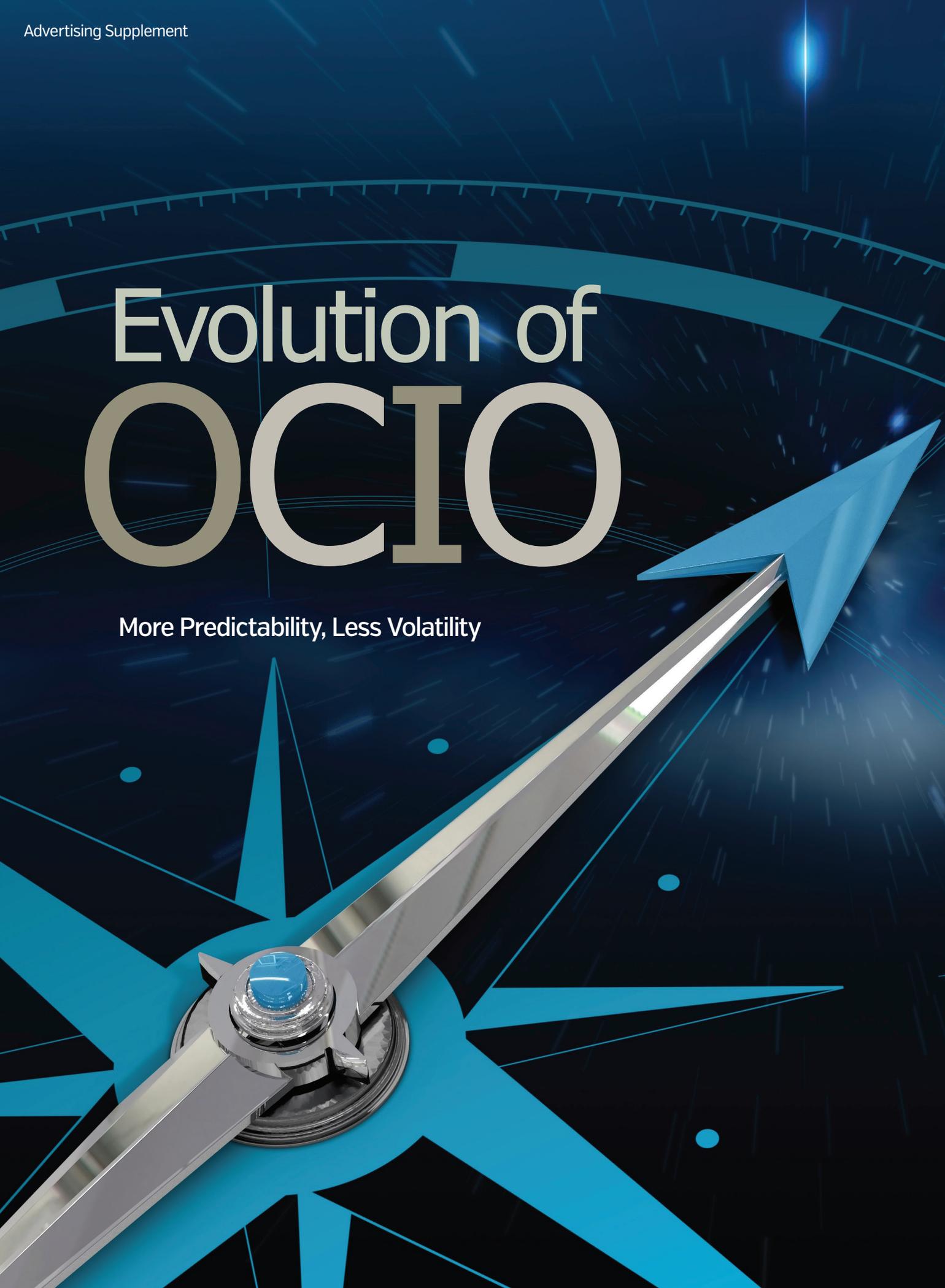


# Evolution of OCIO

More Predictability, Less Volatility



# Meeting Your Objectives Takes **SOPHISTICATED** **SOLUTIONS** with **FEWER RESOURCES**

The partnership that may be right for you – from investment advisory to partial delegation to OCIO.

Our holistic approach aims to understand your risk, liabilities, and return objectives across asset pools and seamlessly integrates actuarial services and investment management. Actionable advice with a personal touch. That's the Aon difference.

To learn more, visit [aon.io/OCIO](https://aon.io/OCIO)



**AON**

Investment advice and consulting services provided by Aon Investments USA Inc.

Nothing in this document should be construed as legal or investment advice. Please consult with your independent professional for any such advice. To protect the confidential and proprietary information included in this material, it may not be disclosed or provided to any third parties without the approval of Aon.

# Sponsors



Empower Results®

**Aon**

200 E. Randolph Street  
Chicago, IL 60601  
aon.com

Bryan Ward  
North America Head of Solutions  
and Sales, Aon Investments  
847.442.3646  
bryan.ward@aon.com


**Mercer**

99 High Street  
Boston, MA 02110  
mercer.us/OCIO

Rich Joseph  
Partner, Wealth Distribution Leader  
617.747.9540  
Rich.Joseph@mercer.com



NORTHERN TRUST  
ASSET MANAGEMENT

**Northern Trust Asset Management**

50 South LaSalle Street  
Chicago, Illinois 60603  
northerntrust.com/

Lyndsay Ferencak  
Director, Multi-Manager Solutions  
312.444.3297  
LRF4@ntrs.com


**PNC Institutional Asset Management**

The Tower at PNC Plaza  
300 Fifth Avenue  
Pittsburgh, PA 15222  
pnc.com/iam

Christopher McGoldrick, CFA, FSA  
Managing Director – OCIO Solutions  
215.585.1244  
pnc.com/iam



STATE STREET GLOBAL  
ADVISORS

**State Street Global Advisors**

One Iron Street, Channel Center  
Boston, MA 02210  
ssga.com

Gary Sems  
Vice President,  
Global Fiduciary Solutions  
203.326.4255  
gary\_sems@ssga.com


**Vanguard**

100 Vanguard Boulevard  
Malvern, PA 19355  
vanguard.com/choosevanguard

Michael Litz  
Regional Director  
610.669.8519  
michael\_litz@vanguard.com

**ASSOCIATE SPONSOR**

**World Gold Council**

685 Third Avenue, 27<sup>th</sup> floor  
New York, New York 10017  
gold.org

Matthew Mark  
Head of Sales, Americas  
212.317.3834  
Matthew.mark@gold.org

# Contents

September 2020

**OCIO Reaches  
a Tipping Point 4**

**The Power of  
Relationships 6**

**Manager vs. Consultant 8**

**An Evaluation  
Conundrum 12**

**Mission Possible:  
OCIO in Defined  
Contribution Plans 14**

**Cost Considerations 16**

This special advertising supplement was not created, written or produced by the editors of *Pensions & Investments* and does not represent the views or opinions of the publication or its parent company, Crain Communications Inc.

# OCIO Reaches a Tipping Point

2020 may be the year that more asset owners embrace an outsourcing solution



This year might prove to be OCIO's moment. The outsourced chief investment officer approach to institutional asset management, which has grown dramatically in the past five years, is proving its mettle in 2020 as asset owners have endured roller-coaster markets, volatility spikes and liquidity challenges.

While OCIO, as the name suggests, involves all aspects of managing an investment portfolio, at its heart it's a governance solution. In the traditional investment management model, a committee or board oversees the strategy and implementation of investment for a pool of assets. The decisions of the board or investment policy committee are carried out by staff and investment managers, as well as a cadre of additional service providers that may include consultants, custodians and actuaries.

By hiring an OCIO firm for a fully delegated mandate, the asset owner cedes day-to-day control of investment decision-making while retaining fiduciary responsibility for setting overall investment policy and strategic asset allocation. The efficacy of this approach, which can be used for an entire portfolio or just a portion, was shown earlier this year.

