherlands is an SIP and the majority of AUM are from PFZW, which is a pension fund. So PGGM is also categorized as a pension fund and a SIP.

Split by asset allocation and fund domicile

Split by asset allocation*



Asset allocation between regions*



*Weighted average

- The average portfolio for SIP shows the highest proportion of assets were invested in equities, followed by alternative assets and fixed income.
- North American SIP assets allocate 36.1% of their assets to alternative investments.
- EMEA SIP primarily invest in equity, with 39.1%, followed by fixed income (31.5%) and alternative assets (29.4%).
- Asia-Pacific funds have allocated 38.8% of assets to fixed income, followed by equities 37.4%

Note: Fixed income includes debt and cash; Alternatives include: private equity, real estate, hedge funds and other.

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Section 8 | Universal Owners



What is a universal owner?

Universal owners are large long-term holders of index-like portfolios that are exposed to the entire market and economy

Universal owners also own a significant slice of corporate externalities which risk being internalized to their funds' net cost, now or in the future

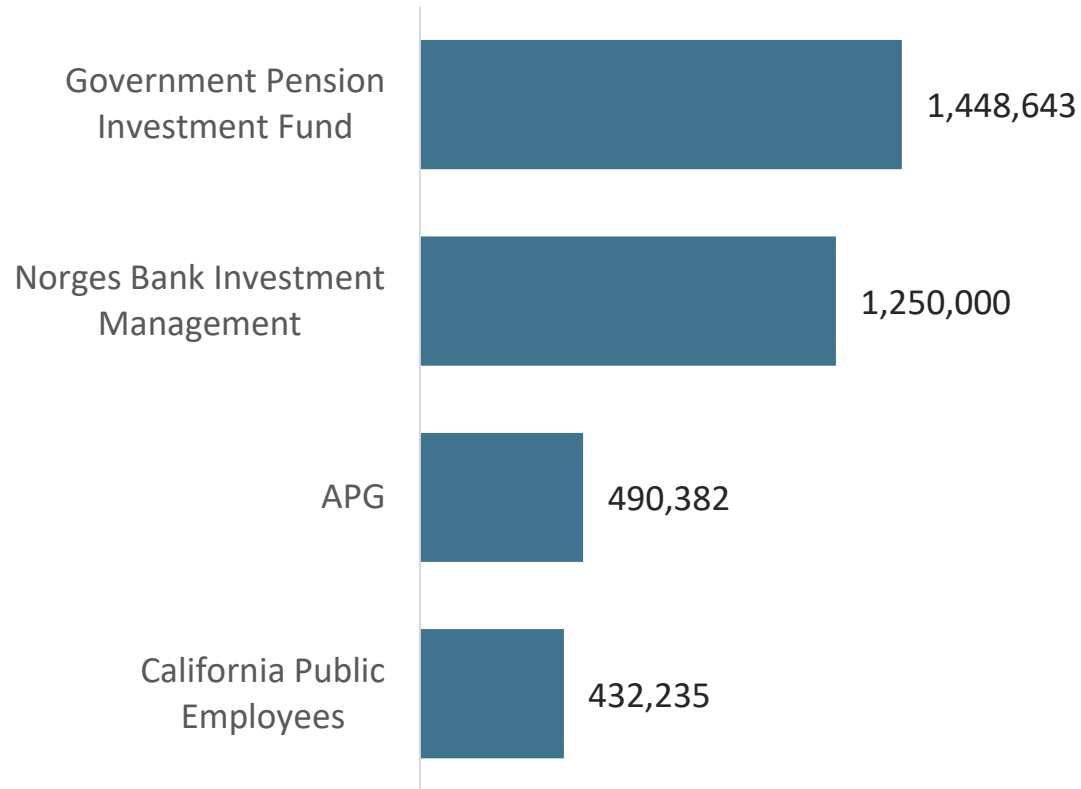
Universal owners are leadership-minded to grow the value and utility of their sponsor/member wealth by managing their long-term risk exposures inter-dependencies across the portfolio, across the stakeholders and over time

Universal owners and sustainability strategies:

- Universal owners have distinctive investment strategies regarding sustainability that aim to achieve real-world impacts on the environmental/societal system and drive better outcomes for beneficiaries (or not suffering worse outcomes)
- The activities adopted by universal investors in these strategies are both allocating to specific assets (security selection and asset allocation) and active ownership practices – voting and engagement
- The engagement here is often concerned with system-level factors to contribute to safeguarding the financial system and contributing positively to wider stakeholders
- Universal owner strategies play a key part in Paris alignment and COP26 strategies, consistent with net zero emissions by 2050
- Relatively few asset owners in this study have held claim to being universal owners (eg GPIF from Japan, NBIM from Norway, CalPERS from U.S.), while others appear to have a universal mindset

Universal owners

Top Universal Owners (in US\$ million)



“ The core idea of a universal owner is a large institution investing long-term in widely diversified holdings across multiple industries and asset classes, and adapting its investment strategy to these circumstances. For universal owners, overall economic performance will influence the future value of their portfolios more than the performance of individual companies or sectors. This suggests that universal owners will support the goals of sustainable growth and well-functioning financial markets. A universal owner will also view these goals holistically and seek ways to reduce the company level externalities that produce economy-wide efficiency losses.”

Definition of universal owners comes from : Urwin, Pension Funds as Universal Owners; Opportunity Beckons and Leadership Calls | Rotman International Pensions Management Journal | Spring 2011.

The challenge for universal owners is hyper-integrated risk management which can be carried out in two main areas:

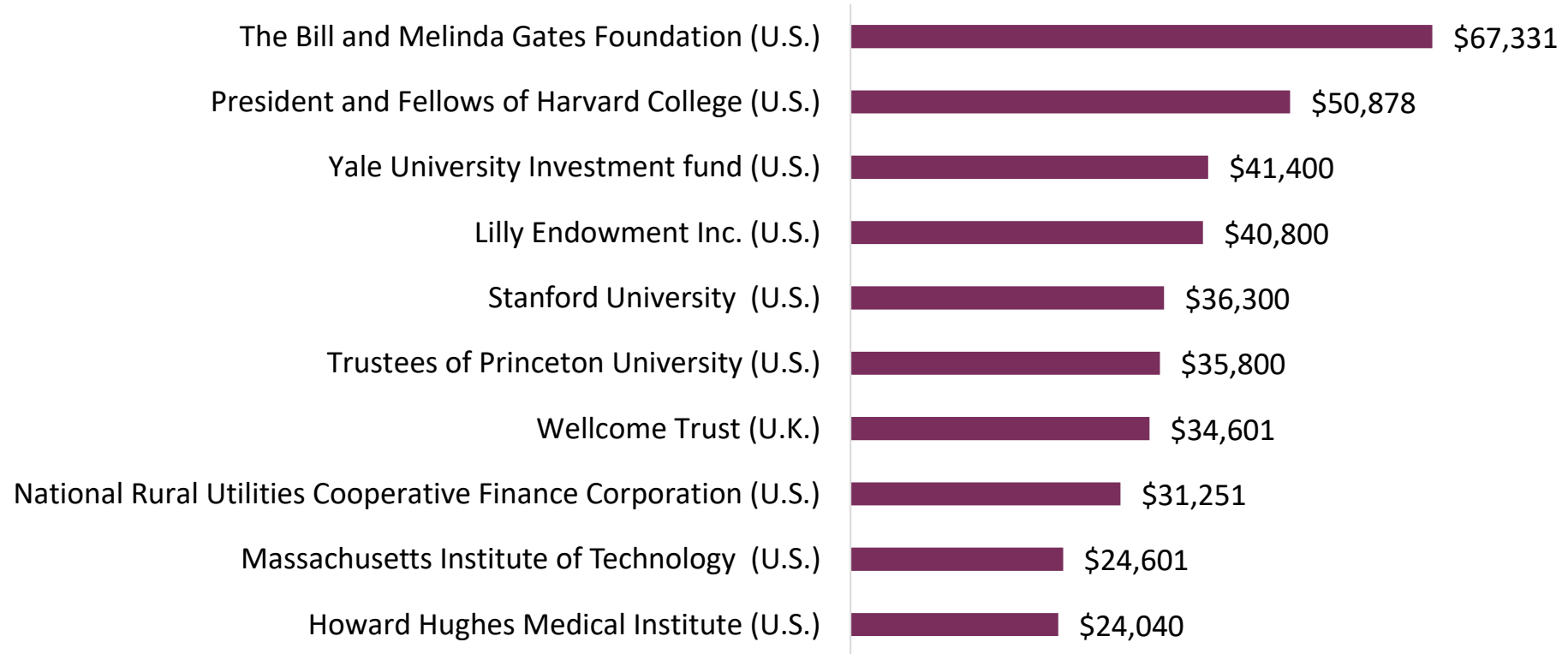
- allocation of assets whereas large investors they will generally work within-the-system
- stewardship of assets whereas universal owners there are change-the-system opportunities

