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Learnings from a Total Portfolio Approach

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AUTHORS

Stuart Jarvis, DPhil
Managing Director, Portfolio Research
PGIM Multi-Asset Solutions

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'When my information changes, I alter my conclusions. What do you do, sir?'[1] The geopolitical, economic and investment landscape has changed increasingly rapidly, even in the few years since the Covid pandemic. Some asset owners have responded with flexibility and reinvention. The willingness to respond has been joined with an institutional ability to be nimble; processes and incentives are put in place to encourage an active awareness of changing markets and to keep strategy aligned with long-term objectives.

The vast majority (over 95% by AUM) of institutional investors employ a Strategic Asset Allocation (SAA) approach. At one extreme within a spectrum of approaches, an SAA might be set relatively infrequently, often with input from third-party advisers, to act as a target portfolio that can deliver the institution's overall objectives. A smaller number of prominent global investors such as the Future Fund in Australia, CPPIB in Canada, NZ Super in New Zealand and GIC in Singapore, have developed and championed an alternative approach which on some measures sits at an opposite extreme: the **Total Portfolio Approach** (TPA).

TPA comes in different forms but key features often include:

- assets being assessed in the context of the total portfolio rather than an asset silo;
- asset allocation owned by the investment team rather than an oversight board;
- an ongoing focus on the investor objective rather than on the SAA;
- more communication across asset silos rather than primarily within them; and
- active consideration of how the investment regime can evolve, rather than a long-term view

These features are interlinked and mutually reinforcing:

- Revising the strategic portfolio more dynamically is only really possible if this process is owned by the CIO
- Without the comfort (false comfort, perhaps) of an SAA, new asset ideas must naturally be assessed relative to what else is in the portfolio
- This requires understanding and communication across the asset spectrum

1 Quote attributed to John Maynard Keynes by Paul Samuelson, The Economist, 1983.

CIO Takeaways

1. **TPA enables a dynamic strategic asset allocation process that may help achieve better outcomes in the form of higher returns and greater portfolio resilience to a changing economic environment.**
2. **We estimate that adopting TPA enables investors to be twice as active in their asset allocation and produces around 1% per annum additional risk-adjusted return.**
3. **In practice there is a spectrum of approaches. Increasing delegation of asset allocation responsibility from governing boards to investment executives takes many forms and can deliver benefits without wholesale TPA adoption.**

'What's new?' is a reasonable reaction that some CIOs may have to this description of TPA. SAA also comes in different forms, and CIOs often have considerable latitude around their SAA, using tactical asset allocation (TAA) to add value. The net result is surely a strategic portfolio that can be as time-varying and regime-aware as TPA proponents could achieve? But whereas SAA investors must judge potential allocations according to the alpha and tracking error generated relative to the SAA, TPA investors can judge them based on whether they can better achieve an overarching objective. In principle, TPA investors should therefore make more significant shifts in their overall allocation. Looking at actual investor data below, we will see that this is in fact true in practice.

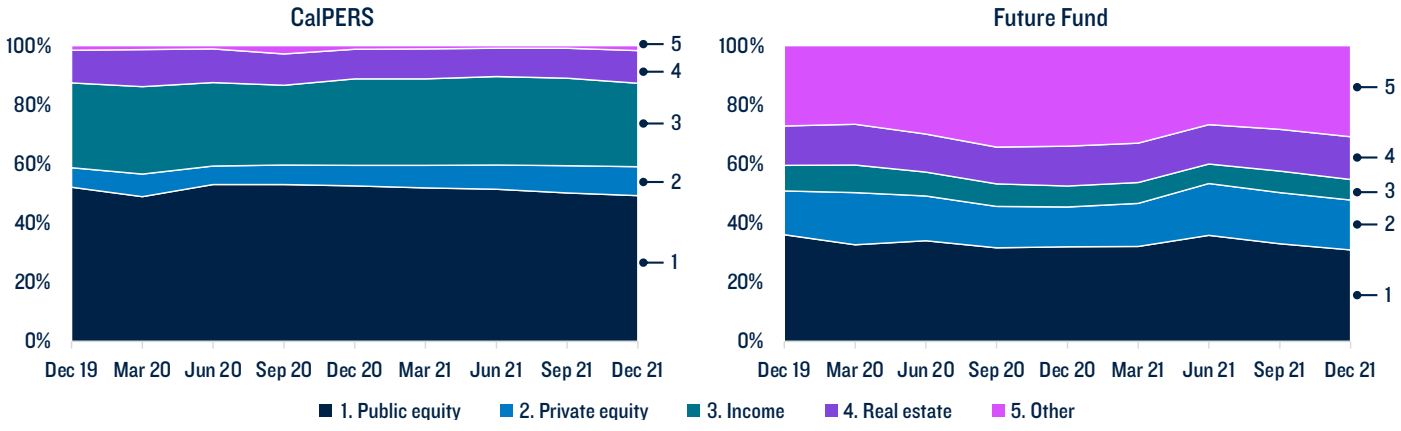
The paper is structured as follows. After a brief case study, we assess some of the advantages and disadvantages of a traditional SAA approach. We outline how investors have responded to these disadvantages, both within the SAA paradigm and through the development of TPA. We develop a simple investment model to highlight different approaches that investors can take to a time-varying investment landscape. This helps to explain how the move to a more dynamic allocation approach that we observe in a sample of sovereign investors has produced better risk-adjusted returns. Finally, we explore in more detail the significant governance challenges involved in adopting TPA, from multiple directions: what is required of the people and processes implemented within the CIO's investment team; how a governing body that has ceded control of the strategic portfolio can meet the challenge of overseeing the investment function that now owns it; and how TPA can help or hinder interactions with external stakeholders.

For ease of exposition, on occasion we draw a simplified contrast between a Board-led SAA approach and a CIO-led TPA approach. But there is a variety of approaches between these extremes. Some investors are on a journey of TPA adoption; others have established a satisfying destination in the middle ground. The final section examines these intermediate approaches and the practical considerations in their support.

Case study: CalPERS vs. Future Fund

In early 2025, the California pension plan, CalPERS, began to explore a potential move to TPA. To illustrate what such a change might involve, we can compare how its allocation responded to the Covid pandemic with that of a prominent TPA adopter, the Australian Future Fund. This highlights investment and governance themes that will be developed further below.

Figure 1. Allocations of CalPERS and Future Fund over 2020 and 2021



Source: Quarterly investment publications on each fund's website. PGIM Portfolio Research calculations.

Figure 1 shows the allocation over two years of CalPERS versus the Future Fund. The data is coarse-grained, using just six asset buckets, and the two funds have very different asset allocations, but it can be seen that the Australian fund's allocation was much more variable from quarter to quarter than that of CalPERS.