"In the first quarter, many of the risks and challenges that plan sponsors face in managing an asset pool were amplified," said

Scott Jarboe, partner at Mercer. "Business continuity was prioritized, and in many cases plan governance was impaired."

He pointed to statistics on the funded status of companies in the S&P 1500 index, which is a good representation of the overall defined benefit plan market: During the first quarter, the funded status of this group declined by 11%. "Our OCIO DB clients declined just 6%," Jarboe said. "This provided us with proof of how effectively DB plan sponsors are using and benefiting from the model."

OCIO isn't just used by pension plans, it's used by all sorts of investment pools – university endowments, foundations and healthcare funds, to name a few.

#### What a year

Heather Myers, nonprofit solutions leader at Aon Investments USA, pointed out that

2020 has been a year of crises, starting with healthcare – the global pandemic in January and February – followed by the geopolitical and an economic crises that emerged in March.

"These crises have heightened the awareness around the difficulties of managing investment portfolios," she said. "Managing through illiquidity and the need to rebalance has made those that were not using OCIO wonder if they have the expertise to meet the objectives of their organization with [its established] investment management structure."

Chief financial and investment officers "often find themselves stretched in terms of responsibilities and time," said Christopher Philips, head of Vanguard Institutional Advisory Services. "In markets like those in 2020, they have been trying to meet short-



term funding obligations, going to the credit markets to secure capital and dealing with multiple business issues. In this light, OCIO begins to make sense.”

“You don’t plan for a pandemic, but you do plan for crises,” said Rich Joseph, U.S. wealth distribution leader at Mercer. “The basis of the OCIO offer is around planning, strategy and implementation. None of that has changed during the crisis. If anything, it has proven how effective all the pre-planning really is.”

Just how effective is becoming clear.

The fastest reversal from a bull market to a bear market occurred in March and April and, not surprisingly, some OCIO clients wanted action.

“We were active in March and April for our DB clients in rebalancing and taking advantage of widening credit spreads, but

always within their policy targets,” said Bryan Ward, head of solutions and sales in North America for Aon Investments USA. “That’s something that most plan sponsors and committees aren’t able to do quickly because of either infrequent meetings or restrictions in the governance process.”

Even if the committee were able to meet, trying to operate outside normal parameters can prove difficult. Markets were moving quickly and emotions running high.

“The knee-jerk reaction of many of our clients would have been to get out of risky assets,” said Philips. “That’s just human nature. As an OCIO, we were able to show that rebalancing was a better approach for most of our clients, and in line with their long-term objectives while remaining sensitive to near-term needs.”

It’s also true that in some organizations

staff were under considerable pressure and, at times, pulled between a range of priorities. Thomas Kennelly, senior investment strategist, global fiduciary solutions, at State Street Global Advisors, reported that in a few instances, clients’ key staff moved to fill other roles during the crisis. “We have seen asset owners inquiring about other services we might provide,” he said. “No one wants a crisis to cause issues with staffing or expertise, but it has brought a focus on what is needed to manage a pension fund or an endowment in times of dislocation and volatility.”

“In Q1, when plan sponsors were trying to figure out how to work remotely among other issues, our teams were able to maintain governance, keep policy straight and even be proactive and opportunistic with implementation,” said Mercer’s Jarboe.

“This year we’ve had to have a lot of tough conversations – conversations we haven’t had to have since 2008 – around the benefits of rebalancing and how to meet changing liquidity needs,” said Philips. “It’s been impactful to be able to guide asset owners through the events of this year and remind them that tail events don’t just happen every 100 years.”

“Precrisis, some consultants thought that OCIO would slow or plateau,” he added. “Potentially, post-crisis it will grow as more organizations understand the importance of focusing on those issues that are most important to them.”

In March, some asset owners who were actively involved in preliminary discussions with an OCIO partner shut down those talks, reported Chris McGoldrick, director at PNC Institutional Asset Management. “It was a normal retrenchment, but now we’re seeing an uptick in decisions” and requests for proposals. Partly this reflects a recognition that for some, their current OCIO partner wasn’t able to meet their needs as they expected, he added.

### When the upheavals subside

Beyond a crisis, other reasons asset owners are and should consider using OCIO will still be applicable when the current period of upheaval subsides.

“Companies are worried about doing more with less,” said Jessica Hart, retirement practice lead, multi-manager solutions, at Northern Trust Asset Management. “Moving to OCIO can mean that you actually get more resources dedicated to your plan or assets in a cost-effective way.”

When a pension plan sponsor finds that they lack the resources to give the plan the

*continued on page 18*

# The Power of Relationships

OCIO success rests on trust and respect as much as investment expertise and technical know-how

Choosing an outsourced chief investment officer, or OCIO, partner is not as straightforward as choosing an investment manager. An OCIO firm becomes embedded within the asset owner's organization and becomes an extension or replacement for staff – a member of the family, so to speak – even when OCIO is only used for a portion of the portfolio.

So not only is choice paramount, the relationship is key to the choice.

When setting up guidelines and processes, as with any new provider, expectations and goals are key first steps. Here, industry experts suggest institutional investors think more holistically – and honestly – about how an OCIO will change how internal operations work.

"The primary headwind we face when asset owners consider OCIO is loss of control," said Bryan Ward, head of solutions and sales in North America for Aon Investments USA. "Individuals or committees may have been responsible for these assets for decades and can find it difficult to hand over the keys to a third party."

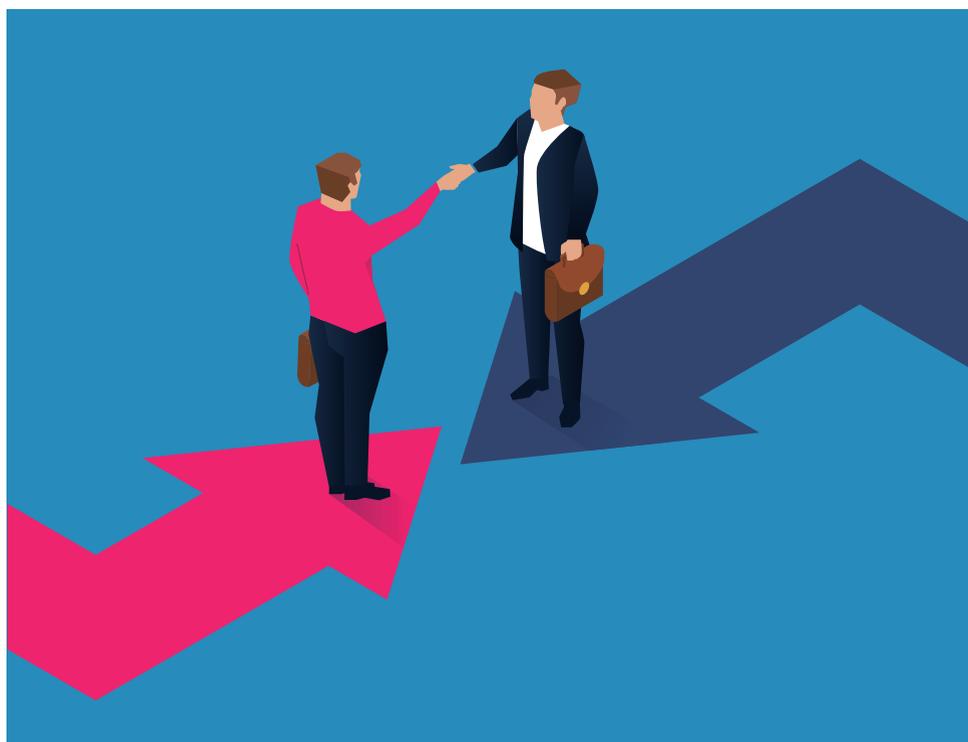
The issue of perceived loss of control "is only mitigated through the building of trust in the relationship, spending time understanding how the relationship works and periodically reviewing the program," said Chris McGoldrick, director at PNC Institutional Asset Management.

"There's a fear of the black box," he continued. "Asset owners can be concerned that they don't understand what's going on under the hood of an OCIO solution."

## Assurance in clear roles

But clients don't have to worry when the proper groundwork is laid and lines of responsibility are clear and well defined.