Section 9 | Foundations & Endowments



Foundations and endowments

Total assets managed in US\$ millions



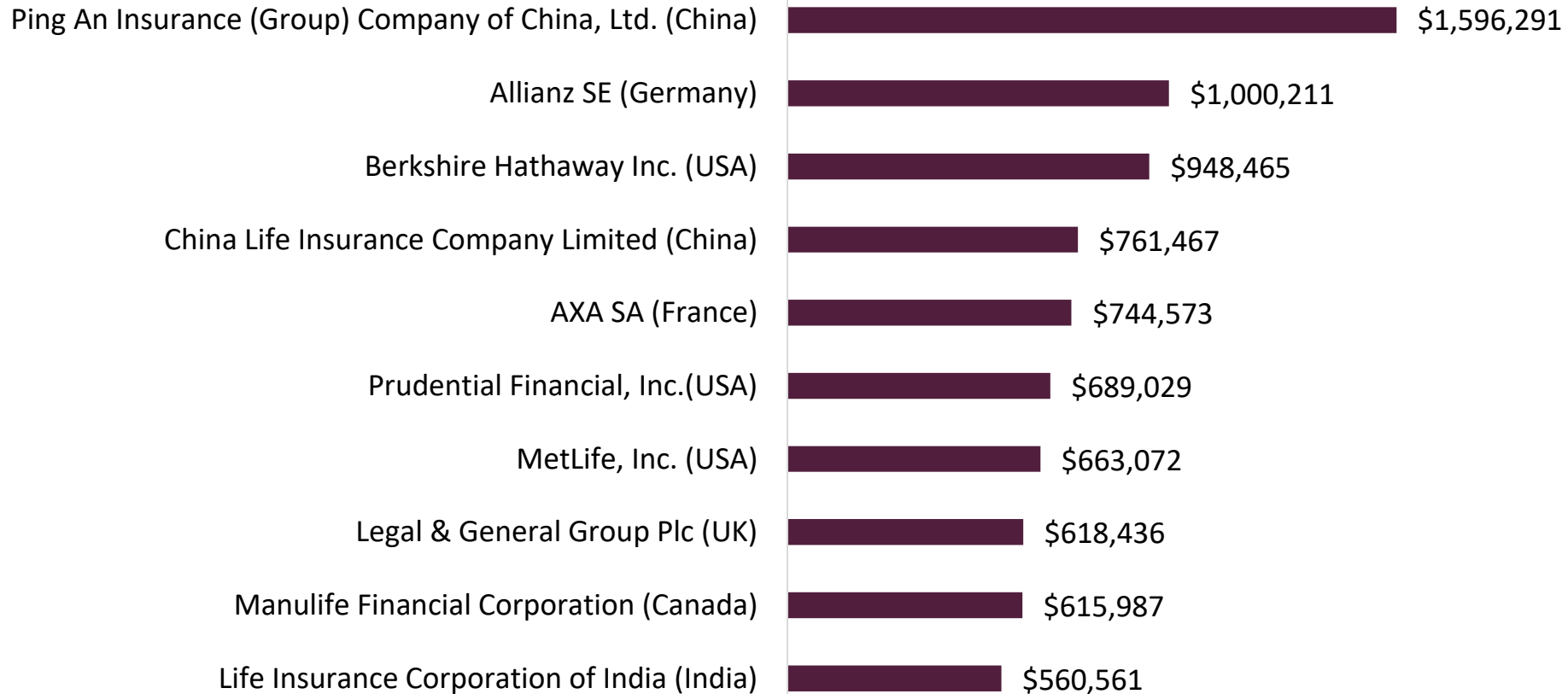
Note: None of the Foundations and Endowments listed above are large enough to enter the top 100 asset owners.