Both funds were affected by market turmoil in the first half of 2020, but whereas CalPERS moved modestly thereafter - with an average quarterly movement of 1.7% - the Future Fund was roughly twice as variable, with average movements of 3.3%. While CalPERS changed its allocation to both equities and real assets by only 0.3% over this 18-month period, the Future Fund switched 1.5% from equities into real assets. As its public explanations make clear, the Future Fund, whose investment committee meets at least twice a month, became concerned about rising inflation and moved to position the portfolio to perform well should this persist.[2] Portfolio reviews for SAA investors by contrast can be complex and time consuming. CalPERS' SAA emerges from a nearly yearlong Asset Liability Management (ALM) process. The resulting SAA defines the course of the portfolio over the next four years and can take over a year to implement, with interim allocation targets set en route.[3,4] The response to Covid and the subsequent rise in inflation was ultimately captured in the new SAA agreed on in November 2021. By the end of December 2023, the real asset allocation of both CalPERS and the Future Fund had increased by 3% compared to their December 2019 starting points.

SAA as the route map to meeting a fund's objectives

The traditional approach to constructing a portfolio involves the creation of an SAA at an early stage in the investment process. Investment funds generally have an objective – e.g., paying liabilities; outperforming inflation; generating an income or some combination of these – which is not naturally expressed in the form of an asset class benchmark. The SAA is a portfolio benchmark: it is an allocation judged capable of achieving the investor's objective at an acceptable risk level, within any constraints imposed by regulation, risk capital, investor beliefs etc. Determining an SAA involves assessing potential portfolios across a range of possible future outcomes against the investment objective. It requires expertise in modelling investment markets, evaluating stakeholder needs, calculating regulatory constraints, optimisation etc. Fund owners – in practice, their governing boards – are rarely well placed to assess these directly. Instead, they usually rely on advice, either from the fund manager (CIO) or from an external consultant:

> **In a more typical approach, the owner of the fund… decides on the SAA, approves the benchmark portfolio representing the SAA and sets active risk limits for deviating from the policy benchmark. Operationalization of the SAA and active management is then delegated to the fund manager. In a less typical approach, the SAA decision is fully delegated to and owned by the fund manager."**
>
> International Monetary Fund, November 2013[5]

Re-expressing the investment objective in terms of the SAA's building blocks - asset classes - brings significant governance advantages; the CIO's main task becomes to implement, and outperform, the SAA, providing an immediate yardstick for success. The SAA therefore provides more than just an investment blueprint - it also helps determine the organisational structure. Effort is split into asset class components, knowing that the result, at the overall portfolio level, will be aligned to the original goal. TPA proponents question whether the sum of the parts really does achieve the original investment objective:

> **The focus in a total portfolio approach is… on the whole of portfolio outcomes, not making an assumption that the process brought together will bring you the best outcome."**
>
> Tanya Braithwaite, TCorp CIO, February 2023

This is relevant in the context of the preceding case study. Rising inflation clearly poses a strategic challenge for a fund whose long-term objective is to generate high real returns. A fund whose day-to-day processes are built around implementation of an SAA will initially be interested in the tactical opportunities - to generate alpha relative to the SAA - presented by increasing prices. This risk - losing sight of the original objective and focusing instead on the SAA - is clearly greater when responsibilities have seemingly been neatly divided between fund owner and the investment function.

2 See section 3 of Annual Report 2021-22. https://ifswf.org/sites/default/files/annual-reports/2021-22%20Future%20Fund%20Annual%20Report.pdf
3 CIO letter, 2021-22 annual investment report https://www.calpers.ca.gov/documents/annual-investment-report-fy-2022/download
4 Trust level report, https://www.calpers.ca.gov/sites/default/files/spf/docs/board-agendas/202303/invest/item06d-01_a.pdf
5 Sovereign Wealth Funds: Aspects of Governance Structures and Investment Management, IMF Working Paper WP/13/231 https://www.imf.org/external/pubs/ft/wp/2013/wp13231.pdf

Does Strategic Asset Allocation risk being too rigid?

Typical SAA processes certainly provide a robust way to select thoughtfully between potential alternative strategies, but potential issues can still emerge, e.g. based on the frequency of reviews, the ownership of the process, or the nature of the output:

- **Lack of responsiveness.** This arises when, for example, SAA ownership is retained by the fund owner who is subject to governance constraints, e.g. a limited time budget or a limited skill set. The fund owner (i.e. governing board) would need to commission and review - and the fund manager (CIO) then subsequently implement - any change in the SAA. It can therefore take an extended period for a fund to respond to changes in the investment landscape. In such situations, SAA reviews may only occur at intervals of one or more years, leaving a fund poorly balanced if there has in the meantime been a significant shift in interest rates, market correlations or other key assumptions that drove the SAA. In contrast, where market moves are smaller or more fleeting, an SAA anchor may be more useful; lesser market moves do not invalidate the SAA and the investment team are able to take advantage of these using TAA centred around the SAA baseline.

- **Low dependence on market conditions.** Where a fund anticipates that it will be difficult to respond quickly to market moves, this has consequences for the construction of the SAA itself. Since the SAA will be used for an extended period until the next review, it should have limited dependence on current market valuations and instead take a 'through the cycle' view of the trade-offs across the asset universe. Investors sometimes face significant uncertainty in the form of a wide range of plausible market regimes in the future. In the current environment this could be due to many very different paths for interest rates, inflation, deglobalisation etc. When an SAA will struggle to react to an emerging regime, it makes sense to plot a middle path - creating a portfolio that depends not on the current regime but instead balances risks across several potential investment landscapes. Any opportunity there may be from shifting allocation as the market regime changes will not be taken. The task of creating such an appropriate investment response falls between the cracks, as the fund's governance prevents such changes from being agreed and implemented.

- **Ownership gap.** Stated differently, the risk is that the original fund goal is only remembered during infrequent SAA reviews. The SAA is of course a key intermediate stage en route from a fund's goals to the actual portfolio, but it is not the objective itself. The governing board's attention can understandably shift from the overall objective to monitoring the CIO's success in implementing the SAA. If the CIO's objectives are formulated in terms of the SAA, this will naturally become the CIO's primary focus. Even though a range of alternative portfolios might have met the fund's goals, it may go unnoticed that changes in the investment landscape could mean that a different strategic portfolio may be more appropriate. The gap between the goals and the SAA, risks being 'owned' by none of the key parties on an ongoing basis.

- **Restricted asset universe.** The investment universe is broad and evolving; an SAA is typically framed in terms of a small number of asset classes (e.g., fewer than 15). While these asset classes are broad and capture the vast bulk of investable assets by value, an SAA will ignore asset classes that may be small or growing yet provide opportunities to diversify returns or protect the portfolio from various economic forces. Most of the investment team's efforts will be aligned with implementing the asset classes in the SAA; an asset which doesn't fit naturally into one of these risks falling between asset class silos.