"We treat this as a change-management exercise because, although we know that they won't be losing control, we need them to see that they are just focusing on different, more strategic issues," said Rich Joseph, U.S. wealth distribution leader at



Mercer.

It is critically important that both the sponsor and the OCIO provider draw up a clear list of roles and responsibilities at the outset.

"The asset owner needs to ensure that they have good communications and true partnership with the OCIO," said Mark Wetzel, president of Fiduciary Investment Advisors. "You both need to be on the same page. The OCIO needs to understand your objectives, your risk tolerance, your liquidity needs and ultimately needs to be a full partner."

Roles do change, though. "The asset owner in a traditional OCIO framework no longer has decision rights over the manager, hiring and firing, nor will they typically meet

with those underlying investment managers," said Jessica Hart, retirement practice lead, multi-manager solutions, at Northern Trust Asset Management.

She argued that the time that an investment committee would have spent seeing those managers and overseeing their performance is "better spent on strategy and asset allocation, which drive 90% of investment results."

McGoldrick said that while staff at the asset owner organization may think they will be sidelined or find their role minimized, in fact, their role becomes more important in setting strategy and implementing it.

## Tweaking the partnership

A full partnership can at times include other

service providers. “Making sure everyone is onboard with OCIO and working toward the same mission is key,” said Thomas Kennelly, senior investment strategist, global fiduciary solutions, at State Street Global Advisors.

That could mean, for instance, an outside actuarial firm or an alternative asset class sleeve of the overall portfolio that’s handled by an advisory firm working with the internal staff and the investment committee. “These providers all need to work in tandem for the benefit of the asset owner,” Kennelly said.

“At its core, OCIO is a customized service,” said Northern Trust’s Hart. “Our full-service OCIO model leverages our complete range of capabilities and allows for full discretion in implementation. But that model can be tweaked.”

For example, she pointed to a defined benefit plan in which the committee did not

**Fiduciary responsibility remains with the asset owner and is not transferred to the OCIO.**

want to give the OCIO discretion to move along the approved glidepath. “In this case, the committee wanted decision rights as to how and when triggers were pulled,” she said, “so that was documented in the investment policy statement.”

Indeed, asset owners can and should consider which elements of an OCIO solution they want to delegate and which ones they want to keep. This dinner menu approach can help define the relationship at the outset, but it can also be revisited if requirements change.

“An OCIO offers scale not only in terms of intellectual capital and investment acumen, but also in services offered if an asset owner wants to maintain certain elements internally,” Kennelly said. “That can be risk management and systems, technology platforms and cost efficiencies for operations.”

“We always ask potential clients how they want the OCIO relationship to manifest,” said Christopher Philips, head of Vanguard Institutional Advisory Services. “Simply asking that question can go a long way to showing that we are flexible instead of dogmatic

and insisting that there’s only one way to run the relationship.”

In today’s world of heightened uncertainty, many OCIO firms are proactively approaching their asset owner clients to ensure that the current setup meets their needs.

“We are asking all of our current clients whether they have a governance model that meets their needs in terms of their ability to execute, efficiency and even access to data,” said Mercer’s Joseph, who pointed out that some governance models don’t work well enough during a crisis. “Today, folks are interested in understanding how the OCIO model has worked in an environment like this.”

It is also possible to approach the control issue by taking steps over time. “For many organizations, the loss of direct control can be a pretty steep hill to overcome,” said Philips.

One way to mitigate that perception is to suggest the asset owner retain either a CIO or the responsibilities of a CIO for some period. “They go from making the final decisions to effectively being a check on us as an investment manager,” he said. “They go from doing their own analytics to engaging with other data providers, and it can be a bridge to a more hands-off approach.”

“At the end of the day, the client can decide to retain certain decisions at any level of what we see as a several-stage process, depending on the nature of the assets,” said State Street’s Kennelly.

### **Solid expectations & transparency**

While asset owners retain control of the relationship, expectations on both sides need to be unequivocal.

“The asset owner needs to know what level of transparency will be available – will they have real-time access to changes in the portfolio?” said PNC’s McGoldrick. “They also need to revisit the objectives, risk levels and constraints on a regular basis. This isn’t a set-it-and-forget-it situation.”

Writing a new investment policy statement can unlock gaps in an emerging OCIO relationship. “If through conversation we find that an organization is skeptical of active management or indexing or any other strategy, we take them through the exercise of making sure their [investment policy statement] is truly reflective of their mindset,” Philips said. “In that way, we can ensure that we will be able to meet the overall objectives of the organization.”

He added that those objectives, which can be different for different asset owners, play a key role in determining an organization’s risk

budget. “We can afford to take a bit more investment risk in a total-return framework for an endowment, but our focus is on hedging risk exposures in a liability-matching portfolio for a pension plan,” he said.

The most strategic decisions are drafting the investment policy statement and setting the asset allocation, both of which can be prepared by an OCIO working to a client’s specifications and providing options for a final decision by the client. Then comes manager selection, and, here too, some clients want to be involved, particularly if they have managers they want to retain.

Rebalancing, an exercise to maintain asset allocation targets, can also be handled in several ways. “This can happen every month or every quarter, or the client can provide us with some flexibility by giving us ranges within which we can rebalance or not, depending on market conditions,” said Kennelly.

“We don’t want to be handcuffed when a DB plan meets a glidepath trigger,” said Vanguard’s Philips. Such triggers can include a change in funded status, a change in interest rates or a period of time. “We will pull the trigger and change the asset allocation, so we ensure upfront that everyone is on board with the glidepath and that it’s documented in the [investment policy statement],” he said.

At State Street Global Advisors, many DB clients, particularly those between 80% and 90% funded, considered rerisking in March when market volatility spiked and equity prices slumped, even though that may not have been included as an option in their investment policy statement, according to Kennelly. “In that case,” he said, “it was definitely a decision for discussion that we did collaboratively with clients.”

Tactically some clients rerisked because their fixed-income portfolio had become overweight and their equities underweight, he said.

At Mercer, “the vast majority of our DB clients have one-directional glidepaths that do not allow for rerisking,” said Scott Jarboe, partner at Mercer. “Even during the crisis, when the risk or funding position deteriorated for some clients, they stuck to the policy they had built. So in most cases, the rerisking conversation just isn’t a fit.”

### **You can’t outsource fiduciary duty**

But whether rerisking was an issue earlier this year or not – or anytime, for that matter – industry experts stressed that asset

*continued on page 18*

# Manager vs. Consultant

## Does It Matter?

With the OCIO business burgeoning – world-wide assets managed with full or partial discretion for institutional asset managers grew 51.1% over the last five years, reaching nearly \$2 trillion by the end of March – it's no wonder consulting firms and asset managers are piling into the business.

According to Mark Wetzel, president of Fiduciary Investment Advisors, more than 100 players are in the outsourced chief investment officer market vying for mandates.

But investment consultants and investment managers bring different skills to the table.

"They have different histories, legacies, capabilities and expertise," said Thomas Kennelly, senior investment strategist, global fiduciary solutions, at State Street Global Advisors. "You've also had people moving from one side of the business to the other. Now I think the firms are all fairly homogenous in terms of general components."

Still, Kennelly pointed to two areas of differentiation. "Traditional consultants are often actuaries as well, and though investment managers have actuaries, they aren't retained actuaries," he said. "Investment managers have trading capabilities and the ability to manage risk in portfolios in real time."

Wetzel said the entry of consulting firms into OCIO has been a natural evolution. "For many asset owners, it's just been a case of 'The consultant has known our organization for five or 10 years. We've implemented all of their recommendations, so let's just move to a discretionary relationship,'" he said.

### Trust, trust, trust

Consultants who expand the scope of existing advisory relationships to include investment discretion, are able to easily surmount the hurdle of trust. "When asset owners move to OCIO, they need to fully commit," said Bryan Ward, head of solutions and sales in North America for Aon Investments USA. "That's much easier if you've been working with the firm for a decade, even if OCIO



brings in an expanded, perhaps slightly different, team."