Section 10 | Insurance Companies



Top 10 insurance companies

Total assets managed in US\$ millions



Note: Total assets presented for insurance companies include assets managed by third parties, so are not included in the top 100 ranking

Section 11 | Ranking



AO 100 ranking (in US\$ million)

Rank	Fund	Market	Total Assets	Type of Fund
1	Government Pension Investment Fund	Japan	\$1,448,643	Pension Fund
2	Norges Bank Investment Management	Norway	\$1,250,000	SWF
3	China Investment Corporation	China	\$1,149,000	SWF
4	SAFE Investment Company	China	\$1,034,000	SWF
5	Abu Dhabi Investment Authority	United Arab Emirates	\$831,000	SWF
6	Kuwait Investment Authority	Kuwait	\$769,000	SWF
7	National Pension Service	South Korea	\$706,496	Pension Fund
8	GIC Private Limited	Singapore	\$690,000	SWF
9	Federal Retirement Thrift ¹	U.S.	\$689,858	Pension Fund
10	Public Investment Fund/Sanabil Investments	Saudi Arabia	\$620,000	SWF
11	APG	Netherlands	\$490,382	Pension Fund
12	California Public Employees ¹	U.S.	\$432,235	Pension Fund
13	Qatar Investment Authority	Qatar	\$425,000	SWF
14	Canada Pension Plan ²	Canada	\$420,764	Pension Fund
15	Central Provident Fund	Singapore	\$406,711	Pension Fund
16	National Social Security Fund ³	China	\$347,214	Pension Fund
17	Mercer ²	U.S.	\$337,733	OCIO
18	Temasek Holdings	Singapore	\$298,000	SWF
19	CDPQ	Canada	\$297,000	Pension Fund
20	California State Teachers ¹	U.S.	\$290,384	Pension Fund

AO 100 ranking (in US\$ million)

Rank	Fund	Market	Total Assets	Type of Fund
21	Mubadala Investment Company	United Arab Emirates	\$276,000	SWF
22	Goldman Sachs ²	U.S.	\$246,846	OCIO
23	PGGM	Netherlands	\$243,000	Pension Fund
24	New York State Common ¹	U.S.	\$233,227	Pension Fund
25	Investment Corporation of Dubai	United Arab Emirates	\$233,000	SWF
26	New York City Retirement ¹	U.S.	\$228,170	Pension Fund
27	Employees Provident Fund	Malaysia	\$227,781	Pension Fund
28	Local Government Officials	Japan	\$207,145	Pension Fund
29	MN Services N.V.	Netherlands	\$207,000	Pension Fund
30	BlackRock ²	U.S.	\$197,046	OCIO
31	BLF	Taiwan	\$195,000	Pension Fund
32	Public Service Pension Investment Board	Canada	\$185,000	Pension Fund
33	Florida State Board ¹	U.S.	\$183,092	Pension Fund
34	Ontario Teachers	Canada	\$182,410	Pension Fund
35	AON ²	U.S.	\$177,989	OCIO
36	AustralianSuper	Australia	\$176,446	Pension Fund
37	Public Investment Corporation	South Africa	\$176,000	SWF
38	Texas Teachers ¹	U.S.	\$173,277	Pension Fund
39	Turkey Wealth Fund	Turkey	\$171,000	SWF
40	Korea Investment Corporation	South Korea	\$169,300	SWF

AO 100 ranking (in US\$ million)