In summary there is a risk that the SAA process adds unhelpful rigidities to the portfolio construction process. But the flip side of this case against SAA is a case that we can equally well make in its favour. From an **investment** perspective, some of these rigidities could be seen as a strength; having a relatively stable allocation is aligned with many investors' objective of achieving long-term performance or risk objectives over a market cycle. Furthermore, an SAA process brings significant **governance** advantages:

- **Stable allocations.** Relatively infrequent SAA reviews mean that capital can be committed to strategies with the confidence that the allocation will not change soon.

- **Siloed team structure.** The investment team structure can be broken down into the same pieces (asset classes) as the SAA. Each team then has a well-defined task within their asset class, with little need to be disturbed by activity elsewhere in the portfolio.

- **Straightforward performance measurement.** The SAA provides a benchmark for each asset class allocation and for the overall portfolio. Each team's performance – the alpha that has been generated, the tracking error risk budget that has been used - can then be measured straightforwardly and over periods that are as long or short as desired.

A natural reaction to the potential SAA rigidities highlighted above might be to rely upon a tactical asset allocation (TAA) strategy. Such a strategy can be delivered in the form of an overlay to maintain the governance advantages of SAA, but does not achieve the investment advantages of a dynamic strategic asset allocation (DAA) approach. DAA evolves allocations so as to meet a fund's long-term - strategic - objectives. It ensures that the portfolio remains aligned with the institution's goals as the investment environment varies. In particular, DAA makes corrections when the economy's move to a new regime undermines the assumptions that were made when setting the pre-existing SAA.

DAA as defined in this way is distinct from a TAA strategy. TAA also seeks to outperform when the investment environment changes, but crucially the SAA is now treated as a given benchmark. TAA strategies typically over- and under-weight allocations within the SAA according to changing valuations and expected returns within the market. The TAA objective can be framed as an absolute return objective expressed through long and short positions in different markets.

The difference is subtle but important. Consider an investor with an 'inflation plus' investment objective facing an environment in which inflation and interest rates quickly rise from a range in which they had previously persisted. If this is a spike that is expected to shortly revert, then a tactical response to benefit from attractively priced assets would be appropriate. But if a higher inflation regime is expected to endure for a more extended period then the investor's objective could likely be met by a different balance of income and growth assets, for example. Revising the SAA is therefore the more appropriate response in this case. Thus, whereas TAA logic may motivate a small tilt to the portfolio, a DAA mindset can inspire a more radical portfolio review.

Evolving SAA to be more nimble

For many investors, an SAA is unavoidable. Many pension plans, for example, place responsibility for setting the strategic, or policy, portfolio, in the hands of a governing body of trustees. Regulators may require a fund to submit their SAA on a regular basis, and this will then form a basis for external assessment.

Nonetheless, many funds have been conscious of the potential costs and rigidities from having an overly static SAA, and, faced with a rapidly evolving macroeconomic and investment environment, have evolved their governance to enable them to be more nimble. Many large pension plans have given their CIOs increased responsibility for asset allocation in recent years. For example, this means expanding the role of a CIO from one of implementing an SAA determined by the Board based on external advice, to one where they also provide that advice. In such a context, the expanded CIO team is well placed for considering the appropriateness of, and then updating, the SAA on an ongoing basis. A Board can still insist on their role in signing off on an SAA change, but the CIO can help ensure that change is timely rather than needlessly delayed. Key elements of a dynamic strategic asset allocation process can thus be created even while retaining many elements of the Board-led process.

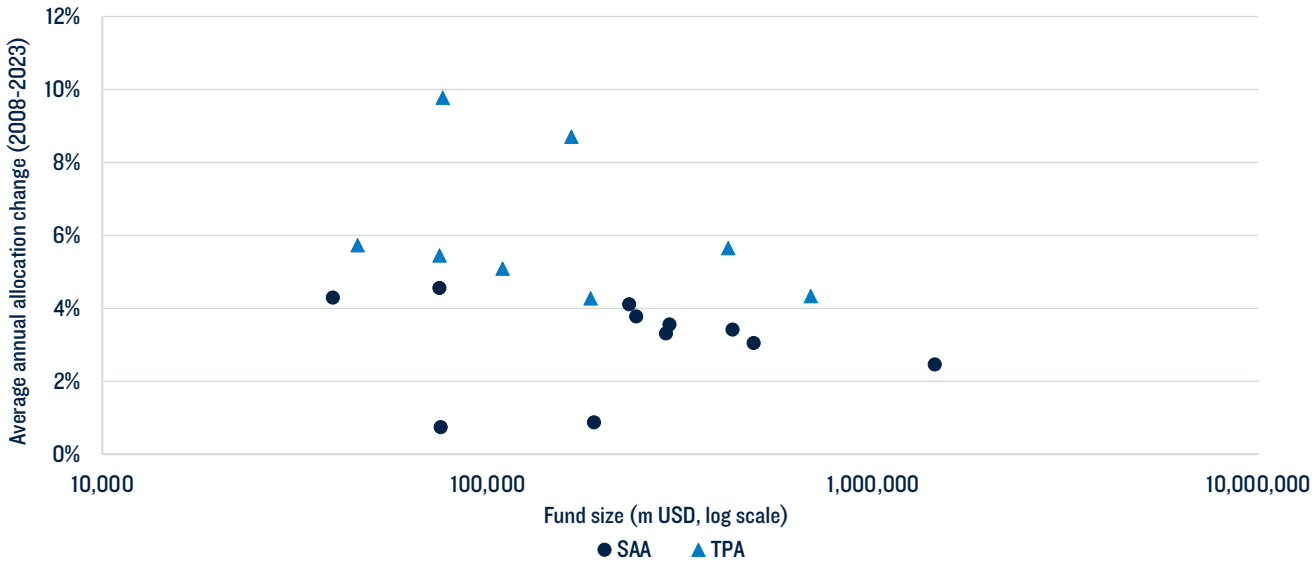
Other plans have moved to an outsourced CIO (OCIO) model, achieving a similar result through appointment of a multi-faceted external partner providing both advisory and implementation services. While the range of services delegated to an OCIO varies from case to case, it is not unusual to appoint OCIOs that have the capability to assess the appropriate strategic portfolio to meet a fund's objectives. Appointing an OCIO can therefore give a governing board a good opportunity to delegate ongoing responsibility for the strategic portfolio stance. But here the oversight challenge can be significant: establishing trust and agreeing appropriate metrics are even more important when the key performance measurement horizon for a third party shifts from the short to the medium term.

An SAA model can, then, be made more nimble, even if governance concerns necessarily add constraints and frictions to what can be achieved. Indeed, some investors who have made these changes would describe the result as a total portfolio approach. More often, however, TPA investors go further and dispense with an SAA altogether, leaving the strategic stance of the portfolio firmly in the hands of the investment team, and resulting in much greater portfolio dynamism, as we will now see.