"Many of our new OCIO clients come from noninvestment relationships, where we [have been] the actuary, [because there are] a number of advantages to the efficiency of governance and integration of assets and liabilities for DB plans," said Scott Jarboe, partner at Mercer. "That's not to say that we don't get clients that expand their relationship with us from just advice to OCIO. They do. But in reality, this is a more subtle shift, as the team and advice would be identical. We just take on more responsibility for execution and [to] better leverage scale."

For an asset owner considering an OCIO solution provided by an investment management firm, constraints on the universe of asset classes is a possible disadvantage:

Some firms offer only their own managers or proprietary funds.

"Open architecture is the answer," said Chris McGoldrick, director at PNC Institutional Asset Management. "You need to check that the organization you are working with is really committed to providing a broad suite of asset strategies."

To be a successful OCIO firm, though, requires more skills and expertise than either consulting firms or investment managers have on their own.

"There's much more than consulting involved in OCIO, just as there's a lot more than picking stocks and bonds," said Heather Myers, nonprofit solutions leader at Aon Investments USA.

Given this fact, asset owners need to

*continued on page 10*



# do more, better, faster

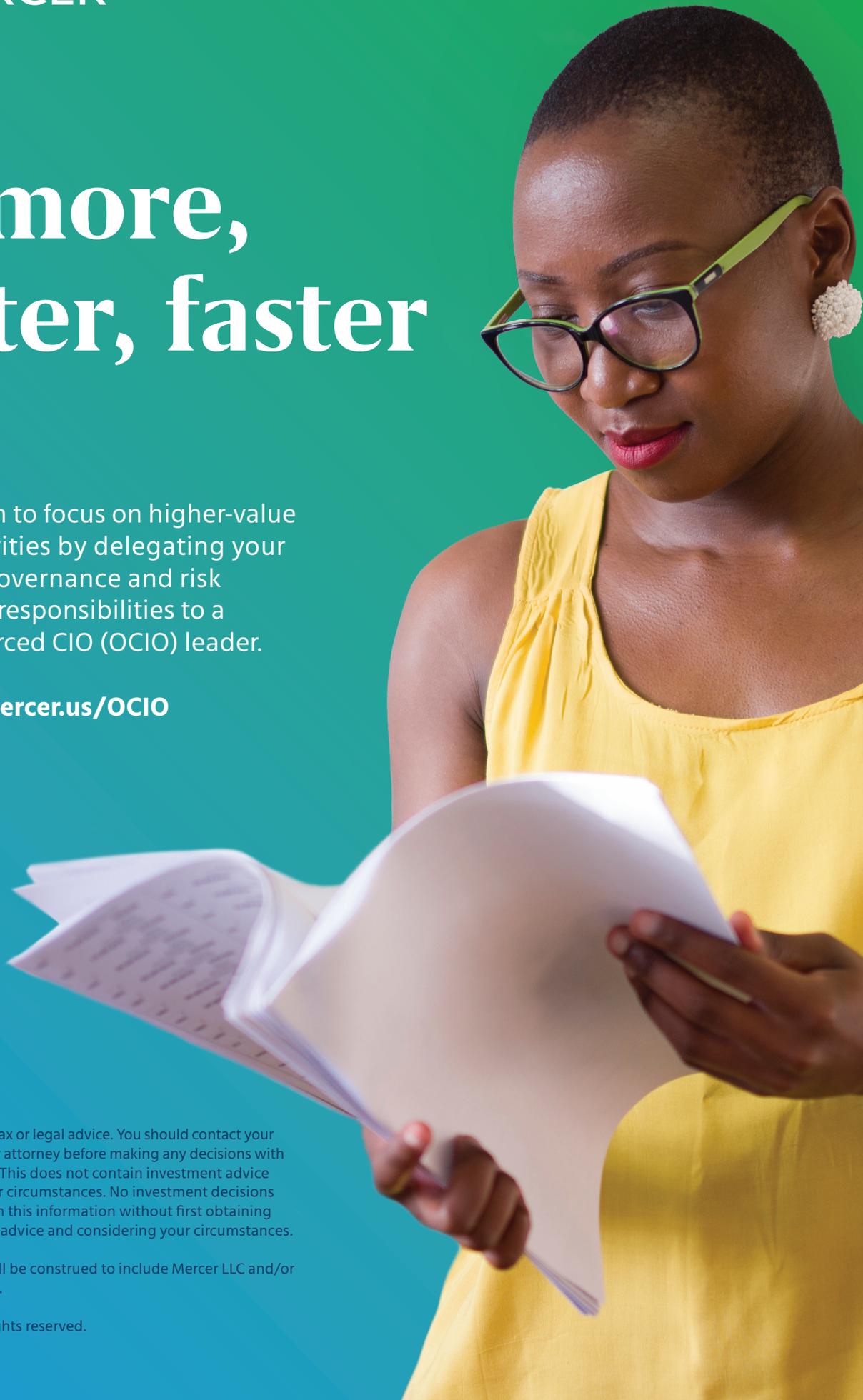
Free your team to focus on higher-value strategic priorities by delegating your investment, governance and risk management responsibilities to a global outsourced CIO (OCIO) leader.

Learn more: [mercer.us/OCIO](https://mercer.us/OCIO)

Mercer does not provide tax or legal advice. You should contact your tax advisor, accountant or attorney before making any decisions with tax or legal implications. This does not contain investment advice relating to your particular circumstances. No investment decisions should be made based on this information without first obtaining appropriate professional advice and considering your circumstances.

References to Mercer shall be construed to include Mercer LLC and/or its associated companies.

© 2020 Mercer LLC. All rights reserved.



## Manager vs. Consultant

*continued from page 8*

determine what areas of expertise are most important to them.

"Different types of organizations – consultants, investment managers – bring different pros and cons to the OCIO business," said Jessica Hart, retirement practice lead, multi-manager solutions, at Northern Trust Asset Management. "And there are different business models. For example, as an asset manager, we have a decades-long track record of making investment decisions for clients. That's valuable."

"On the other hand, given our structure, there remains potential conflict of interest in that we offer proprietary products," she continued. "However, we are able to mitigate these conflicts by eliminating them from consideration in an OCIO client's portfolio."

### Recommendations vs. decisions

Consultants, she continued, have built the investment capabilities more recently. "These firms are accustomed to making recommendations to asset owners. But to me, there's a difference between making recommendations and making the decision yourself," Hart said. "It requires different skills, different governance structures and different oversight. This is a bit newer for consulting firms."

Consultants and investment managers are aware of their skill gaps.

"We do see consultants moving to [become] investment management firms to ensure that they have that consulting expertise," said Aon's Ward. "You need that total portfolio oversight and the experience of setting strategy."

Most institutional asset owners have a wealth of experience working with consultants and investment managers, but when one of these firms becomes an OCIO, the relationship is completely different than a traditional relationship with a consultant or a manager.

"When you hire an investment consultant, they provide you with recommendations, but the asset owner makes them a reality," said PNC's McGoldrick, referring to the typical consultant-asset owner relationship dynamic. "The asset owner decides which path to follow and implements it."

An investment manager in the traditional context is often one step removed from an asset owner's strategic and policy decision-

making and will be tasked with implementing a specified mandate, say a large-cap growth equity strategy or emerging markets debt strategy. Conversely, a full-service OCIO is involved in setting strategy, advises on investment policy and takes over responsibility for implementing the agreed asset allocation.

One critical question for asset owners using an OCIO is how their strategy will be implemented. An OCIO firm with a consulting background will likely use an open-architecture platform with a number of different managers available, albeit those that the firm favors. An OCIO with an investment management heritage may also implement using open architecture, but also offer proprietary funds, sometimes at a lower fee level.

\$2T

Estimated worldwide assets managed with full or partial discretion for institutional asset managers

"There's no right answer here, as it depends on the needs of the client," said Aon's Ward. "I would just say that I don't know if the investment management community has the capability to implement open-architecture platforms across all strategies."