Rank	Fund	Market	Total Assets	Type of Fund
41	British Columbia Investment	Canada	\$169,000	Pension Fund
42	Future Fund Management Agency	Australia	\$165,000	SWF
43	WTW ²	U.S.	\$165,000	OCIO
44	Employees' Provident ³	India	\$158,722	Pension Fund
45	Australian Retirement Trust ⁴	Australia	\$157,847	Pension Fund
46	ADQ	United Arab Emirates	\$157,000	SWF
47	Washington State Board ¹	U.S.	\$154,902	Pension Fund
48	State Street Global Advisors ²	U.S.	\$152,906	OCIO
49	Russell Investments ²	U.S.	\$152,450	OCIO
50	Russian National Wealth Fund	Russia	\$148,350	SWF
51	CDC	France	\$146,000	Pension Fund
52	National Development Fund	Iran	\$139,000	SWF
53	Public Institute for Social Security ³	Kuwait	\$135,872	Pension Fund
54	National Development Fund (NDF)	Saudi Arabia	\$132,000	SWF
55	New York State Teachers ¹	U.S.	\$123,196	Pension Fund
56	Wisconsin Investment Board ¹	U.S.	\$122,877	Pension Fund
57	North Carolina ¹	U.S.	\$118,775	Pension Fund
58	Boeing ^{1, 3}	U.S.	\$117,631	Pension Fund
59	Alberta Investment Management Corporation	Canada	\$117,000	SWF
60	Bayerische Versorgungskammer ⁵	Germany	\$114,329	Pension Fund

AO 100 ranking (in US\$ million)

Rank	Fund	Market	Total Assets	Type of Fund
61	Alecta	Sweden	\$111,923	Pension Fund
62	California University ¹	U.S.	\$110,968	Pension Fund
63	Universities Superannuation ⁶	U.K.	\$109,702	Pension Fund
64	ATP	Denmark	\$109,378	Pension Fund
65	Virginia Retirement ¹	U.S.	\$102,340	Pension Fund
66	Ohio Public Employees ¹	U.S.	\$100,970	Pension Fund
67	Michigan Retirement ¹	U.S.	\$100,432	Pension Fund
68	Aware Super ⁴	Australia	\$99,315	Pension Fund
69	Amitim	Israel	\$98,000	Pension Fund
70	Oregon Public Employees ¹	U.S.	\$95,976	Pension Fund
71	National Federation of Mutual Aid	Japan	\$95,945	Pension Fund
72	PFA Pension	Denmark	\$92,915	Pension Fund
73	Pension Fund Association ²	Japan	\$92,726	Pension Fund
74	AT&T ^{1,3}	U.S.	\$92,636	Pension Fund
75	Northern Trust ²	U.S.	\$92,331	OCIO
76	Ontario Municipal Employees	Canada	\$91,769	Pension Fund
77	KLP	Norway	\$91,000	Pension Fund
78	Emirates Investment Authority	United Arab Emirates	\$91,000	SWF
79	Massachusetts PRIM ¹	U.S.	\$88,451	Pension Fund
80	Minnesota State Board ¹	U.S.	\$88,156	Pension Fund

AO 100 ranking (in US\$ million)

Rank	Fund	Market	Total Assets	Type of Fund
81	Raytheon Technologies ¹	U.S.	\$87,709	Pension Fund
82	J.P. Morgan Asset & Wealth Management ²	U.S.	\$87,597	OCIO
83	SEI Investments ²	U.S.	\$87,148	OCIO
84	New Jersey ¹	U.S.	\$87,128	Pension Fund
85	Kaiser ¹	U.S.	\$86,988	Pension Fund
86	CAPTRUST Financial Advisors ²	U.S.	\$85,845	OCIO
87	Georgia Teachers ¹	U.S.	\$85,330	Pension Fund
88	Ohio State Teachers ¹	U.S.	\$82,940	Pension Fund
89	Lockheed Martin ^{1,3}	U.S.	\$79,966	Pension Fund
90	Alan Biller and Associates ²	U.S.	\$79,247	OCIO
91	Danica Pension	Denmark	\$79,174	Pension Fund
92	General Electric ^{1,3}	U.S.	\$77,435	Pension Fund
93	Royal Dutch Shell ⁷	Netherlands	\$76,756	Pension Fund
94	General Motors ^{1,3}	U.S.	\$76,667	Pension Fund
95	Healthcare of Ontario	Canada	\$76,491	Pension Fund
96	IBM ¹	U.S.	\$75,738	Pension Fund
97	AP Fonden ⁷	Sweden	\$75,601	Pension Fund
98	Alaska Permanent Fund	U.S.	\$75,000	SWF
99	United Nations Joint Staff ¹	U.S.	\$74,222	Pension Fund
100	N. M. Superannuation Proprietary Limited ⁴	Australia	\$72,287	OCIO

Notes:

¹ As of September 30, 2022

² As of March 31, 2023

³ Estimate

⁴ As of June 30, 2022

⁵ As of January 31, 2023

⁶ As of March 31, 2022

⁷ Global figure

Sources:

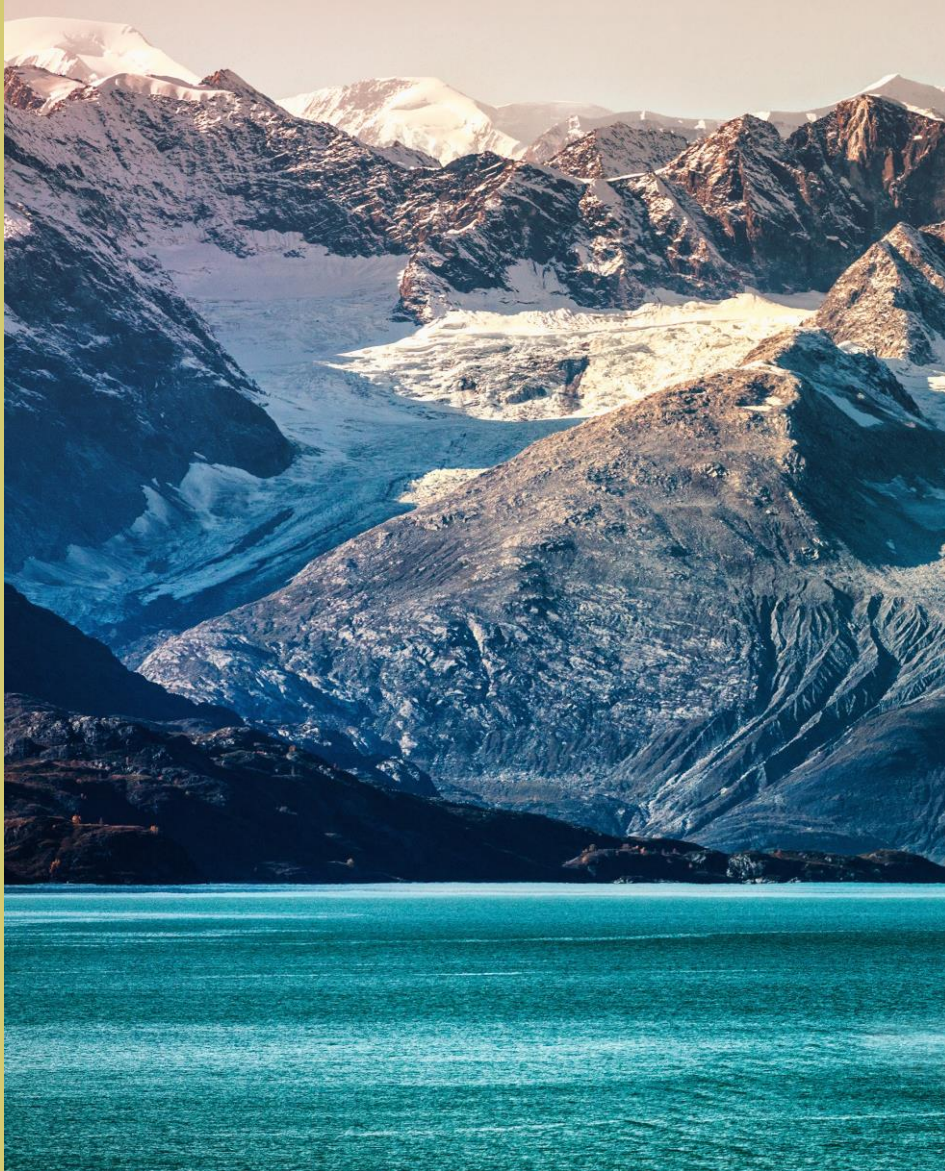
- Global top 300 pension funds, WTW
- Pensions & Investments research center
- Global SWF: a leading financial boutique providing the most up-to-date and reliable data around State-Owned Investors
- Australian Prudential Regulation Authority (APRA)
- Annual reports, websites, and direct communication with organisations

New sources of information were used for some countries in 2022

Limitations of reliance



Limitations of reliance and contact details



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Contact Details

Jessica Gao
jessica.gao@wtwco.com

Website: www.thinkingaheadinstitute.org/en

LinkedIn: Thinking Ahead Institute