TPA as a response to the governance and skill gaps

Figure 2 compares the experience of a group of large global investors. These use broad data on allocation - split into 6 asset classes - over a 16 year period for each fund. The average y/y variation in this allocation is shown as the vertical axis in Figure 2, with fund size in the horizontal axis. Those investors who self-identify as using a total portfolio approach are marked with triangles, the others with circles. Figure 2 shows that the TPA group is associated with a much larger annual variation (6% on average) than the SAA group (3% variation on average). The degree of variation shows little dependence on fund size. It instead depends much more strongly on which governance model a fund has adopted.

Figure 2. TPA investors have markedly more dynamic allocations than their SAA peers



Source: SWF Global data, PGIM Portfolio Research calculations 2025. For illustrative purposes only. Vertical axis shows half the average absolute change in allocation as recorded in six broad groups (fixed income, equities, real estate, infrastructure, private equity and hedge funds). Half of the absolute difference is used so that a move from 70%/30% to 68%/32% counts as a 2% move rather than a 4% move. See Appendix A for underlying dataset.

Sure enough, then, adopting TPA has broken through the rigidities of the SAA approach. TPA appears capable of delivering an allocation that is twice as dynamic as SAA investors are able to accomplish. To achieve a more dynamic allocation process, investors have to confront two gaps already alluded to above. Firstly, there is the governance aspect: teams around the CIO are likely to have more time, and many of the skills, to monitor and react to changes in the investment landscape. Secondly, there is an investment capability aspect: teams that have been created to deliver an SAA may have lots of asset class specialists but fewer individuals capable of considering the whole portfolio relative to the investor's original goals.

TPA tackles both of these gaps. Primarily, ownership of the strategic portfolio is shifted from the Board to the Investment Executive. The 'total' portfolio nomenclature reflects this shift as well as its consequence, that potential investments are now assessed in the context of the total portfolio. Ongoing strategic portfolio review means that asset class allocations are never set in stone – novel asset classes are easier to introduce but must be justified on the basis of their risk characteristics relative to the existing portfolio. Assets must 'compete for capital' within the portfolio. An asset can play a risk-reducing role or return-generating role; it may help to increase portfolio resilience or allow it to profit from new opportunities.

Secondly, the shift in ownership, and the reconfiguration of how investment ideas are assessed, may call for different individuals. In place of specialists skilled at selecting managers or generating alpha in their particular asset class, the need is now for individuals able to consider the role of an asset class in the total portfolio. Portfolio risks do not respect asset class boundaries.
While individuals will almost always have a core competence in a particular asset class, they are now asked to be aware of how an asset class interacts with others: once the SAA is no longer rigidly predetermined it becomes subject to debate.
Individuals therefore are asked to assess how risks affect multiple asset classes, not just a single one.

Investors have approached TPA adoption in different ways. One middle path that accepts a governing body's ability only to review an asset allocation infrequently, while shifting the ownership of the SAA towards the fund manager, is through the use of a reference portfolio. This is typically a fixed-weight asset allocation, but made of very simple broad building blocks (often, just two: public equities and bonds). The simplicity is attractive where a governing body either lacks detailed investment knowledge or is not involved in the day to day investment management decisions. It is a static portfolio and in principle investable but requires further elaboration by the investment team before a strategic portfolio can be defined. Taking a long run (equilibrium) view, that ignores potential investment regimes, the reference portfolio is established as a simple, cheap-to-implement, portfolio that could meet the investor's objectives within their risk tolerance. The reference portfolio is a step en route to the strategic portfolio. The investment executive is tasked with developing the SAA that meets the investor's goals but within the risk context of the reference portfolio. This elaborated SAA can then be much more dynamically updated by an investment team that is daily involved in its development and execution.

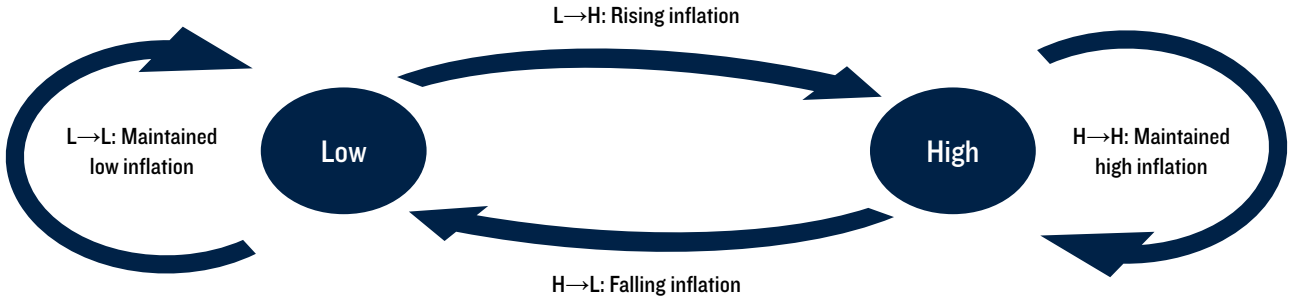
In all cases - whether or not a reference portfolio is used - the shift in ownership of the creation of a portfolio to meet the investor's investment objectives requires a different skill set and a different mindset from the investment team.

Potential benefits of a more dynamic asset allocation

In this section we use a simple toy model to illustrate why and how a time-varying ('dynamic') asset allocation process can deliver better outcomes for investors than a process where the weights of different asset classes are kept fixed (an 'all-weather' portfolio). These are two possible approaches to an market environment which has the potential to switch between different regimes.

Figure 3 illustrates the simple model: the background economic environment is one of either high or low inflation, and the expected returns offered by investment markets over a given time period depend upon the environment both at the start and end of the period. The two macroeconomic states therefore produce four regimes for market returns.

Figure 3. Two macroeconomic states and four regimes for market returns



Source: PGIM Portfolio Research 2025. For illustrative purposes only.

Expected returns for three assets across these four possibilities are shown in figure 4. These are calibrated based upon realised quarterly returns over the period 1971Q1 to 2023Q3. Alongside equity and bond market instruments we also include a real asset basket, containing Gold, Energy commodities and TIPS - see the 2025 PGIM Portfolio Research paper Real Assets, Inflation & Portfolio Performance for more details.

Figure 4. Expected asset returns in the four different return regimes

	L ▸ L	L ▸ H	H ▸ L	H ▸ H
S&P 500	12.2%	12.2%	19.4%	9.2%
10y US Treasuries	9.7%	-1.2%	11.2%	-0.5%
Real asset basket	4.5%	31.1%	2.4%	27.1%

Source: PGIM Portfolio Research 2025. For illustrative purposes only. Annualised returns are shown for simplicity but the model is calibrated and simulated using quarterly time steps. For more details of the 'real asset basket' see Real Assets, Inflation & Portfolio Performance, PGIM Portfolio Research 2025.

The real asset basket provides a degree of insurance against higher inflation: it offers a drag on returns when inflation is low but provides useful ballast, outperforming the other available assets, when inflation rises to a higher level.