When it comes to figuring out how to work with an OCIO partner, asset owners need to own the strategic decisions and set policy, he said. "We can provide advice and guidance, and facilitate the conversation to arrive at the investment policy statement, the asset classes, the strategic asset allocation and the method of working."

"But the asset owner, particularly if it's a corporate pension plan, needs to understand the implications on the earnings, balance sheet, [profit and loss] and cash flow, especially in stress scenarios," Ward said.

The fact is that, today, consultants and money managers compete and cooperate in equal measure.

"We have managers on our platform

that we engage for billions of dollars in asset management mandates [who] also have OCIO businesses," Ward said. "They do produce great results for our clients, but they also compete against us for business. It's open, honest and fair competition."

### Differences, differences

Not all OCIOs, from whatever background, bring the same level of flexibility and customization. In some cases, this is a function of size. Smaller shops may only have a single OCIO solution, while larger firms with longer track records may be able to flex their model to any situation.

Some OCIO business models can be focused on a single type of product.

"Multi-manager firms have a long history of doing manager search and selection, and building products," said Northern Trust's Hart. "The question is how customized can these firms be in their delivery of solutions to the client, or are they wedded to the single structures that they have built?"

Of course, if an OCIO offers the single solution that an asset owner actually needs, it could be a good fit.

Some asset owners maintain a consulting relationship apart from the OCIO even after they have migrated to the outsourced model.

"If you have an OCIO provider, you want to ensure that you have clear roles, responsibilities and accountability for the decisions in the portfolio," Hart at Northern Trust said. "If you have both a traditional investment consultant and an OCIO provider, that certainly has the potential to create some confusion in decision-making." What she reported seeing, though, was that many asset owners will shift the focus of the investment consultant from overseeing individual managers to overseeing the OCIO provider.

"OCIO doesn't take the place of consulting relationships," said Rich Joseph, U.S. wealth distribution leader at Mercer. "In both models, you are getting intellectual capital and advice. In one model, you are asking your adviser to implement that advice; in the other, you are doing it yourself."

Still, for many asset owners, traditional consulting relationships are obviated by hiring an OCIO.

"An OCIO takes the place of an investment consultant," said Christopher Philips, head of Vanguard Institutional Advisory Services. "To me, you are needlessly increasing your ongoing management costs by retaining an investment consultant. And when there are too many cooks in the kitchen, it is harder to implement recommendations." ★



NORTHERN  
TRUST

ASSET MANAGEMENT

# Helping you confidently navigate changing market environments

\$1.0 trillion  
AUM<sup>1</sup>

World's 18<sup>th</sup> largest  
asset manager<sup>2</sup>

40+ years of  
OCIO expertise

## INVESTMENT SOLUTIONS FOR INSTITUTIONAL INVESTORS

EQUITY \ FIXED INCOME \ ALTERNATIVES \ OCIO \ SUSTAINABLE INVESTING \ ETFs

<sup>1</sup> Assets under management as of 6/30/2020. <sup>2</sup> *Pensions & Investments* 2020 Special Report on the Largest Money Managers, rankings are based on total worldwide assets under management as of December 31, 2019. Northern Trust Asset Management is composed of Northern Trust Investments, Inc., Northern Trust Global Investments Limited, Northern Trust Fund Managers (Ireland) Limited, Northern Trust Global Investments Japan, K.K., NT Global Advisors Inc., 50 South Capital Advisors, LLC and investment personnel of The Northern Trust Company of Hong Kong Limited, Belvedere Advisors, LLC, and The Northern Trust Company. © 2020 Northern Trust Corporation. Head Office: 50 South La Salle Street, Chicago, Illinois 60603 U.S.A.



Comparing and choosing an OCIO isn't easy: Enter the consultant.

# An Evaluation Conundrum

The two toughest challenges for an asset owner in the OCIO space: Finding the right OCIO in the first place and evaluating their performance after a three-to-five-year period. And as the market becomes more crowded, thanks to more asset owners going that route and firms seeking more fees, the job has become harder than ever.

"Every firm is looking for alternative ways to generate fee income," said Christopher Philips, head of Vanguard Institutional Advisory Services. "So it's no surprise that more firms are entering the OCIO space. It is increasingly a challenge for asset owners to be able to tease out the differences between providers."

Help is available though, in the form of OCIO search consultants at the initial stage – firms that support the request-for-proposal process, sifting responses and making a decision, bringing a wide range of knowledge of the industry. In particular, these firms can be

very useful in helping asset owners assess proposals, given that they can be difficult to compare.

Asset owners may turn to the consultants they used for manager searches and asset-liability studies to help them with their three-to-five-year OCIO evaluation, since consultants can and will provide independent third-party assessment of the performance of an OCIO.

"We've seen a rise in OCIO search consultants to help asset owners with the legwork upfront," Philips said. "These consultants help asset owners understand the spectrum of providers and services, and work through the due diligence process."

Differentiators in OCIO include portfolio construction and investment platform development, according to Thomas Kennelly, senior investment strategist, global fiduciary solutions, at State Street Global Advisors. "The advisory component that everyone

is offering isn't quite homogenous, but it is competitive," he said.

Differences can be seen when looking at whether an OCIO solution is active or passive, or if it includes alternatives, environmental, social and governance investing or smart data, he said. "But the real issue remains what the client wants and needs; so two OCIO mandates may look hugely different but still be perfectly appropriate," he added.

## Key considerations

In using a search consultant or a third-party assessor, it makes sense to ensure that the firm isn't in the OCIO business.

"We are certainly seeing an uptick in the use of third-party consultants as asset owners move into OCIO," said Rich Joseph, U.S. wealth distribution leader at Mercer. "We think that it can be very helpful for us, as well as the asset owner. New OCIO clients

are often consulting clients that expand their relationship with us. But for asset owners that are new to us, having a professional search consultant as part of the equation is helpful to both parties, because they ask the right questions.”

“A number of third-party evaluators are excellent at their jobs,” said Bryan Ward, head of solutions and sales in North America for Aon Investments USA. “They know the business, know the providers, do their homework and can help a fiduciary committee make an informed, educated decision about an OCIO partner that best meets their unique needs.”

Jessica Hart, retirement practice lead, multi-manager solutions, at Northern Trust Asset Management, said that fully one-third of recent OCIO mandates over the last few years have been driven by or included an OCIO search consultant. “The complexity of the decision-making is high, and many organizations need another entity to help them work through the process,” she said.

Monitoring and reviewing of OCIO mandates has become big business.

“Asset owners need objective help here,” said Mark Wetzel, president of Fiduciary Investment Advisors. “The real key is that the consultant hired for this review work is not also in the OCIO business. Asset owners need to know that the consultant does not have any conflict of interest.”

### External evaluations more popular

Chris McGoldrick, director at PNC Institutional Asset Management, said the trend of external performance evaluation, more common outside the United States, is picking up in the U.S.

“You don’t want to replicate the full cost and time of an investment consulting relationship,” he said. “But it can be useful to have someone external holding the OCIO’s feet to the fire in terms of living up to expectations.” He said asset owners with portfolios north of \$1 billion are more likely to use these services.

“The OCIO industry is hungry for data with which to judge these relationships – for indices and performance presentation,” Hart said. “However, creating an OCIO performance index using client data is complicated because each mandate is so customized.”

For any evaluation to be useful, the asset owner must have a clear audit trail of policy and decision-making. For example, a defined benefit plan may be most interested in how their funded ratio has improved over time. “Success then might have very little to do

*continued on page 18*

## Partial vs. Full Discretion

**In the OCIO world, there’s a solution for every situation, from small to very large asset pools. The configuration of the solution ranges from fully discretionary to partial oversight.**

**To be sure, one size doesn’t fit all.**

“A DB plan might look for an OCIO provider that is bundled with an actuary or one that focuses on liability-matching with an objective built around closing the plan,” said Mark Wetzel, president of Fiduciary Investment Advisors. “An endowment, in contrast, is probably focused on total return.” In some cases, a specialist OCIO may just focus on a sleeve of the portfolio — private equity, hedge funds or real estate, for instance.