Figure 5 documents and compares a variety of potential strategies an investor could follow:

- **Baseline, 60/40 portfolio.** We use a 60% equity / 40% bond portfolio as a baseline, with the risk aversion parameter calibrated so that this is the optimal fixed-weight mix of equities and bonds.
- **All-weather portfolio.** This is again a fixed-weight mix of assets, i.e. with the same mix held in either high or low inflation states, but now real assets are included within the portfolio; the optimal mix includes 38% in this basket. The portfolio is designed to manage risk and return by giving appropriate weight to each of the four potential return distributions.
- **Persistent investor.** Rather than maintaining fixed weights in every state, an investor can hold an asset mix that varies according to the current macro-economic state, i.e., different portfolios in high- and low-inflation regimes. The persistent investor designs these portfolios on the basis that the current state will persist: they ignore the possibility that it will transition to the alternative state.
- **Dynamic investor.** Finally, the dynamic investor also holds a different portfolio in each state but now weighs the impact of a possible state transition against potential returns if the state persists. The result is a more balanced portfolio that seeks to mitigate the worst outcomes whether or not a state transition occurs.

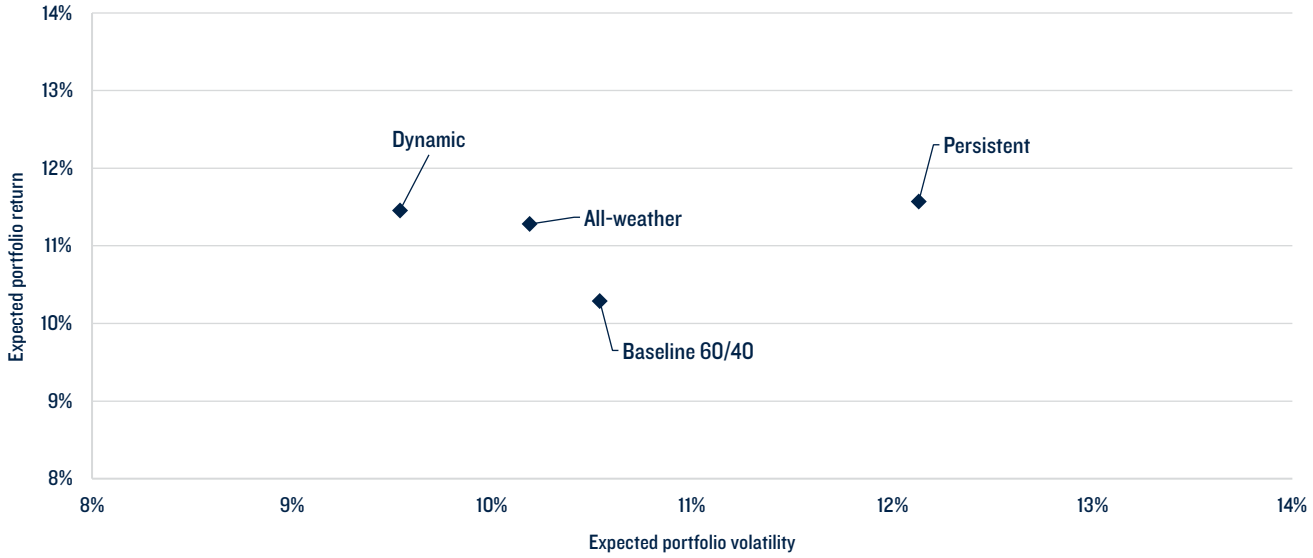
The all-weather investor and the dynamic investor play the role within this model of the SAA and TPA investor respectively. Both are aware of regimes, and respond thoughtfully to potential regime transitions, but in different ways. The all-weather approach would likely be the most reasonable approach if frequent changes in the strategic portfolio would be difficult to achieve due to time-consuming portfolio governance. An investor whose governance enables it to be more nimble can instead move to different allocations in the high and low states. In all cases, we emphasise that the investors' allocations are strategic rather than tactical: no investor has insight into how the state will actually evolve.

Figure 5. Investment strategies and statistics

Strategy	Baseline 60/40		All-weather		Dynamic		Persistent	
Regime	Low	High	Low	High	Low	High	Low	High
Equities (S&P 500)	60.0%	60.0%	50.3%	50.3%	46.6%	46.1%	43.6%	3.0%
Bonds (10y UST)	40.0%	40.0%	11.9%	11.9%	34.2%	0.0%	56.4%	0.0%
Real asset basket	-	-	37.9%	37.9%	19.2%	53.9%	0.0%	97.0%
Risk and return (annualized) contingent on starting state								
Mean	10.6%	10.0%	10.5%	13.6%	10.2%	15.2%	9.8%	16.4%
Standard deviation	9.7%	13.0%	10.0%	11.4%	8.3%	12.6%	8.1%	19.5%
Long-run risk and return (annualized)								
Mean	10.3%		11.3%		11.5%		11.6%	
Standard deviation	10.5%		10.2%		9.5%		12.1%	

Source: PGIM Portfolio Research 2025. For illustrative purposes only. Investors described in the main text all optimise with the same risk-aversion parameter, set so as to be consistent with the baseline 60/40 portfolio. Risks and returns each quarter depend not just on the initial regime (which determines the allocation as shown) but also the regime at the end of the quarter. The average return and standard deviation of the resulting normal mixture distributions are shown, for each quarter and then as a long-run average. Risk and returns are expressed in annual terms.

Figure 6. Investment strategies compared



Source: PGIM Portfolio Research calculations 2025. For illustrative purposes only. Risk and returns are expressed in annual terms.

Figure 6 plots the overall risk and returns for the four strategies. Starting from the 60/40 base portfolio, it can be seen that including real assets into the asset mix enables the all-weather investor to achieve a better risk-adjusted return with a fixed-weight SAA. The dynamic investor, whose governance enables them to be nimble as the investment landscape evolves, can achieve yet better results: a slightly higher return and a narrower range of outcomes. The investor who assumes that the current state will persist is proved right more often than not, and achieves a slightly higher return, but at the price of a dramatically more variable allocation and a much wider range of return outcomes. The dynamic investor tilts their portfolio over time in a similar direction to the persistent investor, but maintains a core equity holding throughout, ending up, from an allocation perspective, intermediate between the persistent and all-weather investor.

All investors other than the persistent investor are concerned to ensure that their portfolios are resilient to potential future shifts in the economic regime. However, the dynamic investor is best able to cope with changing landscapes. TPA places a concern with future investment regimes squarely in the hands of the investment executive team, enabling them to adopt a similar approach to the dynamic investor in our toy model. Australia's Future Fund describes their approach in this way:

> **Of course, we cannot know how these themes will play out or quite how they will interact with each other. Rather than trying to form a prediction, we consider a variety of plausible scenarios and consider how we can evolve and position the portfolio to be as robust as possible in those scenarios.**
>
> **We do this while considering the characteristics and advantages we have: our long-term investment horizon, our total portfolio approach and our ability to partner with high calibre investment organisations globally."**
>
> "A New Investment Order". Future Fund, August 2021

Resilience is not about avoiding all potential drawdowns (returns, after all, are the fair compensation for risks that are run), but instead involves avoiding exposure build-ups across multiple parts of the portfolio to potential changes in the investment environment. For example, a specific rise in geopolitical or trade tensions may be foreseen as having a reasonable likelihood. It may be projected to have an impact on currencies, equity and commodity markets that would be very different to historic patterns. Some correlations may fall as a result of reduced global interlinkage. Exposure to this scenario could perhaps be reduced by a geographical rebalancing that would otherwise make little difference to the portfolio's risk and return characteristics.

Realised benefits of a more dynamic asset allocation

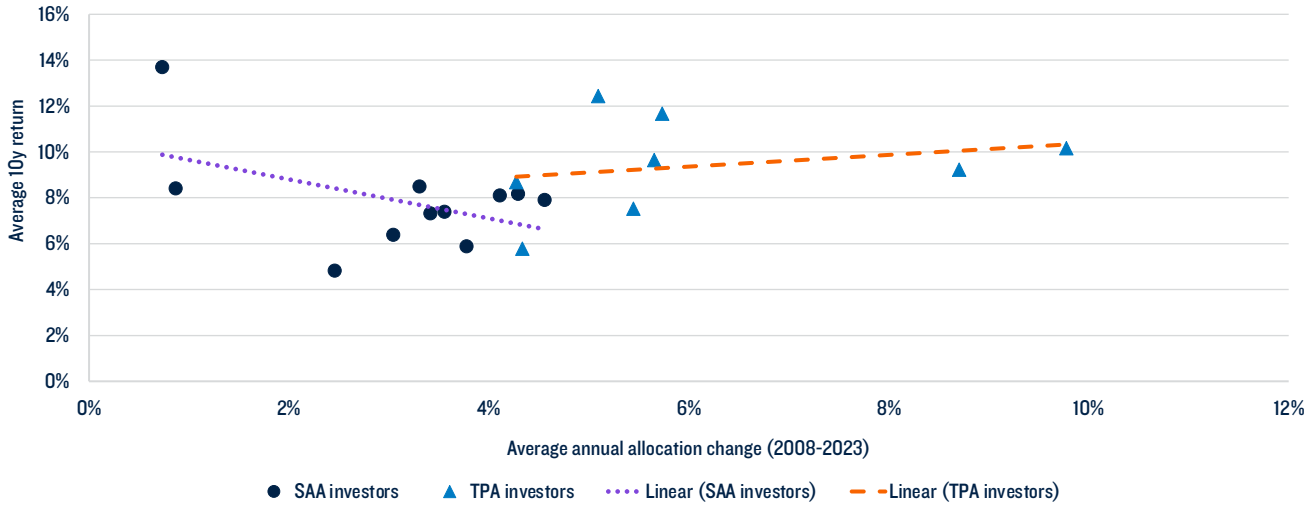
Theoretical models can help to develop investment intuition and to identify where particular levers may be helpful in the asset allocation process. But models are necessarily simplifications of reality and so we now turn again to empirical data. This allows us to see if the model captures important aspects of real-life investment practice or if the expected effect is overwhelmed by other factors. Consistent with our theoretical model, we have already seen (Figure 2, above) that TPA investors' allocations are markedly more variable than non-TPA investors - roughly twice as variable in our sample set.

This next charts show how this variability in allocations has contributed to the TPA sample having higher risk-adjusted returns. Investors who self-identify as using a total portfolio approach are again marked with triangles, with the others marked with circles. Figure 7 plots the average realised 10y return over the period 2008-2023 against how much allocations varied over this period (the metric used as the y-axis in Figure 2). It shows that, in general, greater variability in an investor's allocation (x-axis) is associated with higher return: a 5% increase in average annual variation is associated with an additional return of 0.85% p.a. There is significant variation around this - indeed the investor with the highest average return (AP7, which has the greatest equity allocation in the group by some margin) has the least measured variation in the portfolio allocation.

Figure 8 compares average returns across the two groups (TPA investors and SAA investors), revealing that the TPA investor group has consistently delivered higher long-term returns (of about 1.5% p.a. on average in this sample). Returns are of course only part of the story: each investor will have a different return objective, risk budget, regulatory constraints etc. We can use the variability of returns as a proxy for how risk appetite varies across the sample. We use variability in the long-run (10y) returns as a way to 'see through' the dampening of short-term volatility that results from investing outside public markets. Figure 9 therefore shows each fund's average 10y return plotted against how variable this return had been in the sample period. Consistent with figure 8, the average TPA fund return is around 1.5% p.a. higher than the average SAA fund. The trendlines illustrate the standard result where funds that take more risk in general see a higher level of outcomes. But the gap between the two groups show that TAA investors are not taking more risk than SAA investors - rather, the trade-off between risk and return is taking place at a higher level of return for TPA investors than for SAA investors.

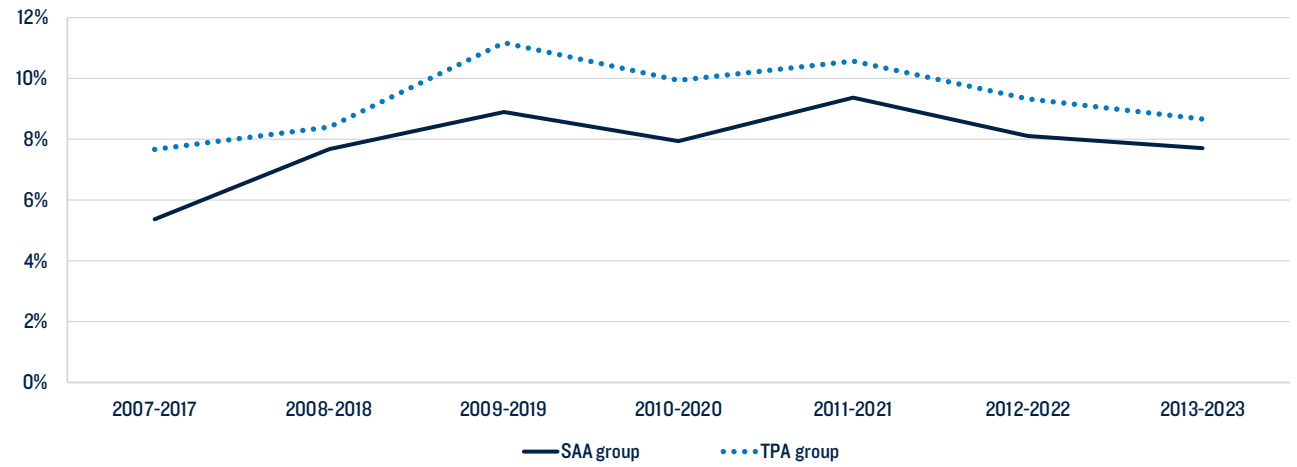
This estimated 1.5% p.a. benefit may appear surprisingly high and of course this is a small sample. We can instead use an attribution approach to estimate the effect of the funds' changes in asset allocation over time. Following this alternative approach we find that only around 0.4% p.a. of TPA investors' return is due to the time variation in their allocations, leaving a large unexplained difference. It would be surprising if there were not a large unexplained component here: there is much more actual variability than can be observed in this data set (annual frequency; very rough granularity with only 6 asset class buckets) but a finer analysis could produce either a higher or lower estimate of the return that arises from this variability. While the evidence in favour of a TPA return advantage seems compelling, its magnitude will perhaps only become clearer as more investors adopt this approach. A combined estimate of 1.0% p.a. may therefore be an appropriate estimate in the interim.