In some OCIO models, an organization may outsource some activities, while holding on to those — for instance investments in indexed U.S. equities — that they want to continue to handle on their own. “It could be that an asset owner uses OCIO for active equity management or a sleeve of alternatives,” said Christopher Phillips, head of Vanguard Institutional Advisory Services. A defined benefit “pension plan might choose to outsource the [liability-driven investment] portion of the portfolio, while running the return-seeking in-house.”

“OCIO can mean implementing the investment policy of a retirement plan — rebalancing, cash-raising, manager selection and managing a dynamic investment strategy,” said Bryan Ward, head of solutions and sales in North America for Aon Investments USA. “Or it could be that an asset owner only wants to outsource the alternatives, such as the private equity portfolio; or in the case of the pension plan, just the hedging portfolio.”

“It’s also the case that many asset owners don’t start by adopting full outsourcing but move towards, or phase it in, over time,” he continued.

### The size factor

“We’ve seen plans north of \$1 billion or \$2 billion starting to outsource,” said Thomas Kennelly, senior investment strategist, global fiduciary solutions at State Street Global Advisors. “Often it’s not the entire portfolio, just a portion. A DB plan might in-source an OCIO provider to provide liability-management or a completion portfolio.”

“In a sub-billion-dollar asset pool, often there isn’t a dedicated team managing the money,”

said Chris McGoldrick, director at PNC Institutional Asset Management. “So it’s a balancing act. Does the team have the bandwidth to run the investment programs that are wanted and needed? Here a full OCIO solution lines up well.”

When the pool is larger, above \$1 billion, he reported a range of approaches. “Even if there is a dedicated team, they may not have the expertise in running, for example, [environmental, social and governance] mandates. So bringing in a specialist to run that sleeve makes sense.”

OCIOs are really able to add value in the endowment space when assets total \$100 million to \$2 billion, said FIA’s Wetzel. “It’s the point when asset owners want to use private equity, hedge funds, private real estate — asset classes where specialists are required,” he said. “On the pension side, because so many plans are looking at termination, those over \$100 million benefit from specialists in glidepaths that will lead to closing the plan.”

Aon’s Ward suggested that public pension funds, which until now have used OCIO for sleeves of real estate and private equity, may be a new frontier for the model. “We haven’t seen wholesale outsourcing in this market yet, but they likely have reasons for considering OCIO that [are similar to the reasons of] any other asset owner,” he said.



# Mission Possible:

Despite being complicated, it's one of the fastest-growing areas of the business

The reasons a defined contribution plan would hire an OCIO are no different than the reasons other institutional asset owners hire one. At the same time, they're completely different.

A DC plan has two tiers of clients, the plan sponsor and the participants, each with very different requirements. Where the critical fiduciary responsibility rests is not straightforward.

That's not to say that an OCIO firm can't be enormously helpful to DC plan sponsors and, by extension, their participants. In a DC plan, the sponsor has responsibility of providing the best possible investment lineup – weighing issues of cost, choice and performance – to the participant, who makes the ultimate investment decisions. The sponsor also has a number of levers to promote participant engagement with the plan, nudging them to enroll and raise their contributions, or they can automatically put them into a qualified default investment alternative, such as a target-date fund.

It's a complicated job, one that is often shared by the finance and human resources groups at a company, and overseen by an

investment committee with members who typically have many other responsibilities.

#### Focus on participants

In a DC plan, hiring an OCIO allows the committee to focus on how to drive better participant engagement and outcomes, because they don't have to spend time meeting managers, crafting an investment menu and overseeing glidepath construction.

"In a DC framework, an OCIO is involved in menu design, decision-making on funds and managers, but there's no asset allocation," said Jessica Hart, retirement practice lead, multi-manager solutions, at Northern Trust Asset Management.

"DC plan sponsors have been moving toward OCIO to mitigate fiduciary risk, help save staff time in the management of the plan and potentially reduce overall fees for participants," said Liana Magner, U.S. defined contribution and financial wellness leader at Mercer.

Fiduciary risk for DC plan sponsors is one of the main reasons they look to an OCIO manager for help.

"The No. 1 reason to use OCIO in a DC

plan is the potential for improved fiduciary governance of the plan," said Bryan Ward, head of solutions and sales in North America for Aon Investments USA.

"The fact that DC dollars are participant dollars heightens the litigation risk for the corporate sponsor," Hart said, adding that an OCIO can "help bolster the governance process through documentation and oversight, and arguably mitigate some of that risk."

"It's pretty litigious in the 401(k) space, and we don't see that slowing down any time soon," said Magner. "That means sponsors are focusing on their strategic objectives and doing more with fewer resources. An OCIO can help with that."

#### Range of options

In the DC world, a plan sponsor has a range of options when seeking outside help. "It all goes to the level of fiduciary risk that a provider is taking on," said Thomas Kennelly, senior investment strategist, global fiduciary solutions, at State Street Global Advisors.

DC plan sponsors are not responsible for the asset allocation decisions made by individual participants, but they do hold fi-

# OCIO in Defined Contribution Plans

duciary responsibility for the menu provided and the design of multi-asset options, such as target-date funds.

The OCIO can do the work on the asset allocation, the menu, the platform and the target-date funds, but the sponsor would handle the participant engagement piece, for instance. “That can’t be outsourced,” Kennelly said.

Fees are under constant scrutiny. An OCIO can often result in lower overall fees, although providers don’t promise such an outcome because fees are dependent on a number of variables, such as menu design and the asset classes offered.

“You may have a lower fee structure if the client retains certain levels of discretion, but they are also retaining additional fiduciary risk,” Kennelly said.

That said, “the majority of our clients use OCIO over their DC plan in its entirety,” according to Magner. “That involves discretion over investment manager selection for the entire lineup, though not company stock, and a brokerage window if they have one.”

Using OCIO in DC plans is more complicated because the decision-makers aren’t just the finance folks. There’s also a human resources and employee-engagement element to the process.

“To do it well, the OCIO firm needs to take a step beyond the investment part of the program to make the fiduciary relationship really work,” said Chris McGoldrick, director at PNC Institutional Asset Management. That can involve helping participants make informed decisions and understanding the role that the plan sponsor wants to play.

“It’s different than OCIO in other asset pools, in that you don’t get total portfolio management or hedging or a spending policy because these are individual retirement investment allocations,” Ward said. “But it is possible to ensure professional oversight of the investment options in the plan and the managers, both from a performance and cost standpoint.”

However, while an OCIO can help a plan sponsor in the areas of fiduciary responsibility and cost monitoring, their assistance can be somewhat limited. So while some of the larger OCIO providers have seen increased interest in OCIO from DC plan sponsors, it’s not a widespread phenomenon.

“We see some activity in the DC market, but not as much as you might expect,” said Mark Wetzel, president of Fiduciary Investment Advisors. “Until you get to a fairly high asset level, there aren’t many fee savings. And for plans that are weary of the threat of litigation, hiring an OCIO doesn’t necessarily change the workload, as the need to pay attention to fees and performance remains heightened.”

Mercer’s Magner said that during the pandemic, she has been seeing the greatest interest from small- to mid-market companies with lean staffs. “They now see that the ability to outsource could be very helpful to them,” she said.

## What do you want?

The key for DC plan sponsors interested in hiring an OCIO manager is to first determine exactly what they want the manager to handle. For example, a plan sponsor can use an OCIO solely for selection and monitoring of the investment lineup.

PNC’s McGoldrick, however, suggested that sponsors consider their entire program, including employee engagement, contribution levels and the other elements that lead to good outcomes for participants.

“It’s certainly challenging, not least because of cost,” he said. “Every dollar that is spent on the plan, whether internally or externally with an OCIO, could be working to build a nest egg for the participant. So the OCIO solution needs to work for both the participant and the company.”

Transitioning to an OCIO provider can be complex. “We think of the process as a change-management exercise where you cannot overlook the participant,” said

Magner. “If the OCIO makes changes to the investment options, those changes will need to be communicated to the participant. If the plan sponsor approaches the overall process, they can use it as an opportunity to thoroughly communicate what is changing and why.”

She said the time frame for implementing an OCIO strategy is another important consideration, as it can take several months to transition from an advisory to an OCIO, thanks to record-keeping bottlenecks and the need for clear communications.

PNC’s McGoldrick said some large sponsors have embraced a holistic approach to OCIO in their DC plans, and he expects companies that use an OCIO for their defined benefit plan are likely to port the solution over to the DC plan.

DC plan sponsors often have the most difficulty determining the optimal glidepath that drives the selection or construction of a target-date solution, particularly with so many varieties available. In this case, an OCIO partner can help determine the right glidepath and facilitate implementation, either through a custom solution or the selection of an off-the-shelf solution.

Because of the complexity of these decisions – and the ever-present threat of litigation – some DC plan sponsors have hired an outside consultant to oversee the OCIO relationship, and Aon’s Ward said that approach is gaining prominence.

The COVID-19 pandemic hasn’t changed the nature or operation of OCIO solutions. If anything, plan sponsors have had renewed evidence of just how effective OCIO can be.

“In the DC world, because the plan doesn’t affect the bottom line, [the plan sponsors’ OCIO work] has taken a back seat in favor of more pressing corporate concerns,” said Mercer’s Magner. “But the governance model has allowed us to get on with rebalancing and making shifts in exposure at times without having to press the plan sponsor for decisions.” ★

# Cost Considerations

All-in, OCIO can often bring savings to asset owners, alongside day-to-day oversight and broad investment expertise

At times, OCIO sounds too good to be true. A portfolio solution that frees up staff time, increases expertise and provides constant oversight? There must be a catch.

Not so, according to Chris McGoldrick, director at PNC Institutional Asset Management. OCIOs are able to help improve returns and lower risk at a lower net fee level because they can negotiate better fees with investment managers and can be nimble.

"We monitor these portfolios on a daily basis and can make adjustments to take account of market conditions," he continued. "That's been invaluable in recent months."

To best understand what an OCIO relationship will cost versus any other governance model, asset owners should ask for a complete breakdown of fees. For organizations that use external managers, it should be easy to see what the OCIO and manager fees are independently.

"The OCIO fee will be higher than what you paid" to a consultant, said Bryan Ward, head of solutions and sales in North America for Aon Investments USA, "because an OCIO will be taking on more responsibility and more risk." Manager fees may be lower because of the OCIO's fee aggregation agreements, but they could be higher if the new portfolio involves more expensive types of strategies or asset classes such as alternatives.

"In full-blown OCIO, the fee tends to be based on asset size, although in some cases, it could be a flat fee," said Christopher Phillips, head of Vanguard Institutional Advisory Services. "We've seen fees range from six or seven basis points to 30 or 35 basis points, which illustrates how different some of the services offered can be."

## Two components of cost

Jessica Hart, retirement practice lead, multi-manager solutions, at Northern Trust Asset Management, recommended that asset owners view OCIO cost as having two components.



"There is the cost of OCIO services themselves – the advisory work, the extension of staff, manager selection and due diligence – all of those have a price," she said. "Then there's a separate cost for manager implementation."

"By reviewing these fees independently, it can be easier to make comparisons between providers," she explained. "It can be harder to compare implementation costs because they vary by asset allocation, by how much active and passive usage there is."

When looking at the cost of OCIO, Thomas Kennelly, senior investment strategist, global fiduciary solutions, at State Street Global Advisors, emphasized the need to consider the cost of someone on staff spending time focused on the pension plan, which is not core to the business.

"It is an added cost to bring in advice help but the cost is coming down," he said. "You need to add up all the costs: Transition management, custody, trading inefficiencies, along with the discretionary decision-making, but also the savings that come from the lower investment management fees that the OCIO can negotiate."

According to Mark Wetzel, president of Fiduciary Investment Advisors, asset size is

the primary metric for establishing the fee level. For endowments, fees can range from 20 to 50 basis points for the OCIO, depending on complexity. On the DB pension side, those fees can range from 8 to 20 basis points, depending on the types of investments used, the complexity of the plan and its size.

"The OCIO can negotiate better fees with managers if they can pool assets together, but that won't bring an endowment OCIO fee below that 20 to 50 basis point level," he said, pointing out that endowments are not allowed to pool assets. "If a large pension plan is largely invested in fixed income, then eight basis points is possible."

## OCIO not spared

Fee pressure experienced across the investment management world has not spared the OCIO business, which, State Street's Kennelly noted, was already very competitive. "We've seen the delta between the highest-cost provider and the lowest-cost one be less than a handful of basis points," he said.

"Costs are either on a par or cheaper to use an OCIO solution," said Rich Joseph, U.S. wealth distribution leader at Mercer. "That's taking account of the money management costs as well as the 338 provider [advisory] fees."

In other words, investment management fees should be on par with those found in a traditional consulting relationship but may be cheaper if the OCIO is able to leverage its size to negotiate lower manager fees.

Joseph cautioned that cost shouldn't be the primary factor when deciding whether to move to an outsourced solution. "It's really important that [asset owners have] the right governance model for [their] situation," he said.

"Especially in today's environment, there may not be a cost savings initially," he said. "That's because staff may need to be redeployed, but that internal soft cost savings should be considered and could be realized over time." ★

---

# Global Fiduciary Solutions

## The Power of a Practitioner's Perspective

---

Precise implementation:  
Understanding and addressing  
complex investment challenges is  
our expertise.

---

## 25+ Yrs

Providing outsourced investment  
management service

---

## \$130B+

Assets under management

---

### Professionals

## 100+

Dedicated outsourced investment  
management professionals on  
our team

---

To learn more, visit [ssga.com](https://www.ssga.com)

**Marketing Communication**  
Figures given relate to the SSGA  
Global Fiduciary Solutions team  
as of June 2020.

© 2020 State Street Corporation.  
All Rights Reserved.  
3180855.21.GBL.RTL  
Exp. Date 30/09/2021

## OCIO Reaches a Tipping Point

*continued from page 5*

time it needs, they often turn to OCIO. “For corporate plans, investment isn’t their core business, and particularly if there is turnover in the finance and treasury functions, OCIO can provide continuity as well as depth of expertise,” said State Street’s Kennelly. “The volatility of recent times has made some sponsors see that they need more experience managing through crisis.”

The decision to move to an OCIO model is unique and personalized to the type of organization. “Often it can be about shifting strategic priorities,” Hart said. “When a DB plan is closed and frozen, a corporate sponsor may wish to shift resources to more strategic projects.” Or, she continued, an asset owner may want to explore more niche asset classes – private assets, alternative assets or an environmental, social and governance orientation – for example, where they do not have expertise.

An OCIO approach can help an as-

set owner focus on their core business, manage risk across the organization and provide better investment returns over the long term. Indeed, managing a large asset pool within a nonfinancial business can be challenging.

### Consistency and control

“Managers want less volatility, more predictability,” said PNC’s McGoldrick. “In the healthcare sector, companies are looking at their finances from an enterprise risk-management perspective, so there’s a big focus on risk mitigation.”

“You get an increased degree of consistency and control in the portfolio from a risk standpoint in OCIO,” said Vanguard’s Philips. “All humans are beset by fallibility. Having an OCIO can at the very least prevent you from making poor decisions, particularly in stressful times.”

At Aon, many advisory clients are asking about expanding the scope of their OCIO program, particularly as they have had to reallocate resources to core business or operational functions, Ward said, adding that another contributing factor has been the

realization that perhaps they were not ready or able to manage through the volatility of this year.

But because of all the business turmoil that the pandemic has wrought, higher levels of interest from existing clients hasn’t yet meant new business, Ward said. The volume of requests for proposals “hasn’t slowed much, but the timing of decisions has, as potential clients haven’t been able to do proper due diligence, especially in-person finalist meetings,” he said. For existing clients, however, “making the decision to expand the scope is much easier,” he said.

Philips said OCIO remains largely dominated by smaller organizations with portfolios under \$50 million, but that the growth rate is higher at the larger end of the market, among asset owners with more than \$500 million.