Figure 7. Relationship between dynamism and long-run return amongst selected sovereign investors



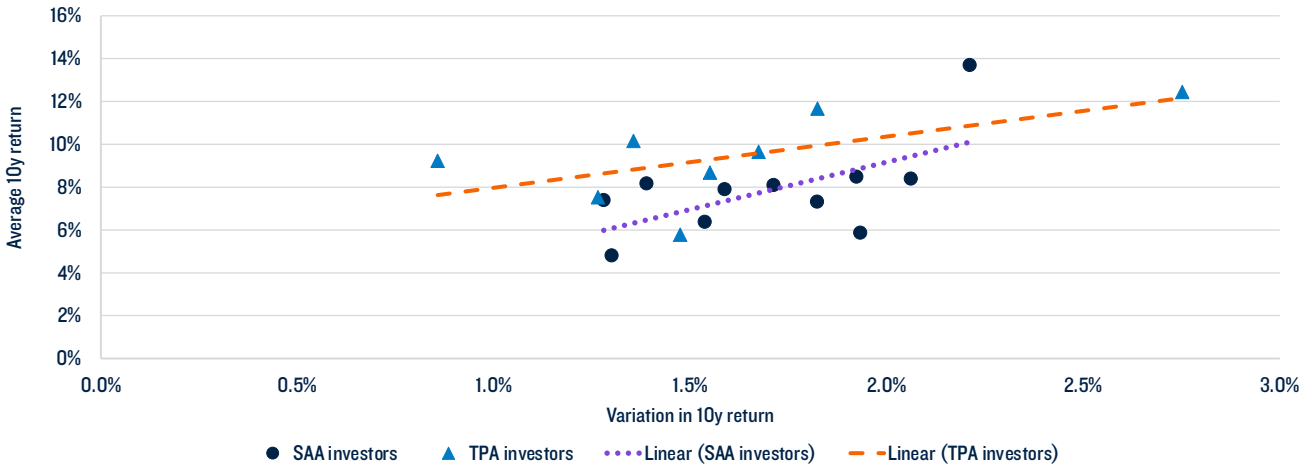
Source: SWF Global data, PGIM Portfolio Research calculations 2025. For illustrative purposes only. Same data as Figure 2, but with TPA and SAA groups examined separately.

Figure 8. TPA investors have delivered higher returns with a similar level of variation over time to SAA investors



Source: SWF Global data, PGIM Portfolio Research calculations 2025. For illustrative purposes only.

Figure 9. TPA investors generally achieve a better trade-off between risk and return



Source: SWF Global data, PGIM Portfolio Research calculations 2025. For illustrative purposes only.

Governance and oversight

An institution's governance structure provides clarity on the roles and responsibilities that individuals and teams have and it defines the key relationships and interactions between them. The structure determines who is involved in, and who takes ownership for, specific decisions; and thus also provides a blueprint for how success can be measured.

A strategic asset allocation is extremely helpful from a governance perspective. The task of constructing the portfolio is broken into clearly discrete asset classes, to each of which a separate team can be allocated. These teams can be staffed commensurately with the allocation and performance can be assessed relative to asset class benchmarks. The SAA itself forms the benchmark for the investment team as a whole: asset class deviations can be evaluated using their contributions to the portfolio-wide (top-level) performance. The focus throughout the investment organisation is on delivering alpha relative to the SAA.

The total portfolio approach breaks this comfortable paradigm in several ways. Bottom-up alpha performance must be supplemented with portfolio level performance – but performance relative to long term goals takes time to emerge and may lack informative content in the short term due to beta volatility. For example, a portfolio's failure to meet a CPI + 3% return target over a quarter should probably be judged less harshly if a broad range of growth and defensive assets delivered negative real returns.

On the other hand, being able easily to measure performance relative to an SAA can mean that other aspects of the asset allocation and portfolio construction process receive less attention, either at the portfolio management or the oversight stage. Lacking the simplicity of a readily calculated short term return metric, TPA investors are forced to broaden their horizon. A wider range of portfolio characteristics can now receive due attention. The result usually takes the form of a balanced scorecard. Common components include:

- **Alpha.** Within individual asset class allocations, the performance added relative to benchmarks continues to be an important metric.
- **Return against objectives.** Top-level return remains key – but due to the difficulties of interpreting short term performance, attention is weighted towards rolling five- or ten-year periods rather than to more recent quarters.
- **Return against peers.** Where other investors have similar objectives, they can form natural comparators against whom allocation choices and realised outcomes can be judged.
- **Costs.** These may be internal costs as well as external fees.
- **Risk.** Understanding the sources of portfolio volatility that are driving performance.
- **Resilience.** Ensuring that the portfolio is built in a way that manages exposure to potential tail events.
- **Liquidity.** Confirming that potential cash flow demands can be met without severe portfolio impacts.
- **Complexity.** Portfolio management, valuation and oversight are likely to require more resources for instruments whose return emerges after significant fund structuring (e.g. fund of funds) or financial engineering (e.g. securitisation).
- **Sustainability.** Assessing a portfolio against an institution's ESG views or objectives.
- **Collaboration.** A total portfolio approach benefits from teams with different areas of expertise (e.g. asset class specialists) collaborating to share insights on how risks will impact diverse parts of the portfolio and helping to build a diversity of exposures accordingly.

The richer, more rounded and more collaborative portfolio construction conversation should only be beneficial for portfolio outcomes. TPA is not a prerequisite here - CIOs can insist on incorporating these within an SAA context too - but these features emerge more naturally for an investment function following a total portfolio approach.

The broader view of course affects not just the agenda for the governing board but also the investment teams. Being measured on the performance of the total portfolio acts as a powerful incentive to focus accordingly. Investors who have moved from SAA to TPA report that teams who could previously only see advantage in allocation to 'their' asset class can at times make an argument for it to be underweighted in particular investment environments. More commonly, the more expansive perspective allows and encourages specialists to apply learnings from one component of the portfolio so as to identify vulnerabilities or opportunities in other parts.