In addition, the OCIO market is expanding beyond corporate pension plans to higher-education organizations, insurance companies and even defined contribution plans, particularly as multi-employer plans become more common, according to Ward. ★

## Power of Relationships

*continued from page 7*

owners fully understand that the fiduciary responsibility remains with them and is not transferred to the OCIO.

“The committee or the main fiduciary organization is always responsible for monitoring the OCIO,” said Aon’s Ward. “The committee can’t outsource its role as a fiduciary. You outsource the day-to-day management and ongoing manager decision-making to a third party, not the overall monitoring responsibilities of achieving results and meeting [the plan’s] commitments.”

“A plan sponsor is not able to absolve themselves entirely from their fiduciary responsibility,” said Liana Magner, U.S. defined contribution and financial wellness leader at Mercer. “When we are acting as a 338 investment manager, we are the fiduciary responsible for investment manager selection, monitoring implementation, and termination and replacement of managers. The plan sponsor is responsible for selecting us as the OCIO provider and monitoring our performance over time.” ★

## Evaluation Conundrum

*continued from page 13*

with performance relative to a benchmark,” Hart said.

“We do see our clients going to market periodically,” said Vanguard’s Philips. “It’s one way to ensure that you are getting not only the best price, but the best service model and investment manager.”

An OCIO is a strategic partner, an extension of staff. “Many aspects of that relationship may not be captured in a quantitative metric – the single performance number that everyone is looking at,” Hart said. “There are also qualitative elements that need to be evaluated.”

Aon’s Ward agreed, pointing out that while performance is a “decent” metric for an OCIO mandate, “you need to go below the surface to understand what performance composite you are measuring against and whether it aligns with the client’s success criteria.”

Ward said he advocates that asset owners set out a range of metrics at the beginning of an OCIO relationship, including

financial and other quantitative metrics, as well as qualitative ones.

“What are the reasonable bands of expectations around these metrics?” he asked, emphasizing that these metrics need to be set at the beginning of the relationship, not after the fact.

### Post-pandemic pickup

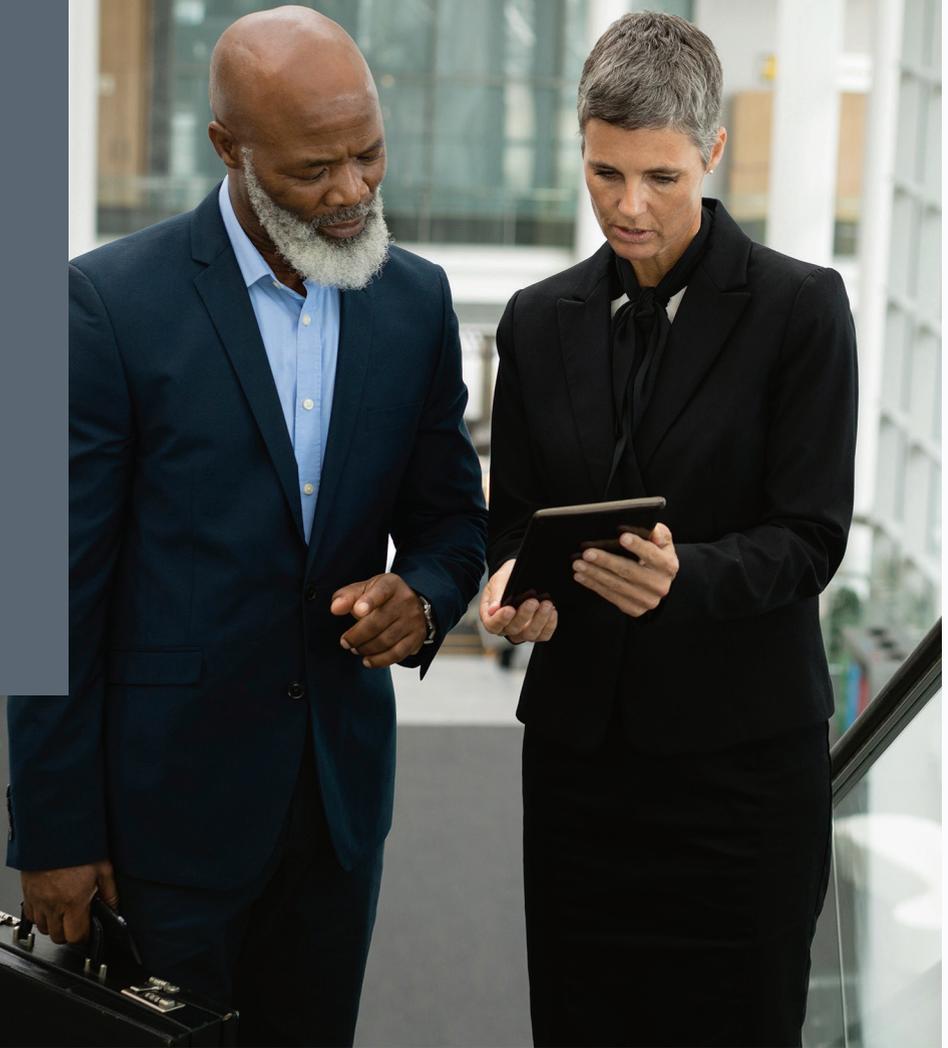
Whatever the metrics, Philips said he expects to see asset owners switching OCIO managers in the wake of the pandemic.

“Firms where performance didn’t hold up during the crisis or the rebound, or those that made tactical moves that didn’t work out, may lose business,” he said.

FIA’s Wetzel agreed. “We do see movement among OCIOs partly driven by changing approaches and fees, but also because of underperformance,” he said, adding that asset owners typically review their OCIO relationship on a timely basis, which allows them to review not just performance, but fees and what other options are available. ★

**WE'RE  
HERE  
TO HELP  
LIGHTEN  
YOUR LOAD.**

---



**OUTSOURCED CHIEF INVESTMENT OFFICER** | At PNC, we know you have a lot on your plate, which is why we provide OCIO solutions that are tailored to your unique needs, delivered by investment professionals with extensive experience working with asset owners like you. With the insight and experience of a large financial institution, our teams can help you turn provocative ideas into game-changing investment solutions — all while providing fiduciary relief. And with our proactive problem-solving and advanced analytical tools, we can help your organization reach its goals and keep it moving forward.

**Make today the day you start the conversation with a PNC representative.**

**Chris McGoldrick, CFA, FSA**

Director, OCIO Solutions

215-585-1244

[chris.mcgoldrick@pnc.com](mailto:chris.mcgoldrick@pnc.com)

The PNC Financial Services Group, Inc. ("PNC") uses the marketing name PNC Institutional Asset Management® for the various discretionary and non-discretionary institutional investment, trustee, custody, consulting and related services provided by PNC Bank, National Association ("PNC Bank"), which is a **Member FDIC**, and investment management activities conducted by PNC Capital Advisors, LLC, an SEC-registered investment adviser and wholly owned subsidiary of PNC Bank.

PNC does not provide legal, tax or accounting advice unless, with respect to tax advice, PNC Bank has entered into a written tax services agreement. PNC Bank is not registered as a municipal advisor under the Dodd-Frank Wall Street Reform and Consumer Protection Act.

"PNC Institutional Asset Management" is a registered mark of The PNC Financial Services Group, Inc.

**Investments: Not FDIC Insured. No Bank Guarantee. May Lose Value.**

©2020 The PNC Financial Services Group, Inc. All rights reserved. INV PNCII PDF 0720-0149-1689605

[pnc.com/iam](http://pnc.com/iam)

 **PNC**  
INSTITUTIONAL  
ASSET MANAGEMENT

# Invest in your mission

When you choose Vanguard, you gain a committed partner that can deliver exceptional value and expertise. Let us help you make the most of your investments, so you can focus on fulfilling your organization's mission.

To learn more, visit  
[vanguard.com/nonprofitsolutions](https://vanguard.com/nonprofitsolutions)

© 2019 The Vanguard Group, Inc. All rights reserved.



**Vanguard**<sup>®</sup>