A further way in which TPA can complicate portfolio governance is through its impact on hiring and retention. Since an SAA is no longer handed down from the governing board but can instead be regularly updated by the CIO and their team, individual asset classes may no longer be guaranteed a capital allocation. Retaining an SAA, even a more fluid one, can serve to provide confidence when staffing specific asset teams. The potential for having a reduced allocation for protracted periods can be problematic for hiring asset class specialists. For private asset classes in particular, where individuals' focus may be on origination rather than alpha generation, severe cuts in allocation create the risk of staff moving elsewhere. In practice, allocations to public asset classes in our sample vary much more than do the allocations to private asset classes, perhaps reflecting a conscious accounting for the opportunity cost of losing this expertise as much as it reflects the greater ease of varying allocations to listed asset allocations. Fear of collapse in an asset class allocation may therefore be somewhat misplaced, but this fear can be mitigated further through expanding the skill set of team members – reducing their dependency on a single asset class and expanding their focus to include portfolio-wide impacts.

Factor perspective

As we have described, portfolio construction in a total portfolio approach benefits from a clear understanding of how any component may interact with the portfolio as a whole. While asset class specialist knowledge continues to be needed, TPA requires investment team members to take a broader view. Factors often form the language used to allow disparate strategies to be compared and combined.

A factor perspective has long provided a common way to describe, and quantify, how broad systemic risks can drive risk in multiple asset classes. For example, economic growth, the level of interest rates, the credit cycle and inflation will drive not just equity and bond prices but also commodity and real estate prices. Returns can be thought of as the compensation for bearing the risk that bad times will occur in one or more of these underlying risk factors; and the level of return depends on the level of exposure to the different factors. This can be helpful in several ways. For example, estimating the factor exposures of a potential investment helps determine which parts of the existing portfolio might be sold to provide funding. Secondly, considering how risk factors are likely to be rewarded in potential future investment environments can help determine a target factor mix.

An important practical question is the extent to which (typically, multivariate) beta estimates can be relied upon for portfolio construction. Estimating factor exposures for instruments within large public markets with long histories (equity and bond markets) is a by-now old question with well-established methodologies.[6] Estimating the extent to which macroeconomic factors drive returns across asset classes is somewhat newer but also well studied and implemented.[7] Nonetheless as new investments emerge, e.g. from private markets, into institutional portfolios, a mix of judgement and quantitative analysis is required, e.g. taking a Bayesian learning approach to update beta estimates over time as data and experience accumulate.

The betas provide a benchmark for future assessment of the decision to invest in a particular asset. Simplicity can trump sophisticated numerical analysis in practice – having an equity beta that is judged to be 1.0 may be more useful than the output from a process which will be volatile as new data emerges. Similarly, where an investor is using a two-asset reference portfolio approach, the question for a potential investment becomes to determine what equity/bond mix would be an appropriate performance comparator at some future horizon. Determining this mix then raises questions about what the potential sources of return are - questions that can be answered either qualitatively (e.g. by scenario analysis) or quantitatively (when sufficient data exists for analysis).

Broader considerations

Funds do not operate purely in an investment world but are also subject to broader public scrutiny. A governance model needs to be assessed, and chosen, in the light of how it will enable the fund to respond to this context too.

Funds in recent years, for example, have been subject to increased political pressure on how or where they invest, e.g., to invest in accordance with sustainability goals, or to fund domestic infrastructure projects. Moving the centre of gravity for owning the investment allocation from the Board to the CIO function makes the investment organisation nimbler, and so better able to respond to such pressure. New investment ideas can be more readily considered and incorporated within a total portfolio context. A fund with a more byzantine governance process, on the other hand, may find it easier to resist pressure, at least in the short term.

The regulatory and competitive context matters too and can act to blunt some of the advantages that could otherwise arise from adopting TPA. In the Australian superannuation system, a number of providers have moved to adopt a total portfolio approach. But they still need to provide the Australian regulator (APRA) with a strategic asset allocation against which their performance can then be judged. This allocation can vary quarterly, potentially providing space for the SAA to evolve materially over time. However, the public performance comparisons, under the Your Future, Your Super (YFYS), create incentives for funds to update their SAA in line with fund performance (i.e. there is likely more reported variation than deliberate variation over time) and for funds not to diverge too far from what their competitors are doing: the risk of being handed a test 'fail' must be balanced against the competitive advantage of strong success. The net result is that while TPA-led superannuation funds on average have had better risk-adjusted returns, the difference is very slight and they fall squarely within the overall pack of competitor funds.

6 Modern Portfolio Theory – The principles of investment management, Andrew Rudd and Henry Clasing, Dow Jones - Irwin, 2nd edition 1988.
7 Asset management: a systematic approach to factor investing, Andrew Ang, Oxford University Press 2014

Summary

This paper has described the key behaviours and approaches commonly adopted by TPA investors. As investment functions, whether insourced or outsourced, have gained in scale and therefore become more capable, it has made increasing sense for some fund owners to delegate ownership of the strategic investment portfolio.

This delegation has revealed potential shortcomings in the SAA process that were not previously as evident, especially so during a long period of macroeconomic stability. TPA investors have reminded others why it is important to be nimble when dealing with uncertain investment environments, and shown how this can be effected through carefully considered responses to important governance questions and through more collaborative investment team cultures. While it is the potential return advantage that can create headlines, managing risks is more often at the heart of an investment process. The investors who have adopted TPA have demonstrated how to take a more dynamic approach to building portfolios that are resilient to potential regime shifts.

Appendix: Global sovereign investor data

Figures 2, 7-9 above use data from a range of global investors, with data sourced from SWF Global. The investors are listed in the table below. Those investors that have adopted, or have begun to adopt, a Total Portfolio Approach are also marked.

Fund Name	TPA?	Domicile	Assets ($b, 2023)
Government Pension Investment Fund	✗	Japan	1,449
APG	✗	Netherlands	490
California Public Employees	✗	U.S.	432
CDPQ	✗	Canada	297
California State Teachers	✗	U.S.	290
PGGM	✗	Netherlands	243
New York State Common	✗	U.S.	233
AP Fonden 7	✗	Sweden	76
Alaska Permanent Fund	✗	U.S.	75
AP Fonden 1	✗	Sweden	40
Washington State Dept of Retirement Systems	✗	U.S.	189
NZ Super	✓	New Zealand	46
Canada Pension Plan	✓	Canada	421
Healthcare of Ontario (HOOPP)	✓	Canada	76
Future Fund Management Agency	✓	Australia	165
ATP	✓	Denmark	109
TCorp	✓	Australia	75
GIC Private Limited	✓	Singapore	690
Public Service Pension Investment Board	✓	Canada	185

Source: SWF Global, PGIM Portfolio Research.

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